

## **EMAILS THAT MATTER: CHANGING PATTERNS OF INTERNET USE OVER A YEAR'S TIME**

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### **ABSTRACT** [\(Data Available\)](#)

*The social impact of the Internet has been a topic of ongoing debate, with some arguing that it may contribute to feelings of social isolation and others arguing that the Internet enhances social connectivity. Using a panel of Internet users asked the same questions in 2000 and 2001, this article documents that serious emailing—emails sharing worries with or seeking advice from family and friends—increased sharply over that year. The findings held for both early and late adopters of the Internet, thus changing the norms among all Internet users and making it acceptable to use cyberspace to conduct serious conversations.*

*The findings also suggest an Internet “network effect” as more people go online, in that the overall value of the online medium appears to be increasing. This is evidenced not only by the growth in serious emailing, but in online transactions and by the use of the Internet in the workplace. Finally, the Internet’s novelty effect fades over time, as users report a decline in the frequency of emailing and are less likely to herald the Internet’s socially connective effects.*

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The Internet's role in people's social lives remains a topic of ongoing debate among scholars and the general public. A landmark study by Kraut *et al.* (1998) found that heavy Internet users report higher levels of depression and isolation than non-Internet users. In a similar vein, Nie (2000) worries that time spent online takes people away from everyday face-to-face interactions with family and friends, thereby undermining social life. There are strong crosscurrents in this debate, however. Subsequent research by Kraut *et al.* (2002) was unable to replicate the earlier finding that the Internet had an isolating effect on people.

In contrast, the consistent finding in the body of work produced by the Pew Internet and American Life Project has been that the Internet *enhances* new social connectivity in a variety of environments. The project's first report, *Tracking Life Online* (Rainie, 2000), found that the Internet generally broadens people's social worlds. Those who go online have more robust social lives than nonusers, but even within this context email helps users connect to family and friends—often in ways that would not have happened without the Internet. A majority of Internet users report that email improves connections to family and friends, and a majority says that the Internet has increased the frequency of communication with family and friends.

Other Pew Internet Project reports further point to how the Internet enhances people's social connections. Perhaps not surprisingly, teenagers are among the Internet's most ardent users, with half saying the Internet helps relationships with friends and three-quarters using instant messaging to keep up with friends (Lenhart 2001). At the other end of the age spectrum, senior citizens—a group with a lower Internet penetration rate than other age groups *and* a group with smaller social networks—are as likely as other Internet users to say the Internet improves family connections. Indeed, the average senior Net user is more likely to go online on a given day than other Internet users (Fox 2001). Finally, online communities are an additional boon to people's social worlds. A strong majority (84 %) of Internet users have participated in an online community, with one-fifth contacting their principal online group several times a week and a large number using the Internet to connect more deeply with their local communities (Horrigan 2001).

There is not a great deal of theory to shape expectations as to whether the Internet should isolate or connect people, but historical work on technology adoption suggests hypotheses about how the Internet might shape people's social lives. In his classic study of the telephone, Fischer (1992) found that as Americans embraced the telephone, it became a "technology of sociability" that tended to solidify and deepen existing social relations. In citing work by Steiner (1963), Nie (2001) argues that, like television, the Internet is bound to take people away from the face-to-face interactions that help build a healthy society. Indeed, argues Nie, because the Internet, unlike television, requires the users' undivided attention, the Internet's impact on social relations may be more deleterious than that of TV. Rogers' (1995) classic study on the diffusion of

innovations, while not addressing whether any technology promotes sociability, found that the diffusion of new technology takes place through people's interpersonal networks. That is, people learn about, and subsequently adopt, new technologies on the basis of what they learn from those whom they know and trust—typically people much like themselves.

Borrowing from Fischer, Nie, and Rogers yields three contrasting hypotheses on the Internet's potential impact on social life:

1. Like the telephone, the Internet reinforces and deepens existing social relations and offers a beneficial new way to communicate with family and friends.
2. The Internet, as an inherently attention-greedy device, interferes with meaningful social interaction.
3. In the context of a technology whose diffusion curve has a positive slope, adoption has a strongly social character that, particularly with respect to a networked communication technology, helps to deepen social connections.

One reason the debate about the Internet's social impact has persisted is that different researchers have taken snapshots of Internet users at different times. The Internet was a different place—both in terms of the population online and content—in 1997 than in 2000 or even 2001. Thus its overall impact on users can be expected to be different at different points on the diffusion curve. This paper offers a rare opportunity to look at the *same* set of Internet users' online social behavior at two points in time.

The panel study reported here represents a callback telephone survey in March 2001 of Americans who were first surveyed by the Pew Internet and American Life Project in March 2000. This allows an examination of how the same people's Internet use *evolves* over a year's period of time. Like Pew's Project (2000) report *Tracking Life Online*, which reported results from the March 2000 survey, the March 2001 survey explored the impact of email on people's social connections. Finally, the 2001 study asked a series of questions of perceptions of how the Internet impacted respondents' use of their time.

### **EXPECTATIONS FROM AND PREVIEW OF RESULTS**

Given that the Pew Project's body of work over the past two years has consistently found the Internet to aid social connections, this finding is expected to persist in a longitudinal study that looks at the same users a year apart. In conjunction with growing Internet penetration during this time period, it is expected further that people's relationship to the Internet will change over time. Borrowing on Rogers' (1995) notion about the social character of technology

adoption, people's use of the Internet for social purposes should deepen over time. This is congruent with another finding throughout Pew's studies—namely that people's level of online experience magnifies the Internet's impact in their lives. The number of years a person has been online is, in other words, a strong predictor of the amount of time they spend online, the frequency with which they log on, and the scope and frequency of online activities in which they engage.

To examine the Internet's impact on social connections, a series of questions was asked about people's social connectedness and, most importantly, perceptions of how the Internet affects the frequency and quality of people's communications with family and friends. Some questions ask respondents to assess the Internet's impact on relations with family and friends (e.g., "How much has the Internet improved your connection to family and friends?"). The questions also ask Internet users whether they ever email others about things they are worried about or to seek advice.

Over time it is found that *all* types of Internet users—from the most veteran to new users—experience a sharp increase in sending emails to family and friends with serious content (i.e., seeking advice from others or sharing worries). This occurs in the context of two facts with respect to email's role in frequency of communications with family and improving family connections. First, there has been a decline in the share of Internet users who say that the Internet is a "very useful" tool for communicating with family and those saying that the Internet has improved family connections "a lot." The decline in saying that email helps family connections "a lot" is most pronounced among the Internet's most veteran users (those online for three years or more).

Second, even with these declines, most Internet users maintain a positive perspective on email's utility for keeping up with family and friends. A majority of those who email family and friends say it helps improve connections; and more Internet users in March 2001 said they email family members, with much of the growth since March 2000 coming from emails to extended family members (such as cousins).

Finally, Internet users, irrespective of email's impact on connections to family and friends, remain steadfast fans of email. On the whole, Internet users are as likely in 2001 as in 2000 to say they would miss email "a lot", with more experienced users showing a growth in the degree of their embrace of email over a year's time, with the Internet's newest users being least fervent about email.

One can interpret the cross currents of serious emails in conjunction with the declines in some measures of connectedness as a maturation process for Internet users. With the decrease in those saying the Internet helps family connections being concentrated mainly among the Internet's most experienced users, this suggests that the novelty of the Internet fades in time for users. The Internet has gone from the remarkable to the reliable for online users. As it has become a more reliable element in their lives, Internet users have deepened their use of email. The substantial increases in advice-seeking emails and those

sharing worries indicate that the importance of email in interpersonal communication is on the rise.

These findings also suggest that email is changing communication norms among all users. The increases in emails with serious content among all user classes, from the most experienced to the least, show that it is becoming acceptable to use cyberspace to conduct sensitive conversations. Whereas someone might have picked up the phone a few years ago to deliver sensitive news, increasingly such news is delivered via email.

It is also telling that the adoption patterns among all classes of Internet users are similar over a year's time. Some have claimed that email's connective character is likely to be fleeting; whatever evidence there may be of email's contribution to sociability can be attributed to rich existing social networks of early adopters. Late adopters, with less robust social networks, are not likely to herald email as a boost to social connections (Nie 2001). This research does not support this claim. New Internet users in 2001 are a bit less likely than veterans (by a 26% to 32% margin) to say the Internet helps family connections, but they are more likely (by a 44% to 38% margin) to say that email is useful for communicating with family.

More striking is the pattern among user classes for emails with serious content. As noted, newcomers and veterans are equally likely to send emails sharing worries or seeking advice, demonstrating that email quickly fills an important communication role in people's lives. Added to other findings in Pew's panel study showing that all user classes showed growth in frequency in online transactions and Internet use in the workplace, it seems clear that both early and late adopters benefit over time from the Internet as a tool in social and other spheres (Horrigan 2002).

### **SURVEY METHODOLOGY**

This analysis is based on the findings of two surveys: (1) a daily tracking survey on Americans' use of the Internet conducted in March of 2000, and (2) a callback survey conducted among the same group in March and April 2001. Results are based on data from telephone interviews conducted by Princeton Survey Research Associates with 1,501 respondents who completed interviews in *both* 2000 and 2001. Since the original March 2000 survey had 3,533 respondents, this translates to a 42 percent reinterview rate for the March 2001 survey. Matching the 1,501 people from the March 2001 survey to the previous year, 57 percent said they were Internet users as of March 2001—compared to the 46 percent of them who were Internet users in March 2000. For results based on the total sample, one can say with 95 percent confidence that the error theoretically attributable to sampling is plus or minus 3 percentage points, plus or minus 4 percentage points for results based on Internet users. In addition to sampling error, question wording and practical difficulties in conducting

telephone surveys may introduce further error or bias into the findings of opinion polls.

The original sample used for the March 2000 survey was a random sample of telephone numbers selected from telephone exchanges in the continental United States. The random digit dial (RDD) sample is used to avoid “listing” bias and provides representation of both listed and unlisted numbers (including not-yet-listed numbers). The design of the sample achieves this representation by random generation of the last two digits of telephone numbers selected on the basis of their area code, telephone exchange, and bank number.

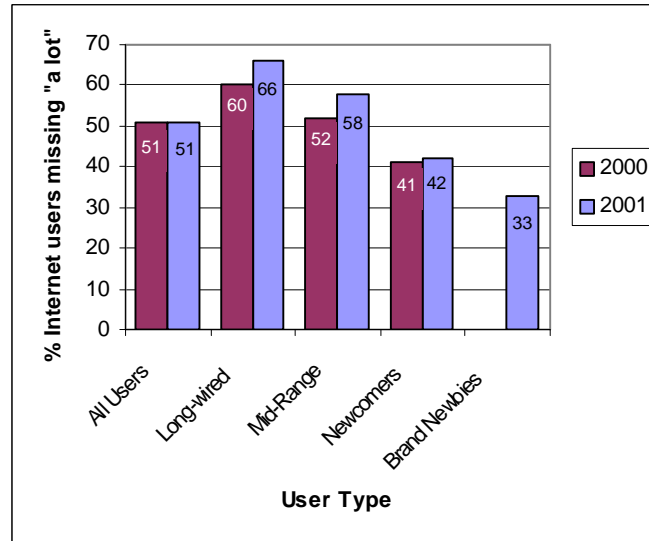
To explore the impact of users’ experience levels more carefully, Internet veterans or the “long wired,” who have been online for more than three years as of March 2000 are compared to “mid-range” users who were online for two to three years, and to “newcomers” who were online for a year or less. In analysis of these three categories below, newcomers in 2000 and newcomers in 2001, one refers to the same respondents—and how their responses compared to what they said in March 2000. Also analyzed are new users in 2001, that is, the people in the March 2000 sample who were not then online, but subsequently gained Internet access. These are the “brand newbies.”

## RESULTS

*Connections to Family and Friends:* Americans’ engagement with the Internet as a way to stay in touch with friends and family remains strong. In March 2000, 79 percent of Internet users said that they email members of their immediate and extended family, a number that grew to 84 percent a year later. The 79 percent of all Internet users who said they email friends in March 2000 is essentially the same as the 80 percent who said they email friends in March 2001.

However, as some people gain experience online, their perceptions of the Internet’s role in personal communication change. Fewer report that emailing is very useful for being in contact with family and friends, and a notable number of email users cut back the frequency with which they email family and friends. At the same time, they show a substantial increase in the use of email for serious communication, such as sharing worries and seeking advice. All this is in the context of people continuing to value email highly: Figure 1 shows that 66 percent of veterans said they would miss email “a lot” in 2001 compared with 60 percent who said that in 2000. Indeed, with all user categories showing a growth in how much they would miss email, one would expect brand newbies to show an increase in the future.

Consistent with the finding that Internet users are less likely to email family members after a year’s time people are less likely to say that they communicate *more* with family members now that they use email. In March 2001, 56 percent of those who email family members said that they communicated more with others in the family now that they have email. This

**FIGURE 1: INTERNET USERS WHO SAY THEY WOULD MISS EMAIL**

number fell to 46 percent in 2001. At the same time, people are somewhat more likely in 2001 to say that email has improved family relationships. In March 2000, 35 percent of Internet users said the Internet had improved family relationships; this number increased to 39 percent in March 2001. Again, this suggests that though frequency of contact may decline, the Internet's positive impact on family relationships does not decline.

*Emailing Friends:* The story is similar, although less pronounced, when people are asked about using email to communicate with friends. In March 2000, 92 percent of those who email friends said email was useful to stay in touch with friends, with 55 percent saying it was "very useful." In March 2001, 90 percent of people who email friends said email was a useful way to connect with friends; 52 percent said it was "very useful." Long-wired Internet users are largely responsible for this decrease, with this class of Internet user being the only one in which a year's time led to a decline in support for the idea that the Internet is a "very useful" way to communicate with friends.

For connections to friends, 69 percent of March 2000's Internet users said the Internet had improved connections to friends "a lot" or "somewhat" compared to 65 percent who said this in March 2001. The share of people saying the Internet improved connections to friends changed very little—from 37 percent in 2000 to 35 percent in 2001. Within categories of users, again it was the veterans who recorded a notable decline in enthusiasm for this proposition. Similarly, respondents were somewhat less likely to say email had increased the

amount of communication with friends, with 61 percent of those who email friends saying in March 2000 that email means they communicate with friends more often—compared to 54 percent saying that a year later.

People's emailing habits have changed in a year's time, with the daily email to family and friends becoming less frequent. Accompanying this decline, however, has been a sharp increase in the use of email for important communications. Many more people in 2001 report that they use email to get advice or share worries with those close to them.

In Table 1, some 12 percent of people who have ever emailed family members sent email to a key family member every day in 2001, down from 21 percent in 2000. Newcomers to the Internet in 2000 had the starkest declines, suggesting a novelty effect wearing off. Similarly, about 13 percent of Internet users emailed a key friend on a daily basis in 2001, down from 17 percent in 2000. The weekly email is the staple for most Internet users, as about 50 percent of email users said they send electronic messages to family and friends once a week.

A closer look at the patterns of family emailing shows a shift from the daily email to the monthly enote; 26 percent said they emailed a family member once a month in March 2001 up from 18% the year before. Half reported emailing a family member once a week in March 2000 and March 2001. The same patterns were evident for those who email friends.

Looking at user categories in Table 1, the relatively new users report the sharpest declines in daily emailing to family members, with most of that emailing apparently shifting to monthly missives. Even with these changes, throughout all experience levels, about half of Internet users seem content emailing a friend or family member about once a week.

Notwithstanding the decline in emailing, Internet users have deepened their email contacts with others in several ways. An extra year of online experience seems to make Internet users more comfortable with using email to pursue difficult issues with family and friends. Table 2 shows that in March 2000, 37 percent of Internet users who email family members said they sometimes raise issues that they worry about or are upset about in emails to family. That number increased to 44 percent in 2001. In absolute numbers, 25 million Americans had emailed family members about worries in March 2000, but this number jumped by 60 percent to 40 million in March 2001.

The pattern of more serious email appears more pronounced when respondents were asked about seeking advice from family members. In Table 3, 45 percent of March 2000 respondents who email family members say they do so to get advice; one year later, 56 percent said they had emailed a family member seeking advice. In absolute numbers, 30 million Americans had emailed family members about worries in March 2000, but this number jumped by 70 percent to 51 million in March 2001.

For friends, the story is much the same. By March 2001, an estimated 41 million Internet users had emailed friends to share worries, up from 26 million a

**TABLE 1: EMAILING FAMILY MEMBERS BY USER TYPE**  
(ASKED OF THOSE WHO EMAIL FAMILY MEMBERS)

<b>How often do you email family members?</b>	<b>Every day</b>	<b>Once a week</b>	<b>Once a month</b>
All Users 2001	12%	50%	26%
All Users 2000	21	51	18
Long-wired in 2001	14	51	23
Long-wired in 2000	16	60	17
Mid-range 2001	12	47	31
Mid-range 2000	25	42	21
Newcomers in 2001	11	52	24
Newcomers in 2000	23	51	17

**Long-wired:** online > 3 years; **mid-range:** online 2–3 years; **newcomers:** online between 3/00 and 3/01.  
*Source: Pew Internet & American Life Project March 2001 Survey, Internet users, n=862 for March 2001, n=723 for March 2000. Margin of error is ±4%*

**TABLE 2: SEEKING ADVICE FROM FAMILY**  
(ASKED OF THOSE WHO EMAIL FAMILY MEMBERS)

	<b>Do you email a family member for advice?</b>	<b>Do you email a family member about something you are worried about?</b>
	<b>Yes</b>	<b>Yes</b>
All Users 2001	56%	44%
All Users 2000	45	37
Long-wired in 2001	60	46
Long-wired in 2000	49	41
Mid-range 2001	51	45
Mid-range 2000	42	37
Newcomers in 2001	58	45
Newcomers in 2000	45	33
Brand Newbies	55	41

**Long-wired:** online > 3 years; **mid-range:** online 2–3 years; **newcomers:** online 1 year in 2000; **brand newbies:** came online between 3/00 and 3/01.  
*Source: Pew Internet & American Life Project March 2001 Survey, Internet users, n=862 for March 2001, n=723 for March 2000. Margin of error is ±4%*

**TABLE 3: TABLE 3. SEEKING ADVICE FROM FRIENDS  
(ASKED OF THOSE WHO EMAIL FRIENDS)**

	<b>Do you email a friend for advice?</b>	<b>Do you email a friend about something you are worried about?</b>
	<b>Yes</b>	<b>Yes</b>
All Users 2001	56%	47%
All Users 2000	48	39
Long-wired in 2001	50	43
Long-wired in 2000	51	39
Mid-range 2001	60	55
Mid-range 2000	43	41
Newcomers in 2001	59	47
Newcomers in 2000	51	37
Brand Newbies	53	41
<b>Long-wired:</b> online > 3 years; <b>mid-range:</b> online 2–3 years; <b>newcomers:</b> online 1 year in 2000; <b>brand newbies:</b> came online between 3/00 and 3/01.		
<i>Source: Pew Internet &amp; American Life Project March 2001 Survey, Internet users, n=862 for March 2001, n=723 for March 2000. Margin of error is ±4%</i>		

year earlier. Advice seeking among friends has gone up as well, from 32 million in March 2000 to 49 million in March 2001. The largest increase in this activity is from medium users, who are the most likely in any user class to have emailed friends for advice or to share worries.

Internet users who had come online in the last year and March 2000's newcomers seem particularly ardent about using the Internet to seek advice or raising worries with friends and family members. Online experience usually means a user is more likely to use the Internet for any activity. This general pattern does not hold for the increases in emails seeking advice or about worries. A better explanation is that a network effect is at work. As more and more people go online, there is increased incentive to use email for all kinds of communications. Experience doesn't explain the growth in the seriousness of email as much as the fact that people rely on email to perform all kinds of important communications, regardless of their experience level online.

*Women are Still the Fervent Family Emailers:* In the May 2000 *Tracking Life Online* report, women were the Internet's most enthusiastic emailers, and this finding holds up in looking at changes over the March 2000 to March 2001 timeframe. Women are much more likely to be daily emailers than men in 2001 (by a 19% to 5% margin). Similarly, women are more likely than men to find email a very useful way to keep in touch with family members. Four in nine

(45%) women who email family members said this in 2001 compared with 30% of men. In March 2000, the numbers were 58% for women and 41% for men. Over time, men and women both report a decline in their feeling that email helps them connect with family and friends.

*The “Clicking Cousins” Effect and Extended Networks:* An extra year of online experience seems to bring people more in contact with their cousins—an online “clicking cousins” effect. As already noted, 84 percent of the March 2001 sample said they had emailed family members, up from 79 percent in March 2000. This suggests that many of the March 2000 respondents who had come online in the previous year had emailed family members. This increase is due in part to growth in emailing to extended family members.

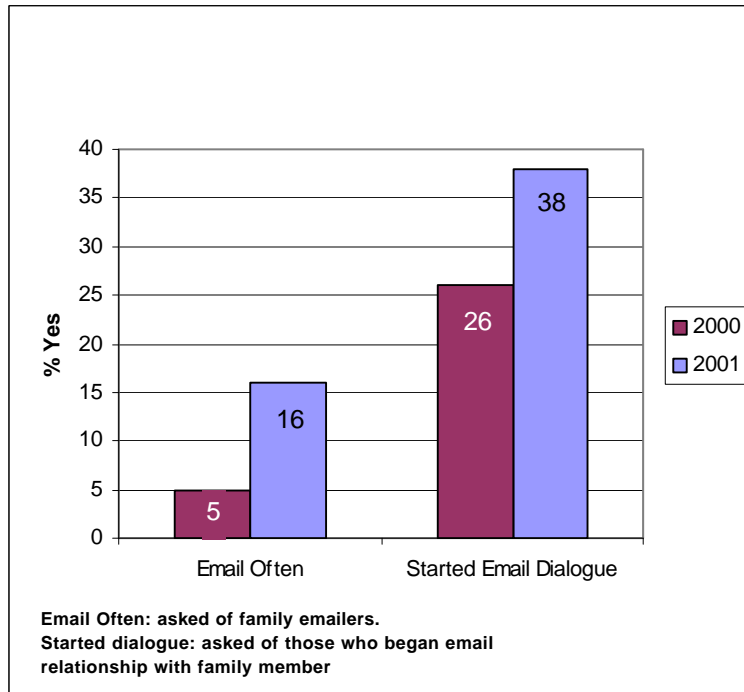
When Internet users who email family members were asked in March 2000 about family members they email frequently, Figure 2 shows that 5 percent identified a cousin as that person. This number then rose to 16 percent in March 2001. The “clicking cousins” effect persists when people were asked if they had started communicating via the Internet with a family member with whom they had not been in close touch. For those who answered “yes” to this question (29% in 2001 and 32% in 2000), nearly 4 in 10 (38%) of 2001 respondents identified a cousin as the family member with whom they began an e-dialogue. This is an increase from 26 percent who identified a cousin on March 2000.

The “clicking cousins” phenomenon indicates that online experience helps extend family networks. The quick “hello” email seems to be a great way to renew family ties that have withered. Indeed, about one quarter (27%) of Internet users in 2001 said they had used the Internet to track down a friend or family member with whom they had lost touch. Some 29 percent of 2001 email users say they now use email to communicate regularly with a family member they had not kept up with before. The renewal of family ties via email persists over time, as evidenced by the clicking cousins’ effect, which is giving electronic life to the extended family.

*The Internet and Social Time Use:* As people continue to use the Internet to maintain connections with family and friends, and as the Internet takes on a more prominent role in the workplace, it is sensible to ask two questions about time use. One is whether across time people are spending more or less time online, the other with the Internet’s overall impact on how people spend their time. Do people say that the Internet changes the amount of time they spend with family and friends?

With respect to the amount of time people spend on the Internet, people who said they went online on the day before the interview estimated how much time they spent emailing or surfing the web. In March 2000, the average Internet user estimated they spent about 90 minutes online during a typical session “yesterday.” When asked the same question in 2001, the same set of

**FIGURE 2: THE GROWTH IN CONTACT AMONG COUSINS**



users reported a modest decrease of about 7 minutes in the amount of time they spent online during that typical session. The most experienced users reported the largest absolute drop in minutes per day, though the long wired remain the most intensive users of the Internet on a daily basis.

*Internet Use and Perceived Social Time Displacement:* The Internet’s impact on time spent with family and friends is modest. As Table 4 shows, the vast majority of Internet users report that the Internet has had no impact on the time they spend with family, friends, or attending social events. For a few Internet users, the Internet seems to draw them out to social events or to activities with friends. The 83 minutes per day that users spend online seem to come out of mass media activities and shopping in stores. One-quarter (25%) of all Internet users say the Internet reduces the time spent watching television, one in seven (14%) say they spend less time reading newspapers because of the Internet, and about one in five (18%) say the Internet lessens the time they spend shopping in stores.

**TABLE 4: THE INTERNET AND PERCEIVED TIME USE (OF ALL INTERNET USERS)**

<b>Has the Internet increased, decreased, or had no change on the amount of time you spend...</b>	<b>Increased</b>	<b>Decreased</b>	<b>No change</b>
<b>...with family</b>	6	6	88
<b>...with friends</b>	8	2	90
<b>...attending social events</b>	5	2	93
<i>Source: Pew Internet and American Life project March 2001 Survey, Internet users, n=862 for March 2001. Margin of error is ±4%</i>			

## DISCUSSION

Consistent evidence in the above analyses shows that as people gain online experience, they connect with their immediate circle of friends and family on a deeper level. There is, for example, a substantial spike in the number of emailers who say they send emails to others seeking advice or sharing worries. This is consistent with Rogers' (1995) notion that people's interpersonal networks play a prominent role in technology adoption. As people's social networks migrate to cyberspace, it becomes acceptable to communicate about serious matters using email. This is consistent with prior Pew Internet studies that find that the Internet plays a positive role in connecting people and is, to echo Fischer (1992), a technology of sociability.

There is also evidence that the Internet's novelty effect seems to wear off with online experience; people are now less likely to say that email helps connections with family and friends "a lot." This is true for veteran Internet users and newcomers alike, although it is equally true for newcomers and veterans that an extra year of Internet experiences increases the frequency of emailing others for advice or to share worries.

Respondents also estimated that time they spent exploiting the Internet's social and efficiency benefits does not come at the expense of spending time with family, friends, or attending social events, while Internet users report a substantial drop in time with the media. More than 90 percent of Internet users say the Internet has either increased or had no change in the amount of time they spend with others or attending social events. The Pew Internet research, in other words, offers no support for the proposition advanced by Nie (2001) that the Internet takes away from face-to-face interaction. Rather, the evidence points to the Internet as a medium that reduces friction in a variety of communication environments—thereby enhancing the ease and quality of interpersonal connections. It is not surprising, then, that as people become more comfortable with the Internet over time, they begin to trust it with messages containing serious content.

Another important finding in this analysis is the similarity between newcomers and the long wired in how they embrace the Internet. Although newcomers and the long wired generally report different frequency levels in emailing family, the long wired and newcomers tend to behave similarly over a

year's time. This is important because the claim has been made that late Internet adopters would differ from early ones when it comes to the Internet's socially connective impacts (Nie 2001). Indeed, people who are Internet users are more likely to have many people to turn to in their lives (50% of online users say this versus 37% of those not online), and those who came online in 2001 are less likely to say this than the long-wired (46% versus 50%).

Moreover, the early Internet adopters are generally more likely to say that the Internet is useful for communicating with family (although "brand newbies" in 2001 say this more often than the long wired) and that it has helped improve family connections. However, for other measures of email's social impact, such as serious emails and advice seeking, newcomers and the long wired are equally likely to send such emails and are equally likely to have done this more in the past year.

However, more important than the level of email's impact on connectedness is the pattern of changes between 2000 and 2001. The long wired and newcomers both report approximately the same decline saying email is useful for communicating with family; and long timers were the only user category to register a decline in saying the Internet has improved connections to family. In conjunction with across the board increases in serious emailing, these findings do not support the notion that the Internet's connective aspects are an evanescent phenomenon for early adopters only. Rather, the evidence points to a deepening of the Internet's impact in people's lives, whether that means emailing others to seek advice or conducting more online transactions.

Put differently, the large increase in serious emailing suggests the Internet's network effect has taken hold over the course of a year. With more people going online, it becomes more socially acceptable to deliver serious news using email. In sum, the evidence is that people's social networks are migrating to cyberspace, with Internet users sending the clear message about the benefits. By virtue of the growth in serious email content, online users view cyberspace as a comfortable place in which to engage in sensitive communications.

The migration of social networks to the online world suggests further support in the data for "Metcalf's Law"—the proposition that the value of a network expands disproportionately with the number of people on the network. In a study that finds online penetration growing from 46 percent to 57 percent in a year's time, online experience is associated with a growth in serious emails. A more extensive report on the data (Horrigan 2002) further shows an expansion in the scope of online activities and a sharp increase in online transactions and Internet use in the workplace.

In other words, a growth in the size of the network, along with higher skill levels among users that experience brings, has sparked an increase in the network's value to users—as shown in the growth of emails with serious content, online transactions, and workplace Internet use.

## CONCLUSIONS

A good deal of the debate about the Internet's social impact has to do with what the Internet is like. Is it more like the telephone or is it more like television? Is it the town square or the town mall? Rather than trying to answer those questions, the panel survey data in this paper suggests that it is fruitful to view the Internet as a problem in technology adoption for users. As people adjust to the Internet over a year's time, what happens to their surfing patterns in the technology adoption process?

This research indicates that with time—and as more people go online—important kinds of communication take place in cyberspace. As people's social networks migrate to the Internet, the growth in emails sharing worries or seeking advice shows that there is clearly a strong social dimension to people's evolving online experiences. All of this supports the third hypothesis mentioned at the outset—that the social nature of technology adoption is an aid to *deepening* social connections.

None of this is to say that the Internet *causes* people to have deeper or more meaningful relationships with family and friends. What this research does show is that for all Internet users—early adopters or latecomers—the Internet is a valuable tool for communicating about important matters. As more people go online and as those who are online gain experience and comfort with the Internet, users are more likely to email family and friends about important things.

The Internet, then, seems to be changing the *norms* of communication. It has become more acceptable to send an email to deliver important news rather than pick up the telephone. In the hands of users, the Internet has revealed itself to be a technology of sociability, as people turn to it to seek advice from or share worries with people close to them.

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