The Impact of the Internet on Teenagers' Face-to-Face Communication

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Abstract

This study investigated the relationship between teenagers' Internet use and their interpersonal communication behavior – most of all, whether Internet use was associated with the teens' loss of desire for face-to-face communication with family and friends. Also examined was whether any loss of desire for face-to-face communication with family and friends was linked to certain motives for going online. The findings of this study were based on statistical analyses of 405 valid returns of self-administered questionnaires from 657 students of Carbondale Community High School in Carbondale, Illinois, who were selected through a purposive sampling. The results showed that Internet use was significantly correlated with decreases in face-to-face communication with family (r = - .137, p < .01) and with decreases in desire for face-to-face communication with family (r = - .120, p = .01). Most significantly, this study found that Internet use displaces not only the time the teens spent with family, but also their desire for spending time with family.

Introduction

No field of human life has been more affected by the Internet than the way people communicate with others, as Fulk and Ryu (1990) and Williams and Rice (1983) predicted. Chesebro and Bonsall (1989) even argued that the Internet "is altering how, if, and when people talk to each other in all social systems and even in the privacy of the American home" (p. 7). The Internet is fundamentally changing human communication.

Such a tremendous impact of the Internet on human communication raises a legitimate question: Is the Internet displacing or supplanting face-to-face communication, particularly among family members and friends? Considering the importance of face-to-face interaction in social life, the question should have been extensively examined, but surprisingly few studies have been done. None of the studies has gone further than scratching the surface. Only a few scholars, such as Nie and Erbring (2000), have gone beyond the usual new media vs. traditional media displacement study to explore the relationship between Internet use and interpersonal communication with family members.

Significantly, the findings of the previous studies are mixed at best. For example, Nie and Erbring (2000) and Kraut et al. (1998) found that the more people used the Internet, the lonelier they felt and the less they engaged in interpersonal communication, even with their family members. The finding was consistent with the findings of McKenna and Bargh (2000), and McKenna, Green, and Gleason (2002). Not surprisingly, other studies found the positive impact of the Internet on social interaction with family and friends (e.g., Kraut et al., 2002; Lee & Kuo, 2002; Robinson, Barth, & Kohut, 1997) and on community and political involvement (e.g., Katz, Rice, & Aspden, 2001). Notably, the studies suggesting negative impact of Internet use on people outnumber those that reported beneficial influences of Internet use.

Despite such a tremendous role of the Internet in human communication, no serious attempt has yet been made to answer the more basic question: Does Internet use decrease people's interest in face-to-face communication with others, including family members and friends? If Internet use is associated with

decreased desire for face-to-face communication, even with family members and close friends, Internet users may be losing some of the most important aspects of their life: family relationships and friendships. But if people have less face-to-face communication with their family members only as a result of using the Internet at home for work, without losing their desire for communication with others, this might be a less serious problem.

A more alarming possibility is that youths avoid spending time with their parents and instead prefer to surf the Internet. If youths prefer to send an e-mail to their next-door neighbor instead of meeting with their neighbors face-to-face, a serious problem might exist. The Internet could be destroying the basic fabric of human society, or family and community relationships. Some studies showed that such a concern is not unfounded. For example, CyberAtlas (2002) reported that 56% of youths aged 18-19 polled preferred online communication to phone conversations. This is why this study chose to investigate youths, or more specifically high school students. Studies found that youths of high school age used the Internet more than any other age group (UCLA Center for Communication Policy, 2003). In addition, empirical evidence shows that the quality of communication between children and parents significantly affects family relationships (e.g., Fitzpatrick & Vangelisti, 1995; Maccoby & Martin, 1983; Socha & Stamp, 1995). Most significantly, studies (e.g., Nie & Erbring, 2000; Pew Internet & American Life Project, 2000a) found that Internet use was negatively linked with its users' spending time with family and friends.

The heart of this study seeks to answer the question: Is Internet use linked to a possible decrease in teenagers' desire for face-to-face communication with others, especially family members and friends? Considering the rapid growth of Internet use and its tremendous impact on daily lives, the importance of a study on the topic is clear.

How can these questions be explored from the theoretical point of view? This study is based on the time-displacement theory. In brief, time-displacement theory states that people have the same amount of time to spend, and thus, if they start a new activity, they will have to decrease other activities. A reasonable

extension of this theory may be that if people begin using the Internet, they will have to reduce other activities, which may include face-to-face social interaction with family.

Theoretical Background

The time-displacement hypothesis posits that if people begin a new activity, they will have to reduce their time spent with other activities. The key assumption of the concept is that human activities have a zero-sum property – that is, people cannot begin a new activity without decreasing time devoted to prior activities because everyone has only 24 hours a day to spend. When the hypothesis is applied to Internet use, people starting to use the Internet will have to decrease time devoted to other activities. Though the hypothesis seems self-evident, the concept has long served as a theoretical basis for dozens of studies that examined how each new media technology affected people's use of traditional media (e.g., Coffin, 1948; Belson, 1961; Nie & Erbring, 2000).

Studies on the Internet's the time-displacement theory are plentiful, lending strong credence to the concept's validity. In one of the earliest studies to extend the hypothesis to the Internet, some studies (e.g., Kohut, 1996; Active Media Research, 1998; Kaye, 1998) found that the more people spent time online, the less they watched television. These early studies' findings on the Internet's displacement of television viewing were almost consistently supported by later studies (e.g., Nie & Erbring, 2000; UCLA Center for Communication Policy, 2000, 2001, 2003; Scarborough Research, 2001).

But the findings of the studies on the Internet's displacement of interpersonal communication was less consistent. Some studies like Nie and Erbring (2000) and National Public Radio et al. (2000) found that the more hours people logged on the Internet, the less they talked with their family members and friends. But other studies found that Internet use had little effect on the amount of time that users spent with family and friends (UCLA Center for Communication Policy, 2000), beneficial effect on interaction with family members (Lee & Kuo, 2002; UCLA Center for Communication Policy, 2003), and positive impact on overall social interaction (McKenna & Bargh, 2000; Katz, Rice & Aspden,2001;

McKenna, Green & Gleason, 2002; Pruijt, 2002). Most notably, in a reversal of their 1998 findings, Kraut et al. (2002) found that the Internet had a generally positive effect on its users.

Little consensus has been reached on whether Internet use has a negative or positive impact on interpersonal communication. But this invites a question: But if people spend up to 10 hours a week using the Internet (e.g., UCLA Center for Communication Policy, 2000), how could they find the time without reducing other activities? As the zero-sum property of time-displacement theory suggests, people have a limited amount of time to spend each day. For most modern people who already have a tight daily schedule, the first things to be displaced by Internet use may include the time spent with family members. Even if people are expanding their social connectivity through Internet use as many previous studies showed, it seems reasonable to suggest that they could do so only at the expense of face-to-face communication activities including social interaction with family. This study is designed to answer the question.

Research Hypotheses

On the basis of the literature review, this study attempts to answer certain research questions and the test hypotheses.

Research Question One

What is the relationship between Internet use and the teenage Internet users' face-to-face communication?

Hypothesis 1A: The more teenagers use the Internet, the less face-to-face communication they have with their immediate family members.

Hypothesis 1B: The more teenagers use the Internet, the less face-to-face communication they have with their friends.

Research Question Two

What is the relationship between Internet use and the Internet users' desire for face-to-face communication? This question represents the heart of this study.

Hypothesis 2A: The more teenagers use the Internet, the less desire they have for face- to-face communication with their family members.

Hypothesis 2B: The more teenagers use the Internet, the less desire they have for face-to-face communication with their friends.

Method

This study surveyed 405 conveniently-sampled students of the Carbondale Community High School in Carbondale, Illinois. The survey was self-administered mostly over the weekend at the respondents' home. The teenagers' desire for face-to-face communication with family and friends was measured by their self-assessment because no scale to measure the concept exists.

Carbondale Community High School was selected for several reasons including researcher ease and expense. The most significant reason is that the city of Carbondale is an average American small city. The city of Carbondale is located 96 miles southeast of St. Louis, and has a population of about 27,000. Carbondale Community High School had 1,006 students as of January 2003.

The second most significant reason for surveying high school students is that most of the high school students live with their parents, and thus have a natural opportunity to have face-to-face communication with their family. Because investigating face-to-face communication with family and desire for face-to-face interaction with family are at the heart of this study, living with family is the most important requirement of the sample. Another reason for surveying the high school students is that Internet use was the highest among the high school-age youths of all age groups (UCLA Center for Communication Policy, 2003). Younger people were not chosen for this study because many parents impose restrictions on their children's use of the Internet to keep them from being exposed to undesirable online content.

Administration of Survey

The questionnaires for this study were distributed to 800 students of Carbondale Community High School through its classroom teachers at the beginning of classes October 13-24, 2003. The teachers gave their students oral

instructions about how to respond to the survey as well as an offer of reward. The students were told to bring the questionnaire to their home, to obtain permission from their parents to participate in the survey, to take sufficient time to respond to the questionnaire over the weekend, and to return it to their teacher at the beginning of the next week.

Results

Of the 800 questionnaires handed out, 657 questionnaires (82.1%) were retrieved. Of the questionnaires returned, 252 had to be discarded because they were incomplete or failed to pass face-value validity checks. The researcher examined whether there was a response set or whether those who answered gave unusually high responses to communication variables.

Descriptive Data

Age and gender. Because the survey was administered to high school students, all of the respondents were teenagers from 14 to 18 with more than three-quarters of them between age 15 and 17. This study purposively sampled local high school students to control for extraneous variables, such as age and education. The respondents consisted of 197 males and 203 females. Five declined to answer the gender question.

Ethnic background. Respondents were ethnically diverse. Caucasians accounted for 57.3% of the respondents, followed by African-Americans (25.2%), Hispanics (4.7%), and Asians (4.4%). Meanwhile, 6.7% classified themselves as “others.” The ethnic composition of the respondents closely matched that of Carbondale. The population of the city consisted of 64.7% Caucasians, 23.1% African-Americans, 4.8% Asians, and 3% Hispanics (“City of Carbondale,” 2004).

Concerning availability of Internet at home, 83.7% of the respondents reported that they had Internet access at home. Of the 66 without Internet access at home, 51.6% were African-American, compared to 36.4% Caucasians (whites). This statistic supports the findings by the National Telecommunications & Information Administration (NTIA) (1999) and the Pew Internet & American Life Project (2004a) that the digital divide, or the gap among people of different income levels and different racial groups in access to the Internet, remains. The

NTIA study found that African-Americans and Hispanics trailed Caucasians in terms of ownership of personal computers and online access.

Of the 66 respondents without online access at home, 33.3% reported family income of $20,000 or less, 36.4% between $20,001 and $40,000, 16.7% between $40,001 and $60,000, and 6.1% between $60,001 and $80,000. In contrast, only two of the respondents who reported having a family income of more than $80,000 had no Internet access at home.

Daily Internet use. The respondents spent an average of 89.4 minutes (1.5 hours) online per day (M = 89.4 minutes, Median = 60.0 minutes, Mode = 0, SD = 85.1). The amount of time spent online ranged from the low of zero minutes reported by 83 respondents to a high of 360 minutes (6 hours) by four respondents.

For face-to-face communication with family, 25% of respondents replied that Internet use decreased their desire, as opposed to only 10.2% who replied the opposite. But nearly two-thirds of respondents said that Internet use did not change their desire for face-to-face communication with family.

Testing Research Hypotheses

Research Question 1

Research Question 1 examined the relationship between Internet use and the teenage Internet users' face-to-face communication.

Hypothesis 1A. Hypothesis 1A predicted that the more teenagers used the Internet, the less face-to-face communication they had with their immediate family members. Pearson's correlation was used to test this and other hypotheses.

Table 1

Partial Correlations between Daily Internet Use and Face-to-Face Communication with Family

Extraneous Variables	Face-to-Face Communication with Family

Controlled		(N = 405)
Gender	Daily Internet Use	- 0.122**
Ethnic background	Daily Internet Use	- 0.141 **
Family income	Daily Internet Use	- 0.132 **
All of the three	Daily Internet Use	- 0.127**

Note. **p < .01, one-tailed.

Hypothesis 1A was supported. Internet use was found to have a significant negative correlation with face-to-face communication with family (r = -.137, p < .01). In other words, the more respondents logged onto the Internet, the less time they spent with family, or vice-versa.

When possible extraneous variables, such as gender, ethnic background, and family income, were controlled for, the correlation between Internet use and face-to-face communication with family was still significant (r = - .127, p <. 01). Partial correlation was used to control potential extraneous variables.

Hypothesis 1B. Hypothesis 1B stated that the more teenagers use the Internet, the less face-to-face communication they had with their friends. Hypothesis 1B was not supported as no significant correlation (r = - .032, p > .05) was found between the amount of time spent online and the amount of time spent on face-to-face communication with friends.

Research Question 2

What is the relationship between Internet use and the Internet users' desire for face-to-face communication? This question represents the heart of this study.

Hypothesis 2A. Hypothesis 2A stated that the more teenagers used the Internet, the less desire they had for face- to-face communication with their family members. Hypothesis 2A was supported (r = - .120, p < .01). The results showed that there is a statistically significant relation between Internet use and decreases in desire for face-to-face communication with family.

When gender, ethnic background, and family income were controlled for, respectively, a significant negative correlation still existed between daily Internet use and desire for face-to-face communication with family. When gender, ethnic background, and family income were controlled altogether, the correlation coefficient was still significant (r = - .118, p < .05).

Twenty-five percent of respondents reported decreases in desire for face-to-face communication with family, as opposed to just about 10% who reported increases. The decrease-to-increase ratio is much bigger in heavy Internet users (who used the Internet more than 89.4 minutes a day, which is the mean of total respondents' daily Internet use time). About 33% of heavy users reported increases, as opposed to only about 9% who reported decreases. The decrease-to-increase ratio in light users was 20% to 11%.

Table 2

Partial Correlations between Daily Internet Use and Desire for Face-to-Face Communication with Family

Extraneous Variables Controlled		Desire for Face-to-Face Communication with Family (N = 405)
Gender	Daily Internet Use	- 0.119**

Ethnic background	Daily Internet Use	- 0.111**
Family income	Daily Internet Use	- 0.135 **
All of the three	Daily Internet Use	- 0.118*

Note. *p < .05, one-tailed. **p < .01, one-tailed.

Hypothesis 2B. Hypothesis 2B stated that the more teenagers used the Internet, the less desire they had for face-to-face communication with their friends. Hypothesis 2B was not supported (r = -. 021, p > .05). Controlling for gender, ethnic background, and family income did not make much of a difference even though it turned the correlation from negative to positive. Pearson's correlation coefficient still stood at .019 (p > .05). This finding means that Internet use does not have a significant bearing upon desire for face-to-face communication with friends.

Discussion and Conclusions

To most respondents, the Internet is no longer a new technology. Nearly four in five respondents had used the Internet for at least three years at the time of the study. About 40% of the teenagers reported using the Internet for five years or longer, whereas only five respondents had less than one year of experience with the Internet. Significantly, all of the teenagers surveyed reported using the Internet. The 100% adoption rate is close to the finding of UCLA Center for Communication Policy, 2003). The UCLA study found that 97% of respondents 16 to 18 in age were Internet users in 2002. Expectedly, the results confirmed the existence of a significant disparity among four ethnic groups in Internet access at home, F (3,343) = 10.7, p < .01) and in length of Internet experience, F (4, 343) = 2.93, p < .05. Ninety percent of white (Caucasian) students had Internet access at home, compared to 67% for African-Americans,

and 79% for Hispanics. Notably, all 18 Asians surveyed reported having Internet access at home The results also showed that the higher family income the teenagers had, the more likely they had Internet access at home, $F(4, 342) = 15.6$, $p < .01$).

The results of this study supported the findings of previous studies (e.g., Fairlie, 2002) on the so-called digital divide in Internet access. The Fairlie study reported that African-Americans and Hispanics trailed white Caucasians in access to the Internet at home, and Hispanics used the Internet the least among all major ethnic groups.

On face-to-face communication with family, daily Internet use was the only negative significant predictor ($\beta = -.107$, $p < .05$). The finding suggests that the more time the teenagers spent online, the less time they spent with their family. Neither Internet experience nor family income had a significant impact on the teenagers' face-to-face communication with family.

Discussions of Testing Research Hypotheses

This study found that Internet use was significantly linked to decreases in face-to-face communication with family as hypothesized (Hypothesis 1A), but was not significantly related to amount of face-to-face communication with friends as hypothesized (Hypothesis 1B).

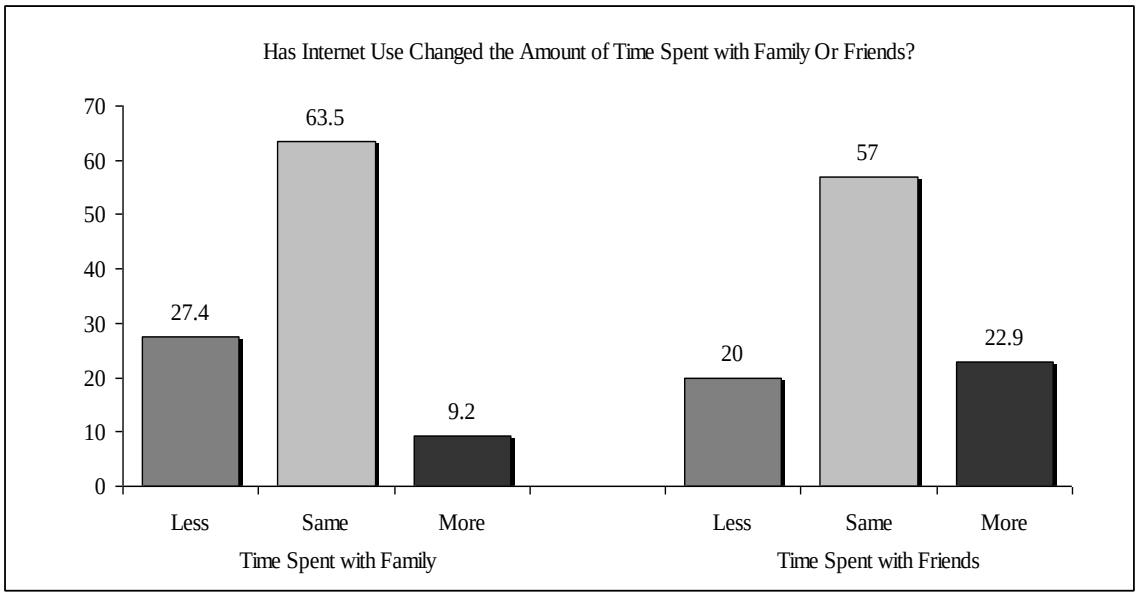

Figure 1. Findings of this study about impact of Internet on time spent with family and friends

The results supported the finding of some earlier studies (e.g., Kraut et al., 1998; National Public Radio et al. 2000; Nie & Erbring, 2000) that the more people use the Internet, the less time they spend time with family. At the same time, the results contradicted the findings of the UCLA Center for Communication Policy (2003) that the Internet had no significant impact on the amount of time the users spent with family.

Interestingly, Caucasian boys were most likely to use the Internet at the sacrifice of the time spent with family (r = - . 214, p < .01), whereas African-American girls were least likely to give up time spent with family to go online (r = - . 078, p > .05). The girls spent more time with family than boys by 183 minutes to 152 minutes. The mean was 167 minutes.

By ethnic background, African-Americans had significantly more face-to-face communication with family. African-Americans reported spending an average of 191 minutes on face-to-face communication with family, compared to 158 minutes for Caucasians, 152 minutes for Hispanics, and 120 minutes for Asians. As expected, the heavy Internet users were more likely (r = - .128, p < .05) to sacrifice their time spent with family to use the Internet than the light users

(r = - .035, p > .05). Girls also spent more time with friends than did boys, and African-Americans spent more time with friends than other ethnic groups. Girls reported spending an average of 141 minutes with friends, compared with 134 minutes for boys, and African-Americans reported having an average of 168 minutes of face-to-face communication with friends, compared to 134 minutes for Caucasians, 116 minutes for Asians, and 84 minutes for Hispanics.

In sum, the findings of this study, at best, only partly support the time-displacement theory, the key theoretical background of this study, that posited that if people start a new activity, they will have to quit or reduce some of their old activities. Consistent with the time-displacement theory, the respondents in this study were spending time online at the sacrifice of time with their family

Internet Use and Desire for Face-to-Face communication

The Internet has cut into not only the actual amount of time spent on face-to-face communication with family, but also desire for face-to-face communication with family as hypothesized (Hypothesis 2A). This study found a significant negative correlation

(r = - .120, p < .01) between the amount of time spent online and desire for face-to-face communication with family. In other words, the more people used the Internet, the less desire they had for face-to-face communication with family.

The decrease in desire among the teenagers for face-to-face communication did not mean a corresponding decrease in the actual amount of time they spent with their family. The results showed that the teenagers' desire for face-to-face communication with family members was not significantly associated (r = .049, p > .05) with the actual amount of time they reported spending with their family. It may be speculated that the teenagers may have to spend time with their family regardless of their desire for spending time with them because they still are dependent on their family, more specifically their parents, for financial and other needs.

While daily Internet use was found to have a significant impact on the teenagers' desire for face-to-face communication with family, it was not found to have a significant impact upon desire for face-to-face communication with friends

(r = -.021, p > .05). These results were consistent with the earlier finding of this study that Internet use did not have any significant impact on the amount of face-to-face communication with friends.

In conclusion, teenagers were going online at the risk of losing not only the time that they spent with family, but also desire for social interaction with family. This shows that use of the Internet was displacing not only the time they spend with their family, but also their desire for having social interaction with family.

Limitations of This Study

The greatest limitation of this study involves the inadequate sampling method which is inherent in many survey studies. Because the sample was not randomly selected, the outcome of this study can not be generalized to other demographic groups. While the use of non-random sampling may present a limitation, it may also become a strength.

This study sampled students of a local high school with a primary purpose of controlling extraneous variables, such as age, education, and Internet access at school. In fact, some previous studies (e.g., Kraut et al., 1998) found that these demographic factors were extraneous variables in this type of Internet study.

Another major limitation is that this study is based on a cross-sectional survey instead of a longitudinal one, which may get a more accurate picture of respondents' patterns of Internet use and daily off-line behaviors, such as face-to-face communication with family and friends. Because this study was designed to investigate teenagers' pattern of Internet use and other daily activities, a longitudinal survey would be desirable over a one-time cross-sectional survey. In a cross-sectional survey, some respondents' unusual one-time behavior, such as excessive Internet use or unusually long face-to-face communication, can distort the outcome of the entire survey, particularly when the respondents are asked to report their Internet usage and the time spent with family and friends on the previous day, as this study did. Such a problem could be minimized in a longitudinal survey

Another major limitation of this study is that it was heavily dependent on respondents' self-reports for measuring key variables such as desire for face-to-face communication, instead of using an established measurement scale though one did not exist. In fact, heavy dependence on subjects' self-reporting has long been criticized as a major shortcoming of uses and gratifications studies. With such criticism in mind, this study made efforts to help the respondents answer questions as accurately as possible. One of the efforts was using a 5-point Likert-type scale instead of more complex 7-point or 10-point scales. It was based on the assumption that, though respondents may not be able to put a numerical value on their desire for face-to-face communication with others because of the absence of a scale to do the measurement, they may be able to fairly accurately tell whether the desire has increased or decreased by "a lot" or by "a little" or remained "unchanged."

Significance of This Study

This study is important for several reasons. First and most significantly, this study apparently is the first major reported research investigating the relationship between Internet use and the desire for face-to-face communication. A few research results (e.g., Nie & Erbring, 2000) have been reported on the impact of the Internet use on face-to-face communication, but none of the previous studies has looked into how Internet use affects desire for face-to-face communication. Investigating whether Internet use increases or decreases desire for face-to-face communication with others, particularly family, may be more important than finding out whether Internet use increases or decreases amount of face-to-face communication. In an ever-busy modern life, people may not be able to find as much time to spend with family as they want. A problem exists if people want to spend time with their family, but they cannot do so because of work or for other compelling reasons.

However, the problem is vastly greater if people do not spend time with family because they have lost the desire for doing so. Without the desire, they may no longer have genuine family discussions. For this reason, this study's

finding of Internet use's association with loss of desire among teenagers for face-to-face communication with family is important. This study found that the more time the teenagers spent online, the less desire they showed for face-to-face communication with family and for doing homework. The results suggest that Internet use may displace not only teenagers' time to do some of their key daily activities, such as face-to-face communication with, but also their desire for doing them.

Suggestions for Future Research

If Internet use has changed people's desire for face-to-face communication, as this study found, the change would certainly not have been made overnight. The change toward either an increase or a decrease would most likely have been formed over a long period of time. In that sense, a one-time survey as was used by this study may not be the best method to investigate such a change. A longitudinal survey or a panel study would be a more appropriate research method.

Some modifications are recommended to be made on the way questions are asked, if the questionnaire used by this study is replicated. For instance, on the amount of time spent online, respondents may be given a range of amount of time (for example 1) zero, 2) under 30 minutes, 3) 30 minutes-one hour, 4) 1-3 hours, 5) over 3 hours), and be asked to choose one that best suits them, instead of being asked to report an exact amount of time that they think they spent online. The reason for this suggestion is that most people have a hard time accurately remembering how much time they spent with the Internet or with their family.

Because people's personality traits (e.g., introvert/extrovert, reticence, low self-esteem) are directly linked to their interpersonal communication behaviors (Burgoon, 1976), loneliness (Russell, 1996) and Internet use, these personality factors should be investigated in a future study. It is almost intuitive that the introvert may be less willing to communicate with others than the extrovert because the introvert is characteristically shy and withdrawing from others. A future study also needs to take into account the respondents' (if the study is a

survey) family relationships because relationships with family members may be again intuitively closely linked to the amount of family communication. Family relationship may be the best predictor of family communication because the relationship is to establish communication (Littlejohn, 1996). It is also suggested that a future study measure family communication in both quantity and quality because quality, which this study failed to measure, should be as important as quantity in any communication. To measure both quantity and quality of family communication, an alternative method of study such as directly observing family interactions may be considered. Personality traits may be a predictor of online behaviors (Scealy, Philips, & Stevenson, 2002; Swickert et al., 2001). The two studies found that shy people and introverts were more likely to use the Internet for leisure than extroverts.

Conclusions

Time-displacement theory quite intuitively posited that if people start a new activity or begin to use a new technology, they will have to quit or reduce the time spent with old activities or old technologies. Consistent with the theory, this study found,

Internet use was significantly associated with a decrease in desire for face-to-face communication with family. In other words, the more time teenagers spent online, the less desire they had for seeing and talking with their immediate family members. Some people may argue that it might be the reverse: The less desire teenagers have for interacting with their family, the more they go online. The reverse could be true, but this study asked the respondents clearly whether the Internet has increased or decreased or not changed their desire for face-to-face communication with family. These findings indicate that the Internet may not only reduce the time people spend with their immediate family, but also may even change their attitude toward family and make them withdraw from their parents and other immediate family members. To support this view, this study also found that decreases in the desire for face-to-face communication with family were significantly associated with using the Internet for escape. In other words, as

teenagers spend more time online, they lose desire for spending time with their parents and other family members and try to find an escape in cyberspace.

Finally, for some people, the findings of this study about the Internet's adverse impact on desire for social interaction with family may sound like a doomsday story. After all, the Internet is a tool and a technology at people's disposal. By no means are they obliged to use it, though admittedly they need to use it often at work or for homework or for personal communication. As the results of this study may indicate, the Internet itself is not a problem. The real problem is how people use it. As the results showed, people who go online to avoid contact with others and to escape from the real world may be more likely to lose the desire for social interaction even with their family. As McKenna and Bargh (2000) aptly opined, the Internet may only be what the users make of it. In other words, the Internet could become a great social technology to help people to connect with others and to expand their social horizon. At the same time, the Internet could become a socially isolating technology if people use it to avoid contact with people around them and to escape from the real world. All in all, the Internet is a technology still changing at a blazing speed, and it may be still premature to determine it as either a socializing technology or isolating one.

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APPENDIX A

QUESTIONNAIRE

Please make sure that not a question is left unanswered.

Q1. For how many years and months have you been using the Internet?

( ) years ( ) months

Q2. How many hours and minutes did you spend using the Internet yesterday?

( ) hours ( ) minutes

Q3. How often do you do the following activities when you go online?

(*please check each box that best applies to you)*

	Several times a day	About once a day	3-5 days a week	1-2 days a week	Every few weeks	Less often
Send or read e-mail						
Go to chat rooms						
Send instant messages to someone who is also online						
Buy things online, such as books, clothing or music						
Look for health, dieting, or physical fitness information						
Look for sports scores or						

sports information						
Go online for no reason at all, just for fun or to pass the time or just out of habit						
Play games online, or download games						
Go to web sites about movies, TV shows, music groups, or sports stars you are interested in						
Go to web sites where people can trade or sell things						
Listen to music online at a web site for a radio station, music store, or other music site						
Download music files onto your computer so you can play them any time you want						

	Several times a day	About once a day	3-5 days a week	1-2 days a week	Every few weeks	Less often
Create or work on your own web page						
Go online to get news or information about current events						
Go online to get information about things you might buy,						

or about new products						
Go online to get information about your hobbies						
Go to web sites and bulletin boards where you can write your opinions about things						

Q4. Where do you go online the most? (c*ircle one number*)

1) At home 2) At school 3) At a friend's house
4) At work 5) Someplace else

Q5. Do you have a computer at home that has Internet access? (1) Yes (2) No

[If no, skip items 6 and 7]

Q6. In general, how often do you go online from home? (*circle one number*)

1) Several times a day 2) About once a day 3) 3-5 days a week
4) 1-2 days a week 5) Every few weeks 6) Less often

Q7. Do you have Internet access in your bedroom? (1) Yes (2) No

Q8. How many hours and minutes did you spend doing the following activities yesterday?

1) Face-to-face communication with your family members

( ) hours ( ) minutes

2) Face-to-face communication with your friends outside school

( ) hours ( ) minutes

Q9. What type of Internet connection do you have at home?

1) DSL 2) Cable Modem 3) Satellite
4) Dial-Up 5) Others 6) No Internet access at home

Q10. Has using the Internet increased or decreased the amount of your time doing the following activities? (*Please check each box that best applies to you*).

	Decreased a lot	Decreased a little	Unchanged	Increased a little	Increased a lot
Face-to-face communication with my family					
Face-to-face communication with my friends					
On the phone with family members					
On the phone with friends					
Watching television					
Reading newspapers					
Reading magazines					
Listening to radio					
Listening to CDs					
Playing sports					
Doing homework					
Overall off-line social activities					

Q11. Has using the Internet increased or decreased your desire for doing the following activities?

	Decreased a lot	Decreased a little	Unchanged	Increased a little	Increased a lot
Face-to-face communication with my family					
Face-to-face communication with my friends					
On the phone with family members					

On the phone with friends					
Watching television					
Reading newspapers					
Reading magazines					
Listening to radio					

	Decreased a lot	Decreased a little	Unchanged	Increased a little	Increased a lot
Listening to CDs					
Playing sports					
Doing homework					
Overall off-line social activities					

Q12. Please check each box that best applies to you.

	Never	Rarely	Sometimes	Always
How often do you find that you stay on-line longer than you intended?				
How often do you feel depressed, moody or nervous when you are off-line, which goes away once you are back on-line?				
How often do you find yourself anticipating when you will go on-line again?				
How often do you fear that life without the Internet would be boring, empty, and joyless?				
How often do you snap, yell, or act annoyed if someone bothers you while you are on-line?				

How often do you lose sleep due to late-night log-ins?				
How often do you feel preoccupied with the Internet when off-line, or fantasize about being on-line?				
How often do you find yourself saying “just a few more minutes” when on-line?				
How often do you try to cut down the amount of time you spend on-line and fail?				
How often do you try to hide how long you’ve been on-line?				

Q13. Please check each box that best applies to you.

	Never	Rarely	Sometimes	Often
How often do you feel alone?				
How often do you feel that you have a lot in common with the people around you?				
How often do you feel close to people?				
How often do you feel that your relationships with others are not meaningful?				

	Never	Rarely	Sometimes	Often
How often do you feel isolated from others?				
How often do you feel that there are people who really understand you?				
How often do you feel that there is no one you can turn to?				

How often do you feel that you are no longer close to anyone?				
How often do you feel that no one really knows you well?				
How often do you feel that there are people you can talk to?				

Q14. Please check each box that best applies to you:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The Internet brought me closer to my family					
The Internet brought me closer to my friends					
The Internet helped me to make new friends					
The Internet increased my community involvement					
The Internet increased my social circle					

Q15. I use the Internet:

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Because it is enjoyable.					
Because it is easier to communicate					

with others					
Because I just like to use it					
To get information for free					
So that I can get away from the rest of family or others					
Out of habit					

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Because it easier to connect with others					
So I can forget about school, work, or other things					
To look for specific information that I need					
Because it passes the time away, particularly when I am bored					
Because using the Internet has become a habit					
Because I have nothing better to do					

Q16. Your gender? (*circle one number*) 1) Male 2) Female

Q17. What year were you born? 19____

Q18. My ethnic background is:

1) African-American 2) Asian 3) Caucasian (white)

4) Hispanic 5) Other

Q19. My family's income in 2002 was approximately:

1) Less than $20,000 2) $20,001 – $40,000 3) $40,001 – $60,000

4) $60,001 – $80,000 5) More than $80,000

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