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# The impact of the Internet on the social lives of users: A representative sample from 13 countries

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ABSTRACT

One of the most vociferous criticisms of the Internet has always been that it contributes to loneliness among its users. This study analyses results from the World Internet Project, comprised of representative samples from 13 countries (22,002 participants). Thus creating an exceptional international representative sample. In analyzing those results, we argue that in order to achieve a comprehensive understanding of the Internet's influence over individuals' social lives; it is essential to consider the different types of social connections that might be influenced by the Internet. We assess the influence of Internet use over social interactions in separate life domains (e.g. with family members; friends; colleagues). Our analysis confirms that Internet usage can actually enhance the social lives of its users. Qualifications to the research are discussed while highlighting the different life domains in which we found significant correlations between Internet usage and increased social interactions.



## 1. Introduction

The Internet is the creation of a continuous stream of computers linked together to form one grid, which enables interaction among hundreds of millions of people surfing the net. Today the Internet plays a vital role in various fields, including our work, our social lives and our leisure time (Hamburger & Ben-Artzi, 2000). Critics have argued that the Internet has a negative impact on our society, and more particularly that it has led to a significant diminution of our social lives (e.g. Putnam, 2000).

According to Cummings, Butler, and Kraut (2002), in order to understand the impact of the Internet on people's social lives, we need to know how computer mediated communication affects our social interactions and relationships. The impact of the Internet is likely to be very different depending on the reason for its deployment. If it supplements communication with established friends and family, the effects will be different than if it substitutes for more traditional communication and traditional social ties. This paper explores the effects of these different types of interaction, and seeks to challenge the notion that Internet use has replaced traditional communication, and by doing so has led to increased social isolation.

It is important to state that we are not making any claims regarding the superiority or otherwise of offline vs. online social interaction. Our aim is to explore the impact of the Internet on its users' social lives. This paper will start by reviewing the relevant literature, including an analysis of the empirical data, and will go onto discuss claims regarding Internet and its impact on user's social lives.

### 1.1. Does the Internet bring about loneliness?

Many believe that Internet based interaction is a highly appropriate form of communication for our modern lifestyle while others however see Internet usage as an insidious development. Below we discuss studies advocating different viewpoints.

One leading example among the studies depicting the negative aspects of Internet usage is that of Kraut et al. (1998). This study examines 169 individuals from 93 diverse households in Pittsburgh, analyzing their first two years online. Their results showed that increased Internet usage was associated with a decline in participants' interactions with family members within the household, a reduced social circle, and a rise in levels of loneliness and depression. In order to underline the fact that despite all the social components promoted by the Internet such as chat and newsgroups, Internet use ironically leads to a decline in the social lives of users, Kraut and his colleagues published their findings under the heading "Internet paradox" (see also Brenner, 1997; Stoll, 1995; Turkle, 1996).

Kraut et al.'s (1998) findings were emphatically reinforced two years later by Nie and Erbring (2000). They reported the results of a national representative survey, carried out in the US, which showed that Internet users reported spending less time with family and friends than non-users and, as the amount of Internet use

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increased; there was a commensurate decline in time spent with kith and kin. A follow-up study three years later (Nie, Hillygus, & Erbring, 2002) produced similar results: The more time people spent on the Internet at home, the less time they spent with family and friends. It was found that for each minute participants reported spending on the Internet during the preceding 24 hours, there was a reduction of approximately one third of a minute spent with family members. The same held true for Internet usage at work: The more time people spent on the Internet at work, the less time they spent interacting with colleagues. For each minute spent on the Internet, the average person spends about 7 fewer seconds with friends and 11 fewer seconds with colleagues.

Despite what may seem to be overwhelming evidence of the anti-social effects of the Internet, the situation is actually more complex than may appear at first glance. Amichai-Hamburger and Ben-Artzi (2003) compared Nie and Erbring's (2000) hypothesis that Internet use leads to loneliness with an alternative hypothesis that people who are already lonely are more likely to be drawn toward Internet use, thus questioning the causal relationship between Internet usage and social interactions presented in the aforementioned studies. Amichai-Hamburger and Ben-Artzi found that lonely people have a tendency to engage in greater Internet usage compared to non-lonely people. This is consistent with research done on Internet usage motives, which found that lonely users were generally more sociable online than offline (Morahan-Martin & Schumacher, 2003).

Furthermore, while pronouncements about the negative consequences of new media are popular, empirical evidence supporting such claims is more limited (Hampton, Sessions, Her, & Rainie, 2009). Recent research confirms that Internet users tend to have larger personal networks. The 2000 GSS reported that when work contacts and family are omitted, Internet users who participated in their survey were found to have contact with a higher number of friends and relatives than do non-users (Zhao, 2006). This finding was particularly strong among heavy users of social as opposed to passive media (Zhao, 2006). Similarly, a 2004, national survey found that Internet users "feel very close" to the same number of people as non-users do, but maintain relationships with 20% more people with whom they "feel somewhat close" (Boase, Horrigan, Wellman, & Rainie, 2006). Wang and Wellman (2010) found that when people were asked how many "friends outside of [their] household" they "see or speak to at least once a week," their answers increased by 20% between 2002 and 2007. The increase was higher for those who used the Internet the most. Hampton et al. (2009) point out that the degree of social isolation found in the United States has barely changed in the last 20 years. Furthermore, they claim that people who participate in a variety of Internet based activities associate with larger and more diverse discussion networks than those who do not. Mok, Carrasco, and Wellman (2010), in a follow-up to Wellman's classic study of personal networks from East York (Wellman, 1979) also found that intimate ties saw each other in-person as often in 2005 as they did in 1978 – regardless of Internet use.

The question of whether Internet use leads to a decline in social interactions and community involvement is becoming increasingly important as the number of Internet users multiplies and the impact of their Internet use is reflected worldwide. Recent studies, such as the ones discussed above, have both raised and questioned the claim that Internet use might lead to less social interaction. Those studies are important in that they explored the Internet users' personal social networks, however, they did not question the types of connections people within those networks maintain, e.g. work-related vs. leisure related ties. Hamburger and Ben-Artzi (2000) pointed out that existing research on the implications of the Internet on social lives has ignored the diversity of services available over the net. Similarly, Zhao (2006) discusses the importance of exploring the diversity of Internet mediated social activities (that involve direct contact with other people). Zhao called for differentiated analyses of the users Internet usage when exploring their social ties. As Wellman, Haase, Witte, and Hampton (2001) succinctly explained there is no single Internet effect, and it is necessary to perform more differentiated analyses of the Internet.

When we apply the notion of "differentiated analyses" with regard to the influence of the Internet over its users' social lives, it becomes clear that many studies have used a general indicator of online social activity. Conversely, in our study we separate out the particular influence of Internet usage over social interactions with family members; friends; colleagues; people who share hobbies/recreational activities; political interests and religion.

When discussing the correlation between individuals' Internet usage and their social lives, one of the key questions we need to address is whether the interplay between the two variables is the same for all Internet users, or whether this interplay is manifested differently with different users. It appears in fact that the effects of the amount of Internet usage on users' social lives are moderated by the following variables: age, income and education. A key study addressing this aspect was conducted by Gennaro and Dutton (2007). Their study indicates that even though socio-demographic factors are weak predictors as to whether individuals form relationships online, social circumstances as indicated by demographic characteristics could lead people to be more or less interested in developing new friendships or using the Internet in ways that foster relationships. Thus they highlight the importance of controlling for age, income, gender and education when studying the effects of the amount of Internet usage on users' social lives. For instance, their research findings indicated that for younger people, Internet usage can supplement face-to-face interaction, rather then necessarily replace it. Furthermore, they found that gender, age, and education were associated with respondents' friendship creation and maintenance patterns. These and other claims regarding the important role of age, income, and education in understanding the correlation between Internet usage and social isolation are prominent in recent scholarly works (McPherson, Smith-Lovin, & Brashears, 2006).

One significant method of clarifying the position is through analysis of the data from the World Internet Project. This is a major international collaborative project looking at the social, political, and economic impact of the different media channels (http://www.worldInternetproject.net). This project provides a unique opportunity to gain an overall understanding of the impact of the Internet on social behavior.

### 1.2. Research hypothesis

This study examines the relationship between Internet usage and social interaction, and assesses the extent to which Internet usage correlates with social interaction both online and offline. As discussed earlier, previous studies (e.g. Gennaro & Dutton, 2007) have highlighted the importance of age, education and income as highly influential variables when studying the degree of social interaction maintained by Internet users. With this in mind we proposed testing the following hypotheses, while controlling for the variables of age, gender and education:

H1.1: Internet usage is positively correlated with socially related interactions with people who share your hobbies/recreational activities.

H1.2: Internet usage is positively correlated with socially related interactions with people who share your political interests.

H1.3: Internet usage is positively correlated with socially related interactions with people who share your religion.

H1.4: Internet usage is positively correlated with socially related interactions with family members.
H1.5: Internet usage is positively correlated with socially related interactions with friends.
H1.6: Internet usage is positively correlated with socially related interactions with people in your profession.

## 2. Method

### 2.1. Participants

The data for this study was taken from the World Internet Project (WIP). A major international research project that studies the influence of different media channels on various aspects of our lives. Thirty countries participate in the project and each runs the same questionnaire (in translation) to a representative sample.

For this study the results of 13 countries featured in the 2009 report were analyzed. All 13 countries had used identical sampling methods. The 13 countries included in the survey are: Australia, Canada, Bolivia, China, Colombia, the Czech Republic, Israel, Macau, New Zealand, Singapore, Sweden, the United Kingdom, and the United States of America (for a detailed review of the sample sizes; sampling technique; and the instruments used by each of these countries, see The World Internet Project, 2009). In total our data set comprised 22,002 respondents, from 13 countries "$N$ = 22,002". The age range of the participants was from 12 to 84 years.

### 2.2. Tools

The results are based on the answers to questions we selected from the WIP questionnaire. These questions had been put to the respondents from each of the countries included in our data set (see The World Internet Project, 2009 for the full survey script).

In order to ascertain the degree of social interactions respondents had with family members friends colleagues, people who share their hobbies/recreational activities, political interests and religion, respondents were asked the following question: Has the use of the Internet increased or decreased your contact with the following groups? Using a scale of 1–5 where "1" means greatly decreased, "5" means greatly increased.

In order to ascertain their degree of Internet usage, respondents were asked: how many hours per week do you use the Internet from home/work/school/anywhere else? For our analysis, Internet usage was the combined number of hours the respondent stated that he/she uses the Internet in each of the locations mentioned above.

## 3. Results

In this study, we attempted to understand how Internet usage relates to the social life of the individual Internet user. It is important to note that the study did not compare the social lives of people who are heavy users of the Internet with those of people who do not use the Internet at all, since this would not have enabled us to understand whether any differences between the two groups were associated with demographic or other variants, as opposed to their differing patterns of Internet usage. In order to avoid this complexity, linear regression analysis was used (the PASW Statistics 18 application for conducting this statistical analysis). This facilitated the examination of the relationship between Internet usage and social life, while controlling for other factors such as education, age, or income. Thus, the results comprise a comparison between the social lives of people who are heavy Internet users, with demographically similar people who use the Internet less.

The regression model was used to examine six different correlation patterns, resulting in six different regression models. In each of those models the independent variables were the same: age, gender, education, income, and Internet usage. The difference between the models was the dependent variable. Each model examined the correlation between the independent variables mentioned above and one of the following dependent variables: (1) use of the Internet increased or decreased contact with people who share the same hobbies/recreational activities; (2) the use of the Internet increased or decreased contact with people who share the same political interests; (3) the use of the Internet increased or decreased contact with people who share the same religion; (4) the use of the Internet increased or decreased contact with one's family; (5) the use of the Internet increased or decreased contact with one's friends; and (6) the use of the Internet increased or decreased contact with people in the same profession.

It is important to state that since our data set comprises data from 13 different countries, prior to conducting the our linear regression analysis, we ensured that there were no significant differences between the respondents from the different countries in relation to the six dependent variables mentioned above. This was done through a Manova test in which the independent variable was the country of the respondent, and the dependent variables were the 6 dependent variables discussed in the previous paragraph. The results of the Manova test indicated that there are no significant differences in the values of the six dependent variables among the respondents from the different countries $F(3297) = 1.4$; $p < .05$).

The results of these regression models (as presented in Table 1) show that the variable "Total Internet usage" is significantly correlated to the six dependent variables discussed above. Based on these findings, it is suggested that when the factors of the respondent's education, income level, age, and gender are controlled for, the variable total Internet usage is negatively correlated with the variable contacts among people who share the same hobbies/recreational activities; and positively correlated with the other dependent variables: (1) contacts with people who share the same political interests; (2) contacts with people who share the same religion; (3) contacts with one's family; (4) contacts with one's friends; and (5) contacts with people in the same profession.

## 4. Discussion

Five of our hypotheses were supported by the results. The only hypothesis that was not supported by our results was hypothesis H1.1: Internet usage is positively correlated with socially related interactions with people who share your hobbies/recreational activities. We believe that a possible explanation for this finding is that the respondents have close social ties with the groups of people who share their hobbies/recreational activities and in this case Internet usage produced a negative effect on these interactions.

Our findings suggest that Internet usage is positively correlated with individual users' social contacts. Moreover, Internet usage is associated with several beneficial social activities, including interacting with friends and colleagues. It is important to note that, the findings of this study are based on representative international data collected from 13 countries. This provides an exceptional opportunity to discuss the generalization of our findings to different lingual, cultural, and ethnic settings.

Previous studies – for example, that of McPherson et al. (2006) – have shown that today, individuals have fewer people with whom they discuss important matters, and those discussions occur less frequently, as compared with the situation in the relatively recent past. Conversely, in this study we attempted to provide support for

**Table 1**
A summary of the six regression models.

| Independent variables<br>Standardized coefficients (beta)<br>Dependent variables (model summary) | Total Internet usage (B) | Education (B) | Age (B) | Income (B) | Gender (0-male) (B) | *R*-square |
|---|---|---|---|---|---|---|
| Increased or decreased your contact with people who share your hobbies/recreational activities ($F = 16.04$, $p < .01$, adjusted *R* square = .008) | −.015** | .01 | −.011 | .08** | −.025* | .008 |
| Increased or decreased your contact with people who share your political interests ($F = 16.04$, $p < .01$, adjusted *R* square = .007) | .027** | .033** | .06** | .004 | −.033** | .008 |
| Increased or decreased your contact with people who share your religion ($F = 20.15$, $p < .01$, adjusted *R* square = .011) | .042** | −.006 | .1** | .01 | .014 | .011 |
| Increased or decreased your contact with your family ($F = 29.24$, $p < .00$, adjusted *R* square = .017) | .092** | .003 | .102** | .006 | .043** | .018 |
| Increased or decreased your contact with your friends ($F = 16.45$, $p < .01$, adjusted *R* square = .007) | .124** | .016 | −.002 | .007 | .023* | .016 |
| Increased or decreased your contact with people in your profession ($F = 26.52$, $p < .01$, adjusted *R* square = .016) | .102** | .064** | −.008** | .038** | −.025* | .022 |

* $p < .05$.
** $p < .01$.

the claim that rather than being the cause of this phenomenon, Internet usage may actually lead to a reversal of the situation, i.e. more social interaction. By combining our findings, which indicate the social benefits of Internet usage, with Hampton et al.'s (2009) data, which addresses the diversity of the social networks that Internet users have, we can make the claim that heavy Internet users have larger and more diverse social networks, and that they interact with the members of those networks more frequently.

Thus, our results show that Internet usage does not have a negative impact on the social lives of users and, in some aspects, it may even have positive effects. These findings contrast with those of Kraut et al. (2002) and Nie et al. (2002). It is worth noting that these findings, based on the largest and most representative worldwide study to date, belie the pervasive pessimistic predictions of the severely negative impact of Internet use on society. There are, however, two important points that should be borne in mind: First, our findings are the results of self-reporting by participants. It is recommended that a longitudinal study be carried out to further validate these issues. One optimal method may be to provide participants with a log where they could record their daily activities and so increase their awareness of the impact of the Internet on their social lives.

Secondly, the participants' definition of "contact" is not entirely clear, with this in mind, the quality of relationships should be assessed. This may prove highly relevant for Internet usage, since surfers may be prone to blur the components of quantity and quality. This is particularly important in light of some of the brief and shallow contacts that pass for friendship on sites such as Facebook, where users frequently report having several hundred or more friends, when in real terms it is quite clear the number of friends does not reflect a real indication of the level of quality in those relationships (Amichai-Hamburger & Barak, 2009). It is, therefore, important both to delineate a clear definition of contact, and a measure with which to assess the impact of the Internet on this contact.

We believe that this line of research will help us to improve our understanding of the impact of the Internet on our social lives. It is also important to study the interaction between the personality of the surfer and different uses of the net on surfer's social life. This will lead us to a greater understanding of this important issue.

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