



**Sociology PhD  
Program**

## **COLLECTION OF THESES**

**Krisztina Csüllög**

**Online and offline relationships  
The role of the Internet and other ICTs in private social networks**

Ph.D. Thesis

**Supervisor:**

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of the Hungarian Academy of Sciences at the Eötvös Loránd University

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**Institute of Sociology and Social Policy**

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## **Table of Contents**

Introduction .....	4
Research Questions and Hypotheses.....	5
Data and Methodology .....	8
Main results of the dissertation .....	10
Main references .....	14
Own publication in the subject.....	17

## **Introduction**

There has been a long discourse on the social effects of the Internet for several decades. At the beginning of the spread of the Internet there were many extremely negative and positive opinions about the possible effects of this new medium. From the second half of the 1990's as this technology became more widespread, these theories were replaced by empirical studies focusing on the question whether the new communication technologies promote or hurdle the maintenance of social relationships. This question seemed to be relevant as some studies described the tendency of loneliness, isolation, and the emptiness of social relationships in the Western world (Putnam 2000; McPherson et al. 2006).

There are several viewpoints about the impact of the Internet on social relationships and social capital. Some scholars argue that it has a positive effect on participation in the social life, maintenance of relationships, and social capital (Lin 1999; Wellman et al. 2001, 2002, 2003; Hampton 2001; Cole 2000; Rainie-Kohut 2000), while others state that it separates from social life and makes people lonely (Kraut et al. 1998; Nie–Hillygus 2002; Pronovost 2002). This disagreement originates from the different methodology, question formulation, and orientation of the studies. The Internet can be interpreted both as mass medium and a possible channel of interpersonal communication while its use can be regarded both as a useless hobby for wasting time and an activity making everyday life more efficient by saving time.

Researchers who emphasize the negative effects understand Internet usage mostly as a lonely activity and often focus only on the results of time-balance surveys. Following this logic, they find that more time spent on the Internet means less time spent on other activities, e.g. on social contacts (Nie–Erbring 2000). However, they neglect the fact that the Internet can be used for communication, making new friends, and maintaining the existing relationships. Researchers who emphasize the positive effects usually use this latter argument and view the Internet mainly as a communication tool (Haythornwaite et al. 1995; Wellman et al. 2001). Of course, it generates other questions: can online contacts replace personal visits, togetherness, and social activities? Or are new technologies really responsible for the weakening and loosening of the traditional forms of keeping contact?

I try to integrate these two approaches in my dissertation by taking into consideration that the Internet is a possible channel of interpersonal communication and that its use is a way of

spending time. My main questions are how modern technologies match to the traditional forms of communication; and what role these new technologies play in maintaining private social networks.

## **Research Questions and Hypotheses**

I focus on the following three questions in my dissertation:

1. What is the relationship between Internet usage and the size and type of social networks?
2. What is the role of the Internet as a communication tool in keeping contacts?
3. How Internet usage as a way of spending time affects the amount of social leisure time?

### ***The relationship between Internet usage and the characteristics of private social networks***

The Internet as a communication tool can promote the maintenance of relationships as it is able to connect partners who have difficulties in making traditional contacts because of long distances or limitation in time. Persons living far away from each other can be in contact even on a daily basis by e-mail, chat, and other communicational applications (Wellman et al. 2002, 2003; Quan-Haase 2007; Hampton et al. 2009). And the Internet can promote the development of new relationships as well (Wang-Wellman 2010; Albert et al. 2006). New relationships can be created by the Internet, but it is also typical that friends are found after a long time on a social network site. Thus, the Internet can promote both the maintenance of existing relationships and the development of new ones and as a result, Internet users may have more widespread social networks than non-users.

There may be another mechanism with a different logic behind this peculiarity. People with larger social networks are more likely to know new technologies and the diffusion of innovation can happen faster through a more widespread network (Letenyei 2000; Eranus-Láng-Letenyei 2003). Another important issue is motivation: it is more likely to find an Internet user in a large social network with whom emailing, chat, and network games can be used (DiMaggio 2010).

Regardless the direction of the causal mechanism, correlation between the size of the network and the use of the Internet may be always positive, i.e. social networks of Internet users may be larger than of non-users as it is argued by some research studies in the U.S. (Wang-Wellman 2010; Hampton et al.2009).

The number of strong ties and family ties have weaker correlation with Internet usage as these relationships are given in advance and mostly function in offline version as well. In contrast, the number of friends is much more volatile and it is in strong correlation with sociability, the skills to make contacts, and activity in which the Internet can be a useful tool.

Social networks extended in time and dimension of status cannot only have a larger size but a larger heterogeneity as well. Diversity in the place of living is a logical result of keeping contacts without geographic hurdles. But heterogeneity in other dimensions such as age and the level of education can be also higher, especially, in relationships generated through the Internet.

In line with the above mentioned arguments, I have developed the following hypotheses:

*(H1.) Internet users have more relationships than non-users (both with and without filtering the effects of control variables).*

*H1.1. Internet users have more friends and acquaintances than non-users.*

*H1.2. Internet users have more relationships outside of their close milieu than non-users.*

*H1.3. Social networks of Internet users are more heterogeneous than of non-users.*

### ***The role of Internet usage as a tool of interpersonal communication in maintaining relationships***

The Internet can foster the intensity of social contacts as it makes fast and cheap information exchange possible both in synchronic (chat, Instant Messages) and asynchronic (e-mail) ways. As a result, it may ensure a higher variety of communication tools which makes it possible to cover the previously generated niche of contacts on the one hand. While on the other hand, it may serve as a tool to organise face-to-face interactions more easily. This kind of catalysing effect is more intensive in an environment with dense networks, so it is more frequent in case of partners who are closer to each other in space and lifestyle (Wellman et al. 2002, 2003; Quan-Haase 2007; Hampton et al. 2009).

Following these arguments, my hypotheses are as follows:

*(H2.) Internet users have a more intensive social life than non-users.*

*H2.1. The Internet use correlates positively with the frequency of face-to-face contacts with friends.*

*H2.2. People meet those whom they contact via the Internet more often than those whom they contact offline only.*

*H2.3. The positive correlation of face-to-face and electronic communication is more significant inside the close surroundings.*

### ***Relationship between Internet usage as a way of spending time and the amount of social leisure time***

A new type of spending leisure time came into being as the Internet became more widespread. As leisure time of people is limited, it is obvious that a new activity needs to take the time of other activities (Nie et al. 2000, 2002; Robinson et al. 1997, 2001). The result may be that some previous activities are replaced with the new activity or that the time spent on the existing activities is reduced a bit but the basic structure of activities does not change. According to the functional equivalence theory of Robinson, a new activity is most likely to replace an activity which has a similar function (Robinson et. al. 2001). Regarding the content of the Internet as a mass medium, it is able to replace all other media; regarding the form of representation of the Internet, it is able to replace electronic media; and regarding the context of usage of the Internet, it is able to compete with home activities done without limits in time. Watching TV is the activity that matches the most with these criteria. Some previous studies showed that Internet usage at home decreases mostly the time spent on watching TV (Cole 2001; Robinson et al. 2001; Robinson-Martin 2010) and other empirical evidences proved that the Internet distracts people from social activities (Kraut et al. 1998, Nie et al. 2000, 2002).

The Internet usage as a leisure time can compete the most with social activities done at home among family members. More precisely, it is supposed that Internet usage affects watching TV together with the family the most as it has similar functions not only by the context, but by the form of representations (electronic and visual) and partly by the content (information and entertainment). In contrast, the Internet can compete less with the leisure time spent with friends somewhere out of home.

These arguments imply the following hypotheses:

*(H3.) Internet usage decreases the time spent on social activities: the more time somebody spends on the Internet, the less time s/he will have for social activities.*

*H3.1. The time spent on the Internet as leisure time correlates negatively with participation in family activities.*

*H3.2. The time spent on the Internet as leisure time does not affect significantly the time spent on friends.*

## **Data and Methodology**

I developed my own database from a regional research called *Szeged Net* for doing the analyses and testing the hypotheses. I made some supplementary analyses on a similar national database to test my regional data, although, it was not possible with all issues. For exploring the topic of time management, I used data from the World Internet Project survey.

### ***Data***

The research *Szeged Net* was conducted in 2003 by the research company SzondaIpsos. 500 interviews were done and the sample is representative to the population aged 15+ of Szeged (a city with many university faculties in Southern Hungary). This survey was supplemented by a sample of 100 university students studying in the city. The basis of data collection was a self-completed *communication diary* in which participants recorded all private interactions (type of media channel, type of relationship, place of living of the partner, and place and time span of the interaction) during one week. Besides the diary, a standardized *questionnaire* was developed to explore communication habits, relations to friends and acquaintances, distances in space, and intensity of these relationships of the interviewees. The two types of data collection resulted two databases that made possible a multilevel analysis of communication and network processes and contexts.

Fieldwork of the research *National Net* was done in 2005 by the same company, SzondaIpsos. The original sample was nationally representative and consisted of 3600 households. It was supplemented by a specially filtered subsample of 1955 persons (real or potential Internet users). The social network part of the questionnaire was mostly parallel with the questionnaire of Szeged Net, thus, it was possible to compare them.

The *World Internet Project* (WIP) was launched in the summer in 1999 by UCLA in California and NTU School of Communication Studies in Singapore to follow the development and social impacts of the Internet in several countries of the world. In Hungary, two surveys per year were conducted between 2001 and 2007 by the institutes Tárki, ITTK, and Ithaka. The samples were designed by a multi-staged, proportionally stratified, probability sampling procedure. Data collection was done by randomly selected addresses by a decreasing sample procedure. The final sample was weighted, thus, it is nationally representative by age, gender, level of education, and type of settlement regarding the population aged 14+. I analysed mainly the database of 2007 (N=3059) about time management estimated by respondents regarding hours spent per week on Internet usage in



different places and on other leisure activities. I used the WIP database of 2002 for a comparative cohort analysis.

### ***Methods of analysis***

I tested the first two groups of my three-group hypotheses on the Szeged Net database<sup>1</sup> I used mostly linear regression models to test the hypotheses, but in some cases, I supplemented the analysis with correlation and analysis of variance (Anova).

I studied the time-balance aspects of Internet usage on the 2007 database of the World Internet Project as it contains a rather detailed questionnaire block about time management. I used correlation analysis, Anova, and multivariate linear regression analyses again. I supplemented the cross-sectional analyses with a cohort analysis in which I compared the Internet users of 2002 by the databases of WIP from 2002 and 2007.

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<sup>1</sup>As far as it was possible, I analysed the results of the National Net survey in parallel with the regional data.

## Main results of the dissertation

The hypotheses about the main issues with the results and conclusions of the tests are summarized in the following table.

Research question	Hypothesis	Conclusion
What is the relationship between Internet usage and the size and type of social networks?	<i>H1.</i>	<u>Verified</u> : the total social network of Internet users is more widespread than of non-users.
	<i>H1.1.</i>	<u>Partly verified</u> : Internet users have more friends but do not have more acquaintances than non-users. The frequency of usage correlates with the number of friends only in a later phase of spreading.
	<i>H1.2.</i>	<u>Verified</u> : both Internet usage and its frequency is in positive correlation with the number of relationships in larger distances.
	<i>H1.3.</i>	<u>Partly verified</u> : heterogeneity by place of living and level of education is higher but lower by age and gender among Internet users.
What is the role of the Internet as a communication tool in keeping contacts?	<i>H2.</i>	<u>Partly verified</u> : Internet users meet friends more often but family members less often than non-users.
	<i>H2.1.</i>	<u>Verified</u> : the Internet use correlates positively with the frequency of face-to-face contacts with friends.
	<i>H2.2.</i>	<u>Verified</u> : in case of contacts, there is a positive correlation between the use of e-mail and the frequency of personal meetings.
	<i>H2.3.</i>	<u>Verified</u> : in case of contacts of persons living in the same settlement, there is a positive correlation between emailing and personal meetings.
How Internet usage as a way of spending time affects the amount of social leisure time?	<i>H3.</i>	<u>Falsified</u> : Internet users do not spend less time with their family, moreover, they spend more time with their friends than non-users. The more time a person spends on the Internet, the more time s/he spends on his/her family and friends.
	<i>H3.1..</i>	<u>Falsified</u> : the amount of time spent on the Internet correlates positively with the amount of time spent on the family. (Only the online social activities have a minor negative impact.)
	<i>H3.2.</i>	<u>Falsified</u> : there is a positive correlation between the amount of time spent on the Internet and the time spent on friends.

The results of the analysis mostly support the first group of my hypotheses (H1) according to which Internet usage have a positive effect on the number of relationships and the diversity of the network. Internet users have significantly larger networks. The multivariate analyses show that friendship networks and the whole network are primarily (i.e. when the effects of other variables are under control) in a significant relationship with Internet usage. There is an even more significant relationship between Internet usage and the number of distant relationships. But the Internet use does not have an impact on the number of family and friendship contacts. Although, there is not significant relationship between the frequency of Internet usage and the size of the social network in case of the Szeged survey in 2003, these correlations are significant and positive two years later when tested on national level.

Heterogeneity of friendship and total social networks by place of living is higher in case of Internet users than of non-users. Besides, Internet use seems to promote the maintenance of a social network which is more heterogeneous by the level of education, especially, in case of friendship networks. In contrast, Internet use seems not to have any impact on heterogeneity by age and gender.

These results have mostly proved the second cluster of hypotheses (H2) according to which info-communication tools serve rather to supplement than to substitute personal relationships. Internet users reported more (1.7 times more) personal contacts than non-users during the one week of writing the diary. And similar differences (1.5 more in case of users) can be found in case of other ICTs. Internet users meet their friends personally (or personally as well) significantly more often but visit their relatives less often than non-users. The same conclusions can be reached in case of frequency of Internet usage: the more often a person uses the Internet, the more often s/he meets his/her friends and the less often his/her relatives. But the frequency of meeting acquaintances does not have a significant relationship with Internet usage (when control variables are filtered).

For exploring whether info-communication tools are able to substitute personal contacts, we analysed the frequency of usage of the different communication channels in one relationship. Our data show that people communicate on the phone or by sms more often with those people whom they often meet personally as well. The more frequent the personal contacts are, the more intensive the communication on phone (especially on mobile phone). The use of email also has a positive correlation with the frequency of personal contacts, but regarding the total network, only a slight increase can be noticed in relation with more frequent personal meetings because of the low level of usage. Even in case of those relationships in which all communication channels are used, when the frequency of face-to-face contacts declined, the intensity of other communication channels decreased as well. In other words, although, the possibility is there, people do not use fully the ICT tools if the relationship is distant or not strong enough for more intensive contacts. E-mail is a bit exceptional as those who meet less frequently than once in a month send e-mails more often than those who meet each other more times a week or once in a month. In this case, e-mail is used more intensively than the telephone. It implies substitution: when personal contact is not possible, the e-mail (or other online forms of communication) can be the most appropriate tool for maintaining a relationship.

Correlation analyses also show that there is a positive correlation among the use of all communication channels in one relationship, i.e. a more intensive personal relationship means more e-mailing and phone calls. The frequency of personal contacts correlated the most with mobile phone calls. In case of e-mail and landline phone, the correlation was weaker but still significant. There is a stronger correlation between e-mailing and mobile phone usage than between e-mailing and face-to-face communication. In case of people living closer to each other, namely, in the same city, the correlation is even stronger between face-to-face contacts and the frequency of use of info-communication tools.

The correlation between ICT usage and face-to-face interactions is rather strong and positive in case of friendship networks but negative in case of family relations. The reason may be that at the time of the survey, online contacts with relatives was less widespread, thus, the Internet could not have a positive impact in this field while it could positively affect the more homogeneous friendship networks. Non-users who have less relationships in total might be able to spend more time on maintaining relations with relatives than Internet users who had much larger networks. These empirical evidences refer to the weakening of networks in case of neighbourhood relations of American Internet users (Katz-Rice 2002; Cole 2000, Hampton et al.2009). People's time, attention, and capacity for contacts is finite. The Internet makes the development of relations possible, but we cannot maintain relationships without any limitation in numbers. After a certain amount of relationships, a selection mechanism starts to function. Internet users may have more opportunities to select whom they keep contact with more and with whom less frequently. And it seems that this selection prefers relationships which are chosen, i.e. friendship networks.

The third group of hypotheses (H3) focus on what impact the Internet as a way of spending time has on social contacts. According to the principle of functional equivalence, I presupposed that the Internet usage decreased the amount of social leisure time, especially, time spent at home and with the family. My empirical evidences do not support these hypotheses. The amount of time spent with friends is two times as much and 15 percent more with the family among users than among non-users. Correlation analyses also show that the more a person use the Internet, the more time s/he spends with his/her family and friends, and the less s/he watches TV and listens to the radio. The correlation is stronger again in case of time spent with friends than with relatives, especially, among young people. The multivariate regression models incorporating control variables show a significant positive relationship only in case of friendship networks and no significance in case of family ties. But regarding the

amount of Internet usage, the relationship is significant in case of both types of relations. It means that the more a person uses the Internet, the more time s/he spends with his/her family and friends regardless his/her age, gender, level of education, economic status, place of living, size of the household, and economic background. The own perceptions of Internet users do not fully match to the results of the correlation and regression analyses done by their estimations for time management.

When comparing the WIP data from 2002 and 2007, it can be noticed that the decrease of social leisure time is a tendency not only among Internet users but among non-users and this decrease is even larger among non-users. This negative tendency is true for both friendship and family ties. Thus, the cohort analysis also do not support the hypotheses about the negative effect of the Internet on social leisure time.

In sum, the new info-communication technologies seem to have more positive than negative impacts on social networks. They do not decrease sociability taken place in the offline space but their usage generates a larger and more diverse network, more intensive communication on more kinds of channels, and more time spent on social activities. But these are rather true for the relationships which are chosen, i.e. for friendship relations. We spend the same amount of time with family members than before, but contacts with relatives become more rare by more frequent use of the Internet.

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