THE EFFECT OF THE INTERNET: DIRECT OR INDIRECT?

by

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The presentation deals with the problematic of social consequences of the Internet use. The author attempts to trace the impact of Internet use on social habits of the users. Furthermore, he tries to isolate the effects from the influence of age. By this, the author contributes to the discussion of knowledge society and cyberculture as he strives for correction of widely held opinions by comparing it to the results of his analysis. In addition, the methodological problems are discussed briefly

THE OUTLINE OF THE PROBLEM [1]

There is no doubt that the Internet is an important issue to discuss and a relevant field of research. One does not need to be a social scientist to be aware of its role in current world. The mere fact that this conference takes place can serve as a confirmation of this idea. More and more people are being connected, communicate and some of them even work on-line. No need to point out various business strategies that have emerged with the development of the Internet, and really no need to show all the political agendas, policies, guidelines that are related to it. Yet, one really needs to be careful when it comes to judge its real impact on the society and individuals. If you allow, I will try to show, that the tools of social science, more specifically the sociology, can bring light into this matter.

Since the early days of its history, the Internet has yielded lots of various predictions and expectations. There has been hope and there have been warnings. It seems to be a part of the nature of mankind that the first out-

weighs and precedes the latter. As Zygmunt Bauman[1] says, thinking utopias is a substantial part of human history. But, we should not forget how easy utopias can turn into a nightmare. With a portion of irony, we can say that this has been the case for those who lost their money—let alone their hope—thanks to their uncritical belief in the emergent e-business.[2] But it is not only money that is at stake, because a huge amount of social and political capital is being invested in building "the information superhighway" that, as many believe, should lead us to "knowledge society", or if you prefer, to the "informational age". With all the money from public sources, more specifically the state budget, is it that illegitimate to ask: Will this investment bring enough public good?

It has to be admitted, that sociology has not been paying enough attention to these questions. Apart from few examples, there have been more prophecies or apologetics than scientific work. Although it would be very interesting to explain this gap, we have chosen to leave this work to another ones or another time. The fact is that few of the major sociologists have tried to trace the impact of the Internet. Thus we must say that in spite of the scarce existence of solid research in this field, we are more likely to be at the beginning of our way; we are starting with a handicap of decades!

On the other hand, being the latecomers, we can learn from all the mistakes done by our predecessors. Looking at the Toffler's idea of "electronic cottage"[3] that does not match at all with the fate of current cities, that are more and more facing the problem of commuting, we should be more cautious. This is also the case of McLuhan's "global village". Or, does this picture match with growing global gap between the rich and the poor? As many others—some of them being also present on this conference, for sure—we have found the biggest mistake in so called "technological determinism", that is a belief in direct effect of the technology on society. It is not our intention here, to lay the theoretical argumentation that undermines Toffler's and McLuhan's approaches. Instead of that, we have chosen to translate this into an empirical analysis of the data for the Czech Republic.

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1 Bauman, Z. (2005, October). Living in Utopia. Retrieved November 10, 2006, from: http://www.lse.ac.uk/collections/LSEPublicLecturesAndEvents/pdf/20051027-Bauman2.pdf

2 Castells, M. (2001) *The Internet Galaxy.* London: Blackwell, p. 102-112.

3 Toffler, A. (1980). The Third Wave. London: Williams Collins Sons.

To put our thesis forward, we argue that although the Internet has an impact on social life, it is not an immediate relationship. If this is true, the idea of an effect equal across all the society is logically wrong. It would be more likely that the effect is ambivalent. That makes, of course, the hopes and promises (as well as warnings) ambivalent too. Hypothetically, even if we successfully overcame the digital divide, the same profit would not be guaranteed for everyone.

METHODOLOGY AND THE DATA [2]

In the following minutes we are going to examine the relation between the variables of the Internet use and the variables representing the sociability of respondents. To test this, the contingency tables will be used[4]. If an association can be found, then in the second step, a control variable will be applied, to check the character of the association. For this, the technique of comparing the partial contingency tables will be applied. Two problems limited our choice of this supposed intervening variable. In order to be brief, we had to choose just one of them. We have chosen the age, since it is a variable that can be considered as the most independent. Had we chosen the income, we would have to examine also everything that might affect it, e. g. size of the city, education, and—unfortunately—the sex. Allow us to remind you that this technique does not measure dependency, or effect of one variable on another. In the strict wording of statistics, it just rejects the hypothesis of independence, that is the idea that two, or more, groups are the same. To find an association is just the first step to examine the presence and direction of causality. Our goal fully respects these limitations.

Let us now turn the attention to the data. Our analysis is based on the responses of representative sample that were collected by the Department of Sociology at the Philosophical Faculty, the Charles University in Prague. The survey is a part of a broad project called "The Actor and Risks", thus it was not originally designed for studying the Internet. The survey was carried out in the year 2005 and 1939 persons were asked. The data were processed in SPSS.

As you can see in the Table 1, more than three quarters of the respondents use the Internet. Almost forty per cent of all the respondents use it

[4] If not stated otherwise, all the contingency tables have p 0,05.

every day, which also means that half of the users are everyday users. We will call those "Heavy users", those who claim weekly, monthly or seldom use will be labeled as "Light users" and, of course, the rest will be treated as "Non-users". The division between the Light and the Heavy users is inspired by the research methodology of UCLA studies.[5]

TABLE 1: HOW OFTEN DO YOU USE THE INTERNET?

	Frequency	Valid Percent	Cumulative Percent
Everyday	754	38,9	38,9
Every week	455	23,5	62,4
Every month	85	4,4	66,7
Sometimes	213	11,0	77,7
Never	432	22,3	100
Total	1 939	100	

a. Actor and Risks 2005, Universitas / FFUK, N=1939

For the supposed dependent variable, the questions on social behavior were chosen. As we have said before, the project "Actor and Risks" was a broad one, and so we had the possibility to test various relationships. In most cases, the differences between users were either small or statistically insignificant—or both. For this presentation, we decided to work with the variables that measure "political participation", "social life" and "feelings of anxiety".

THE ANALYSIS [3]

BIVARIATE TABLES [3.1]

First, let us discuss the impact on participation in public life. The question used in the survey measured both the attitude—in the terms of approval or rejection—and the presence of action.[6] From various actions proposed to the respondent, we have chosen "participation in elections", as this corresponds with the idea of e-democracy, the use of the Internet for voters. If we look at

[5] University of California Los Angeles. (2003). *Surveying the Digital Future*. Retrieved November 10, 2006, from: http://www.digitalcenter.org/pdf/InternetReportYearThree.pdf

Table 2, it is apparent, that the users have more positive attitude and if active, then find it meaningful. The Heavy users tend more to consider their action as meaningful, while the Light users show tendency to find their action less effective.

TABLE 2: INTERNET USE X PARTICIPATION

Participation (% Internet Use)	Heavy User	Light User	Non-user	Total
Rejection	2,4%	3,3%	4,6%	3,3%
Stand. Adj. Residuals	o	o	o	
Tolerance	6,5%	5,1%	10,0%	6,7%
Stand. Adj. Residuals	o	-	++	
Possible participation	17,6%	19,0%	17,9%	18,2%
Stand. Adj. Residuals	o	o	o	
Participation (no effect)	30,9%	38,3%	39,0%	35,6%
Stand. Adj. Residuals	---	+	o	
Participation (meaningful)	42,6%	34,2%	28,5%	36,2%
Stand. Adj. Residuals	+++	o	---	
TOTAL	**100%**	**100%**	**100%**	**100%**

Actor and Risks 2005, Universitas / FFUK, N=1933

The second question we want to deal with is the connection between Internet use and social life measured by the time devoted to meeting "friends and acquaintances". Here, once again, significant differences were found, be it those between users and non-users, or those between the Light and the Heavy users. The tendency seems to be clear—the users tend to meet their friends more than non-users. This is even more apparent for the Heavy users, while for the Light users the significance of the difference weakens. See Table 3.

[6] The translation of the question would be: "There are many way how to express attitude towards a matter that one can find important, or how to influence it. Please, mark those following activities, if...: 1. you reject them; 2. you are able to tolerate it when performed by others; 3. you admit that you could participate; 4. you have participated although it did not bring greater effect; 5. you participate and consider these activities as a meaningful way."

TABLE 3: INTERNET USE X SOCIAL LIFE

Meets friends... **(% Internet Use)**	Heavy User	Light User	Non-user	Total
Daily	9,6%	6,4%	5,9%	7,5%
Stand. Adj. Residuals	++	o	o	
Weekly	58,4%	57,0%	48,9%	55,8%
Stand. Adj. Residuals	o	o	--	
Monthly	27,3%	31,7%	35,1%	30,8%
Stand. Adj. Residuals	--	o	+	
Seldom or never	4,7%	4,9%	10,1%	6,0%
Stand. Adj. Residuals	o	o	+++	
Total	**100%**	**100%**	**100%**	**100%**

Actor and Risks 2005, Universitas / FFUK, N=1928

The last question, we will discuss in our presentation, concerns the feelings of isolation. The proposed statement is as follows: "During the last two weeks, I have suffered feelings of isolation"; it was measured by 4 point scale. For the sake of clearness, the scale was reduced to yes/no dichotomy. The difference became clear and significant (see Table 4): 34,8% of non-users claimed isolation, while amongst the users, only 21% said so. And, as in both previous cases, the association does not seem to be significant for the Light users.

TABLE 4: INTERNET USE X ISOLATION

Feels Isolated **(% Internet Use)**	Heavy User	Light User	Non-user	Total
Yes	20,9%	24,2%	34,8%	25,2%
Stand. Adj. Residuals	---	o	+++	
No	79,1%	75,8%	65,2%	74,8%
Stand. Adj. Residuals	+++	o	---	
Total	**100%**	**100%**	**100%**	**100%**

Actor and Risks 2005, Universitas / FFUK, N=1866

Let us summarize this part. In all cases, a statistically significant difference can be found. The users make greater part of those who participate in public issues, meet regularly their friends and claim less anxiety. We could not find any support for those ideas that consider the Internet as a medium that weakens the active life in the community. On the other hand, we are very well aware of the fact, that above shown difference does not have explanation value—it just shows the relevancy of further studies which would go beyond our main goal. In the second step, we will try to isolate the possible effect of the Internet use from another variable, the age.

CONTROL VARIABLE: THE AGE [3.2]

When we introduced the age into our previous analysis, we faced the problem of statistical significance due to the low presence in some categories. We proceeded in accordance with standard recommendations and reduced, or if you prefer, recoded, the variable of age into five categories, as you can see in the tables. The significance got better for the majority of cases. Our main purpose in this part is to compare the original association to those differentiated by the age. If it stays the same after the introduction of age, it means, that age does not interfere.

Talking about the link between political participation and Internet use, we first examined the relation between age and participation. The data showed the general tendency of higher participation amongst those who are older than 35 years. The age group 15 to 24 showed very high level of approval—which can be due to the fact that some of them are less than 18 and are not allowed to vote, but still, they consider it important. When we ran the analysis of age, Internet use and participation, we found that the partial tables indicate difference.

We have to mention two limitations. At first, the youngest category is weakened by the presence of non-voters, then the oldest are not enough statistically represented. Therefore, let us concentrate on the three remaining categories: 25-34, 35-44 and 45-54. The first one has in total (the last column) a different structure and assessment of participation, where those who find it ineffective prevail. The structure of the Heavy users is mostly the same as in the original bivariate relationship. The Light users stay the same as before, but non-users tend much more to be skeptical of their participation. The next

group, 35-44, shows some small differences. Still, one fact is of importance: in this part the adjusted standardized residuals show no statistical differences between groups of users. That is to say, for this group, the relation between Internet use and participation has no statistical support. Looking at the last analyzed age group, 45-54, we can say that the structure of responses is clearer than in the original analysis. We judge this from the high presence of rejection and at the same time low meaningful participation in this group. Thus, to conclude, the age has a differentiating impact on the association between participation and Internet use.

TABLE 5: PARTICIPATION X INTERNET USE X AGE

% within Internet Use

Age Group	Participation	Heavy User	Light User	Non-user	Total
15 - 24	Rejection	1,9%	3,9%	10,0%	3,3%
	Tolerance	7,0%	7,8%	30,0%	8,8%
	Possible participation	40,8%	45,5%	35,0%	42,6%
	Participation (no effect)	17,2%	28,6%	20,0%	22,7%
	Participation (meaningful)	33,1%	14,3%	5,0%	22,7%
	Total	100%	100%	100%	100%
25 - 34	Rejection	2,8%	2,7%	3,8%	2,9%
	Tolerance	6,9%	4,8%	17,3%++	7,2%
	Possible participation	13,8%	15,4%	26,9%+	15,8%
	Participation (no effect)	36,8%	45,7%	38,5%	40,5%
	Participation (meaningful)	39,7%++	31,4%	13,5%--	33,7%
	Total	100%	100%	100%	100%
35 - 44	Rejection	3,4%	5,0%	5,0%	4,3%
	Tolerance	5,5%	5,7%	10,0%	6,4%
	Possible participation	6,2%	5,7%	21,7%+++	8,7%
	Participation (no effect)	38,4%	41,4%	41,7%	40,2%
	Participation (meaningful)	46,6%+	42,1%	21,7%--	40,5%
	Total	100%	100%	100%	100%

% within Internet Use

Age Group	Participation	Heavy User	Light User	Non-user	
45 - 54	Rejection	0,8%	1,8%	8,2%+++	2,9%
	Tolerance	4,7%	2,5%-	10,6%++	5,1%
	Possible participation	14,1%	12,9%	18,8%	14,6%
	Participation (no effect)	28,9%-	42,3%+	36,5%	36,4%
	Participation (meaningful)	51,6%++	40,5%	25,9%--	41,0%
	Total	100%	100%	100%	100%
55+	Rejection	2,8%	3,8%	2,8%	3,1%
	Tolerance	9,9%	3,8%	6,1%	6,2%
	Possible participation	8,5%	14,3%	12,6%	12,3%
	Participation (no effect)	29,6%	29,5%	41,1%	35,9%
	Participation (meaningful)	49,3%	48,6%	37,4%	42,6%
	Total	100%	100%	100%	100%

Actor and Risks 2005, Universitas / FFUK, N=1866

The role of age on meeting friends showed the same trends as the effect of Internet use, but the significance of differences was much higher. Unfortunately, the controlling could not be carried out, due to low number of cases in most of the categories, i.e. the chi-square test did not work. On the other hand, given the fact that age has greater—in terms of significance—impact than Internet use, we could assume that it will intervene; to prove that, we would have to use different statistical tool, or more complex model.

Let us step forward to the last case of our analysis, which is estimating the role of age in the relationship between feelings of isolation and Internet use. As in previous cases, we examined the sole effect of age the variable of "isolation". The test showed almost perfect independence, except for very the Light rise of the feeling in the oldest group. To our disappointment, the values of the chi-square test prevent us from analyzing the relationship in the age group 15-24 and 35-44. Nevertheless, the other partial tables are not liable to this inconvenience and show some interesting findings, mainly about the older population. We already know that the users feel less isolated than non-users, and judging from the distribution of adjusted residuals

in the table, we may say that this works for older people too. This is even more interesting if we realize that the age itself does not show any association with the feeling. So it may seem that the Internet has a positive effect on reducing the feeling of isolation. But, here comes the skeptic and says: "O.K. but what if this effect is caused by some other variable that was not included into your analysis?" Well, that might be true. Thus, we must remain modest in our conclusions: we just discovered that older users of the Internet tend to feel less isolated than the non-users from their group.

To end this part, allow us to summarize our analysis. In the bivariate analysis, we found the Internet use associated with:

a) the attitude and assessment related to political participation
b) the frequency of meeting friends and acquaintance
c) the feeling of isolation

In the next step, we found our previous findings problematic, because:

a) the age intervenes into the association between the political participation and Internet use, that is to say makes it an indirect one
b) we cannot find any support for the intervention of age into the relationship between Internet use and social life, in terms of meeting friends and acquaintances; this remains unclear
c) the age does not intervene into the association between Internet use and feelings of isolation

THE DISCUSSION OF THE FINDINGS [4]

Before we will proceed to the final part of our presentation where we will discuss some more general limits of the research on the Internet, allow us to mention two problems related specifically to controlling variables. The first one has already been mentioned sever times and it is a statistical one. The chi-square test, the basis of our cross-tabulation, is liable to low representation of categories. That means for example, that we are limited in examining smaller, and more specific groups in the sample—retired respondents can be taken as an example. A problem connected to this is the one of normal distribution of variable. This is especially acute when analyzing scales, mainly those with more points. If we want to proceed with this technique, we are limited in choice and often have to reduce the difference by reducing variables by recoding them into smaller number of categories than they originally have.

All this is true, and most of the sociologists know it. On the other hand, given the fact that we deal mostly with non-cardinal data, limits the use of more sophisticated statistical tools—provided the rules of statistical method are respected. That is why—as opposed to other scientific fields—, the statistical analysis can hardly stand alone as an argument. Only a careful setting of the analysis in the broader theoretical frame, and comparison with other research, be it done by the same method or a different one, can make statistics a useful tool of sociological research. This leads us to the second problem, the problem of the choice of controlling variables. There is no statistical clue how to make this choice, we can only test the fitting of the model. The design is up to the researcher. This becomes even more difficult if we consider that several controlling variables need not to be independent of each other (as is the case of education and income).

But there is wider, methodological, field of problems. Some of them are related to the methodology of representative questionnaire survey and—if you allow—those are being discussed in textbooks and handbooks of social research. We could hardly add something more to that. But we wish to express our respect to other methodological approaches that in combination with our work can create synergic effect and deepen our knowledge. On the other hand, we should always differ between journalism and research.

The problems specific to our topic and methodology are mostly part of research design. First and foremost, a phenomenon like the Internet calls for its own survey, directly designed for this field. Thus, better and more subtle indicators of Internet use could be designed. Indicators of intensity (how often) and experience (since when) are of good use. And of course, what is missing painfully is the mapping of user's on-line behaviors, or at least differs between various categories of use (downloading, instant messaging, "just" browsing, membership in on-line communities…). The last and maybe the most difficult thing is the age limit. Everybody knows that the age of the first contact with the Internet is under 15 or eighteen, thus we miss a significant group of users, mainly the "fresh users". This could make us miss some interesting issues related to "migration to the virtual".

As you might have seen, we have had to face almost all these research inconveniences. Despite that, we believe we managed to support our thesis. Our analysis has shown that we should be very careful to think of the Inter-

net as something that has itself an effect on social life. We have also argued that the group of users is heterogeneous—remember the division between the Heavy and the Light users—and so is the effect of the Internet in their lives. These findings foster our thesis that the impact of Internet access is more differentiated and thus complex. This should be reflected not only by those who research it, but also by those who promote its spreading and promise better future for all. We should face the possibility that even if everyone gets on the informational highway, some will go faster than others. Some could sooner or later meet new problems and inequalities instead of sharing the life in the Internet village.

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