Digital divide - questions beyond access

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Abstract

The general assumption often is that as soon as we provide people the access to new media technologies and some training to use those technologies, it results with happy people who are motivated to use Internet in order to enhance their own lives. This paper will look at the issues of digital divide beyond access. In order to describe the digital divide better, we should include besides access also other dimensions. This paper offers possibility to find elements of the digital divide in four different dimensions. First we can see the differences in accessing the tools (for instance networked computers) and accessing the content. The other dimension is skills: for using the tools and for using and understanding the content that is accessed via those tools. When we split the digital divide in those dimensions, we see that providing access to computer and elementary skills to use them, does not guarantee involved and participating citizen gaining full profit from the new media.

Thus an attempt is made to outline different aspects of involvement with new media technologies – looking at three most common elements of digital divide discourse: information, communication and participation. Those aspects will also be illustrated with empirical data from large representative Estonian survey from December 2002.

Introduction

This paper will look at the issues of the digital divide, but not from the traditional angle of "who has, and who has not". It takes the digital divide discourse and its main elements and compares them with empirical data from the point of Internet users. The idea of the paper is explore the limitations of the digital divide discourse through analysis of empirical material.

First of all, the paper is going to look at the background of the digital divide discourse and look at the different dimensions of the discourse. Then a short overview of the survey methodology is presented. The third part of the paper will look at the general social demographics of Estonian Internet users. The fourth part will concentrate on what people do online, and look at the Internet as a source for information, a tool for communicating and a possibility for participation.

The discussion part will draw the conclusions from the empirical material and expand them into another dimension of the digital divide discourse.

Background

As Robins and Webster (1999) observed, the rising issue of information revolution should be taken away from the debate of technology and technological innovation to the differential (and unequal) access to, and control over information resources. And claim, that

> "*Raising this widens unavoidably the scope of discussions of social change, taking it far from 'technology effects' considerations, at the same time, as it, necessarily, politicizes the process of technological development itself, by framing it as a matter of shifts in the availability of and access of information*" (Robins and Webster, 1999 : 91).

The starting point for this work lies in the problematic approach policy makers tend to have towards digital divide. OECD (2001) defines digital divide as:

> *As used here, the term "digital divide" refers to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities. /../Access to basic telecommunications infrastructures is fundamental to any consideration of the issue, as it precedes and is more widely available than access to and use of the Internet.*

The definition of OECD is the most neutral one, it as a definition is not loaded with the traditional technologically deterministic view, but it still puts an important emphasis on access. Access to modern technology and through providing access, most of the inequalities of the digital divide should be bridged. As Carpentier comments,

> *"[a]s most of the definitions mentioned above illustrate, the core of the digital divide discourse is based on the articulation of three elements: 1/the importance of access to on-line computers, 2/which use results in increased levels of information, knowledge, communication or other types of socially valued benefits 3/that are in turn so vital that the absence of access and the resulting 'digibetism' (or computer illiteracy) will eventually create or maintain a dichotomous society of haves and have-nots."* (Carpentier, 2003)

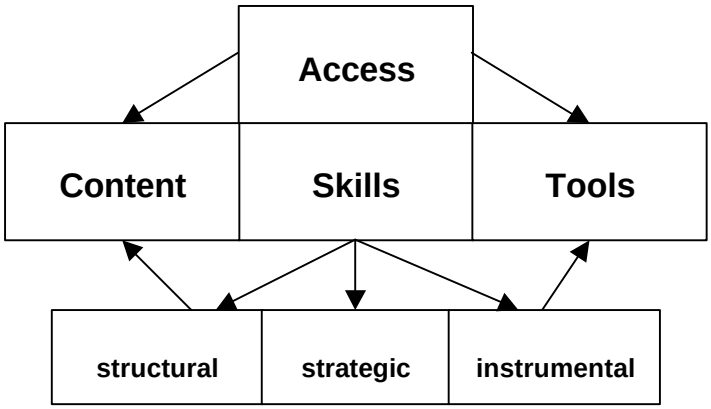
In order to agree with the first line of critique Carpentier illustrates: the limits of the access and a small scheme (Figure 1) can be introduced, broadening somewhat the notion of access. First of

all, it also contains the dimension of skills – ability to use technology and the possible benefits it brings. The importance of skills in digital divide discourse is developed by Steyaert (2000 and 2002, cited in Carpentier, 2003)

> *He distinguishes three levels of capabilities: instrumental, structural and strategic skills. Instrumental skills deal with the operational manipulation of technology, while structural skills relate to the use (and understanding) of the structure in which the information is contained. Strategic skills include the basic readiness to pre-actively look for information, the information based decision-making and the scanning of the environment for relevant information* (Steyaert, 2002, 73-74, cited in Carpentier, 2003).

The scheme (Figure 1) tries to show that in order to be able to use any of the tools (technologies), you will obviously have to have an access to them, but you will also have to have the skills to use them.

Figure 1 – Four dimensions of the digital divide (Access, Skills 3 levels, Tools and Content)



But once you have accessed the tools, it does not mean that you have access to the content as well. The content might be in a troublesome format (shockwave or flash), too big to download or simply password protected and thus unavailable for your use.

The other possible obstacle for benefiting from the content might be that you do not have the structural skills to use it. A simple example here might be language barrier. For instance, English is the main language used in the Internet; in Estonia a total about 21% of people claim to have

good or very good command of English. 32% of Internet users have poor or no command of English at all – which excludes them from majority of the Internet content[1]. But also socio-demographic background and lack of economic, educational and cultural capital (as in Bourdieu, 1984) may influence the existence of the strategic and structural skills. In this way the possibility to take full advantage of the Internet might be higher in some groups and lower in the others. Therefore, not all Internet users can gain equal benefits from the Internet even if the access barrier is crossed.

The next question that arises from is – what kind of benefits do people get from Internet? Again, turning to digital divide discourse, people should be able to benefit in several areas like economy, democracy, personal wellbeing and that all because they have more information available to them. As a somewhat populist exclamation from the Digital Divide Network (2003) goes: *Now, more than ever, unequal adoption of technology excludes many from reaping the fruits of the economy*. Carpentier (2003) lines three major critiques to the digital divide discourse – one was already picked up earlier, introducing some other dimensions to the traditional access issue. The other line of critique is about the fact that digital divide is too much westernized, but as Estonia likes to consider itself a western country, this line of the critique is not relevant here.

The rest of the paper concentrates on exploring the line of critique that challenges the truth claim. We will look at the Internet users and see if they have benefited from the Internet as monolithic as the theoretical discussion often seems to implicate.

Survey

The study is part of a larger survey conducted in Estonia in December 2002 - January 2003. The survey itself covers a range of topics from people's views towards changes, their habits and everyday practices, media consumption, usage of the computers and Internet. The basic idea behind the survey is that in the contemporary society media in general is one of the important resources for cultural and social capital of audience. Whereas at the same time, the patterns of media use are reflecting social and cultural divisions in society. The study itself is also an attempt to apply Pierre Bourdieu's notion of capitals (1984) on Estonia. This paper will only look at the fraction of data gathered with this survey.

[1] According to the survey conducted in the department of Journalism and Communication, University of Tartu. See next chapter..

The sample included 1000 Estonians and 500 Russian speakers living in Estonia. The sample is representative of the population of Estonia. The study was based on the questionnaire, filled in by the respondent him/herself, and the additional interview carried out by the interviewer.

The proportional model of the universe is used according to the urban-rural population and regions of Estonia. To compile a sample a stratified two-stage sampling is used. First the universe is divided into 150 sampling points all over Estonia according to the model. Primary sampling units (the total of 150 sampling points) are settlements (towns, country towns, villages). Sample points are chosen by random sampling with a proportional likelihood to the size of the settlement (number of inhabitants according to the National Registry's address list). In every primary sampling unit other secondary sampling units are chosen - people. Sample size in all sample points is 10 people. To select households the starting address method was used. The starting addresses are found by random sampling. In the apartments/private houses that are included in the sample the so-called young-men-rule is applied (the youngest man between the ages of 15-74, who is at home, will be interviewed. If there are no men of that age at home then the youngest woman between the ages of 15-74 will be interviewed).Additionally the quota according to the native language was used. The quota was determined separately for each sampling point.

People were asked altogether more than 790 questions and whole section (more than 100 questions) was dedicated on issues of new media.

Who are Estonian Internet users?

Table 1 draws together a variety of socio-demographic variables to describe Estonian Internet user from different aspects. From general population, 43% of Estonians use Internet, this number has steadily grown, being 31% 2 years ago (EMOR, 2003). Estonia is the leading country for internet users among Eastern Europe and is an average among the rest of the western world.

In relation to the other statistics, there are slightly more men using Internet. As could be expected, younger generation is far more adopted to the use of internet than older, reaching high 85% among the 15-19 year olds. The levels of education are rather equal, having a slightly higher figure with people with higher education.

There are altogether about 35% of non-Estonian speaking people living in Estonia, mostly Russian. Table 1 shows that their level of adoption to Internet among them is more than 10% lower that the corresponding number among Estonians. As it can be expected Internet adoption is much higher among people in the high income groups.

Table 1 – General statistics of Internet users in Estonia

	Yes	No
TOTAL	43%	57%
Gender		
Men	47%	53%
Women	39%	61%
Age		
15-19	85%	15%
20-29	65%	35%
30-44	49%	51%
45-54	37%	63%
55-64	18%	82%
65-74	4%	96%
Education		
Primary	40%	60%
Secondary	41%	59%
Higher	48%	52%
Type of job		
Physical	31%	69%
Mental	38%	62%
Both	69%	31%
Nationality		
Estonians	47%	53%
Others (mostly Russians)	35%	65%
Income (EEK= 0.065EUR)		
Up to 1500	30%	70%
1501-2500	33%	67%
2500-4000	51%	49%
4001-6000	72%	28%
More than 6000	79%	21%

How frequent are Internet users.

How often do you use Internet in different places?

In Estonia, Internet can be used in different places, not just home, school, work and with friends, but there are also Public Internet Access points (PIA). For instance, with government and private funding, each public library across the country has at least one public Internet point. Thus it can

be argued, that although Internet has not became yet a universal good, the government has done much to ensure the access possibility to all. The questions whether this is enough to ensure equal access possibilities to all, are not dealt further in this paper. [2]

In the questionnaire, Internet users where asked to indicate how often did they use internet in different places.

Table 2. Where Internet is used:

Place	Almost every day	A couple of times per week	Never
Work or school	47%	22%	16%
Home	30%	17%	40%
PIA	2%	6%	56%
At friends or relatives place	2%	8%	43%

From Table 2 we can see that 47% of the Internet users use Internet almost every day at work or in school. Total of 47% of Internet users also use Internet at least a couple of times per week at home. Only small 2% of people bother to use Internet almost every day in PIA-s or at friends or relatives. It is interesting to notice also the figures in the Never column, where we can see that almost one fifth of the Internet users have never used Internet at work or at school (which is often regarded as the first place of adoption). 56% of Estonian Internet users have never used PIAs to access Internet. PIAs as governments initiative to make Internet accessible to everyone, have reached in total 44% of Internet users, which is a quite good result, considering that the initiative has been around only a couple of years.

How long do you spend using Internet an average workday / weekend?

In average, people spend 46-60 minutes using Internet during a working day and 31-45 minutes during a weekend.

Through combining average time spent on weekend and on workday with the frequency of use in different places, an index of frequency of Internet usage is composed. The index is used as general variable to show persons Internet usage frequency and it has four values – Occasionally, Sometimes, Often and Very often.

[2] Research shows – people who are not computer literate, are not that much interested in showing their lack of skills in public places, therefore they are also not interested in participating the trainings that are provided with the PIA-s and that the digital divide issues can only be solved for Estonians, if computers and internet were affordable at homes (EMOR, 2002).

Table 3 – Internet users' statistics through frequency of usage

	Very often	Often	Sometimes	Occasionally
Gender				
Male	14%	35%	45%	6%
Female	8%	31%	45%	11%
Age				
15-19	16%	44%	31%	9%
20-29	16%	39%	40%	5%
30-44	9%	30%	51%	10%
45-54	4%	33%	53%	10%
55-64	5%	26%	59%	10%
65-74	0%	0%	66%	34%
Education				
Primary	9%	40%	43%	8%
Secondary	13%	41%	40%	6%
Higher	16%	39%	33%	12%
Type of job				
Physical	7%	30%	49%	14%
Mental	10%	30%	50%	10%
Both	13%	39%	41%	6%
Income (EEK= 0.065EUR)				
Up to 1500	9%	29%	48%	14%
1501-2500	8%	36%	45%	11%
2500-4000	10%	37%	49%	4%
4001-6000	17%	34%	43%	6%
More than 6000	16%	45%	37%	1%

Interesting things to note about Table 3 are that men are slightly more frequent in their Internet usage. From the education factors it can be seen that the older people get, the less frequently they use Internet. From the education – it can be seen, that the frequency of the usage is slightly higher in primary education. The type of job seems to increase the frequency of usage, when person is doing both physical and mental job. From the income, the group who earns most money is also most frequent Internet users.

What do people do online?

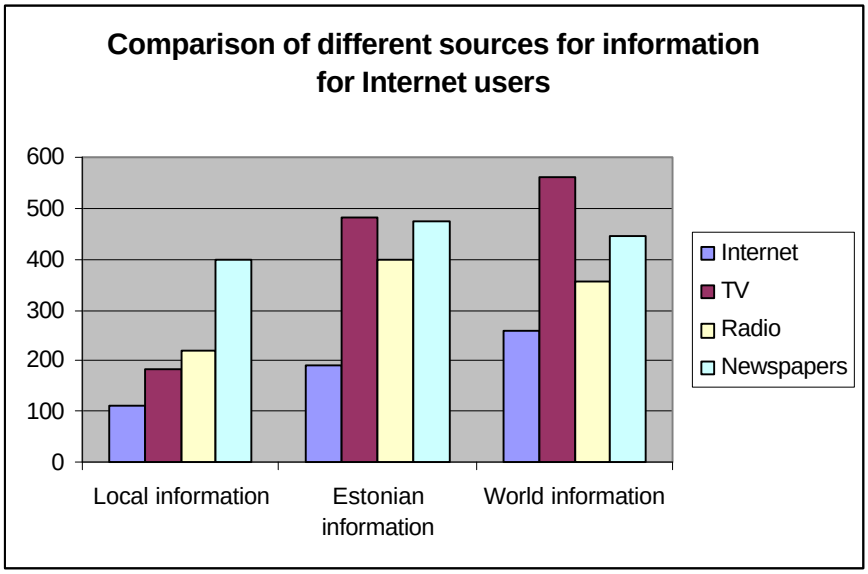
We continue to explore the empirical data from the perspective of the online behavior. The three big reasons for bridging the digital divide are more information, more communication and more participation. So that empirical data is analyzed to see how important source of information, communication and participation Internet is for its users, as they should be the people knowing and using those qualities.

Internet as a source for information

Following Figure 2 illustrates what are the sources for different types of information for the Internet users. People were asked to select three most important sources for each type of information, but the figure illustrates the comparison of Internet, with traditional media channels.

As it can be seen here, Internet scores quite high, but it does not come close to the traditional media channels. Figure 2 summarizes the Internet users and their opinions, so it follows that in spite of the fact, that those people use Internet, their regard to it as an important information channel is low. It increases as the distance of the events grows, but still, other sources dominate in each case.

Figure 2 – Internet as a source for information



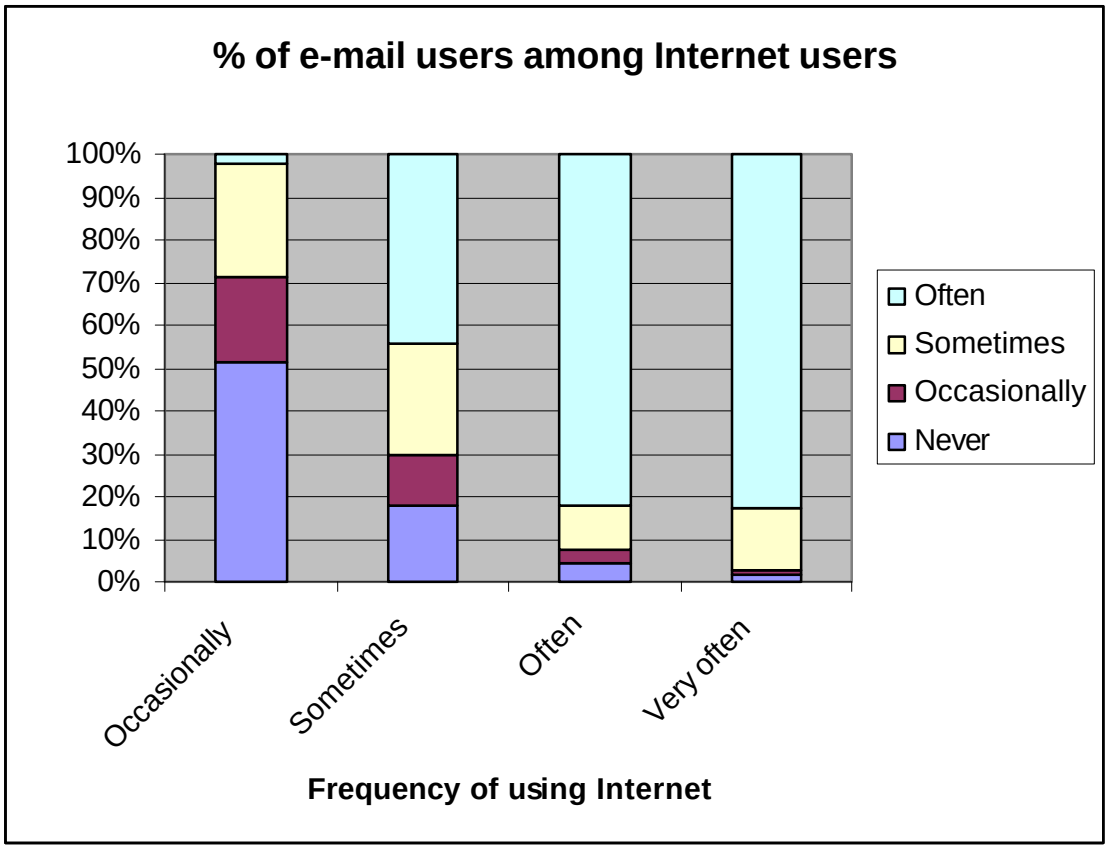
Internet for E-mail

The reason of exploring e-mail usage as a separate variable comes from the fact that it is most used Internet service and it can not be put in the same index with the rest of the communicative activities, as being one of the many possible ways to communicate via Internet – other services would over-shadow it. Therefore it is used as a separate indicator to investigate the promises of the digital divide discourse. 59% of men and 57% women use e-mail. People with more physical jobs, tend to use e-mail significantly less (only 32%), whereas Internet users whose jobs involve both physical and mental activities use e-mail in 67% of cases. Higher e-mail users standing out

with highest income group – being 76% and the lowest figure is 45% among the income group less than 1500. So e-mail confirms the high hopes with high usage. But still, almost in each socio-demographic group there is an average of 10% who do not use e-mail at all, being it's highest among 65-74 year olds, from whom 33% does not use e-mail at all.

The other variable, where e-mail is used lowest is among people who do not use Internet that often (Figure 3). There, it can be seen that e-mail is most appreciated by people who often or very often use Internet and much less used when the Internet use frequency is lower.

Figure 3 – Percentage of e-mail users among different frequency of using Internet



Internet for participation

The third type of positive factor most often associated with Internet is participation. The survey asked people who used Internet whether they had used Internet to participate in some way in the public life. From the list of different activities, the Table 4 outlines those that can be seen as important participatory activities, where the Internet user takes an active role of doing something.

"Seeking for political information" is also added in this list as the participation is most often associated as a political activity.

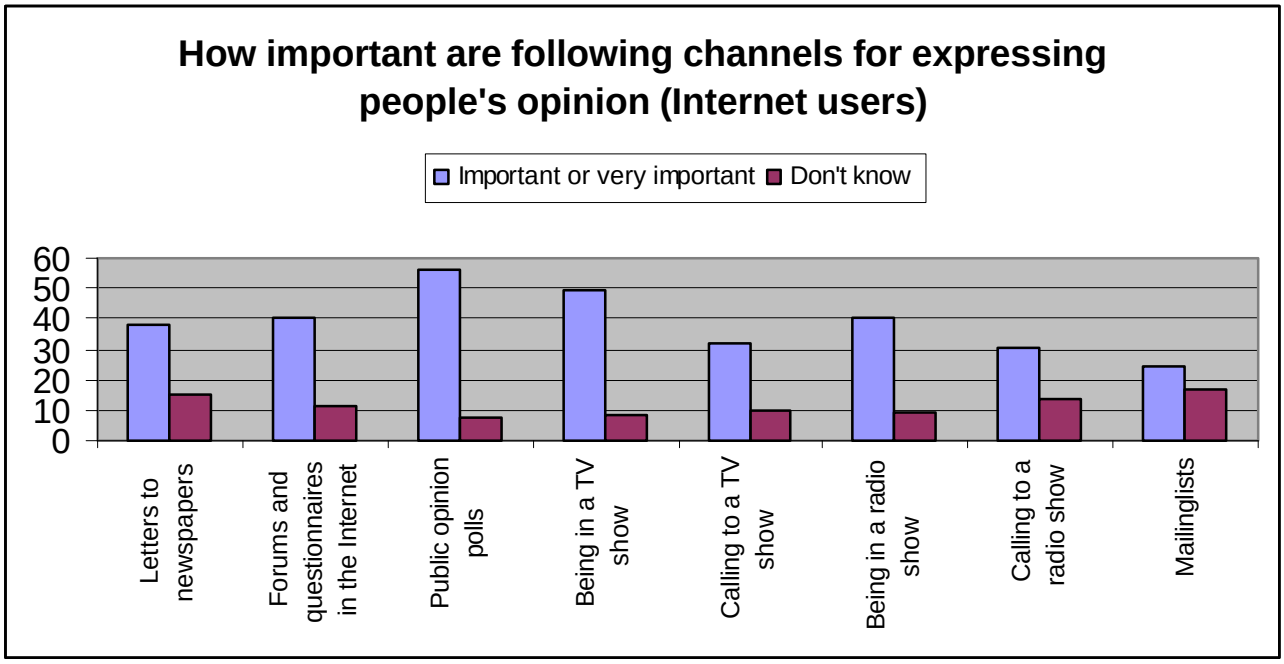
Table 4 – Internet for participation.

% from Internet users.	Has done it	Has not done it
Has used Internet for political information	45%	55%
Has written comments in the Internet	32%	68%
Has sent e-mails to some TV or radio shows	18%	82%
Has sent e-mails to politicians or institutions	29%	71%
Has asked for information/consultation from organizations or institutions?	37%	63%

As it is possible to see from the table, using Internet, does not make one more participatory in your nature – where all the Internet users have the options, then only 45% of them have used Internet for seeking political information and 82% have not had anything to say to TV or radio shows, (although there are often different invitations to participate).

Internet is lower regarded for its potential of being a participatory channel. As Figure 4 shows, only 24% of Internet users believe that self-expression in the mailing lists is important or very important and the corresponding number for forums and comment pages is 40%. Whereas 56% of Internet users believe that opinion polls are an important form of opinion expression.

Figure 4 – importance of different channels for expressing ones opinion



Internet as an unilateral thing

One line of critique, about the digital divide not mentioned above, is the singularity of the new technologies. For some reasons, all the new technologies are regarded as vital for new way of living. This paper will not discuss here the difference of mobile phones, web-portals and digital cameras, but rather it makes an attempt to draw attention to the fact that Internet should not be treated as one single technology.

The questionnaire contained a list of 24 activities a person could use Internet for. From there, with factor analysis 6 groups were formed and named Internet for: Communicating, Personal services, Transactions, Participating, Studying and Erotica.

- Internet for communicating - Contains following services: chat rooms; ICQ/MSN; playing online games; dating services; being in mailing lists; participating in chat rooms & forums. The usage of the e-mail is looked as a separate issue in the previous part so the communicating activities enlisted here are mostly ones complementing e-mail.
- Internet for participation - Contains following services: forums, newsgroups; reading comments from portals; writing comments.
- Internet for transactions - Contains following services: buying and auctions; banking; taxing and filling out official forms; legal information; political information; economical information.
- Internet for personal services - Contains following services: finding job; finding place to live; travel information; information about health, family and raising kids
- Internet for study purposes - Contains following services: information about ones field of activity; information for study purposes
- Internet for erotica - From the service point of view, contains only erotica, but it also correlates rather strongly with *Other services*, which, although not taken account into calculating this index, might show that person is interested in services, that she or he does not like to list.

Drawing out those groups in their social demographics is a little out of this papers scope, but some interesting points can be highlighted.

In regards of gender, the groups are quite similar, except that notably fewer women (90% vs 63% male not using erotica) admit using Internet for erotica. And somewhat less men use Internet for personal services (24% vs 17% females not using personal services), yet men use Internet more for transactions (46% vs 36% of women using transactions sometimes or often).

The 'type of job' does not seem to make that much difference. A slightly smaller proportion of people engaged in both mental and physical job do not use Internet for personal services (15% vs 24% and 28% with mental and physical types of jobs). The level of participation is also highest among people doing both mental and physical jobs (only 15% not using Internet for participation, whereas the corresponding numbers are 28% for physical and 24% for mental types of job).

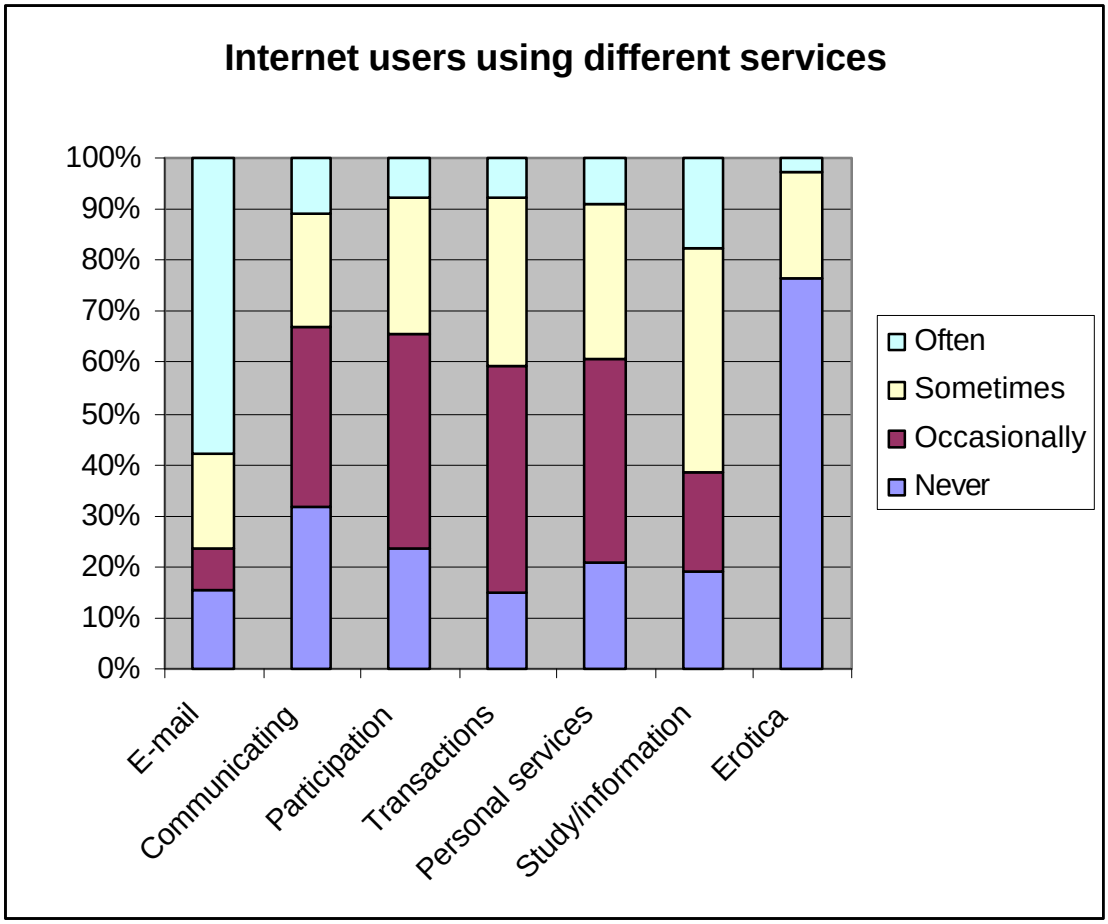
In regards of income, the more income, the more people use Internet for transactions, personal services, participation, for studies and for erotica (% of non-users in those service groups decreasing with income increasing). It can not be said about communicating where the income groups have similar level of non-users.

Among the different age groups – as the communicating index has significant element of play in it, then it can be understood, why the older the age group, the bigger the non-communicating group among them.
The biggest differences in age groups are in case of communication, where the higher the education, the larger the non communicating group and in case of transactions and personal services, where more education leads to more active use of those services.

It is interesting to see that each of those groups has a number of people who do not to use that particular listing of services at all (therefore, not using Internet to benefit in this area of life). It would be interesting for further research to see, what kind of factors influence the choice of services people use from Internet. So far, it can be seen that people's choices are different and Internet from that point of perspective should not be regarded as a monolithic thing that every user benefits from. (See Figure 5)

Figure 5 – Internet users using different services.[3]

[3] It is important to see, that on this figure, communication and e-mail are separate bars, where communication bar contains services that complement e-mail.



Discussion

On the one hand, we have the political assumption that bridging digital divide is good for you. An assumption that is technologically deterministic in the way it attributes the power of changing society to a computer network. The digital divide has three main elements. This article has looked at two of them. Firstly in the introductory discussion we looked at the need to broaden the notion of access and introduced skills along with two dimensions – tools and content.

Then we took the empirical material and tried to investigate if we saw the second element – increased level of information, knowledge and other socially valued benefits (Carpentier, 2003).

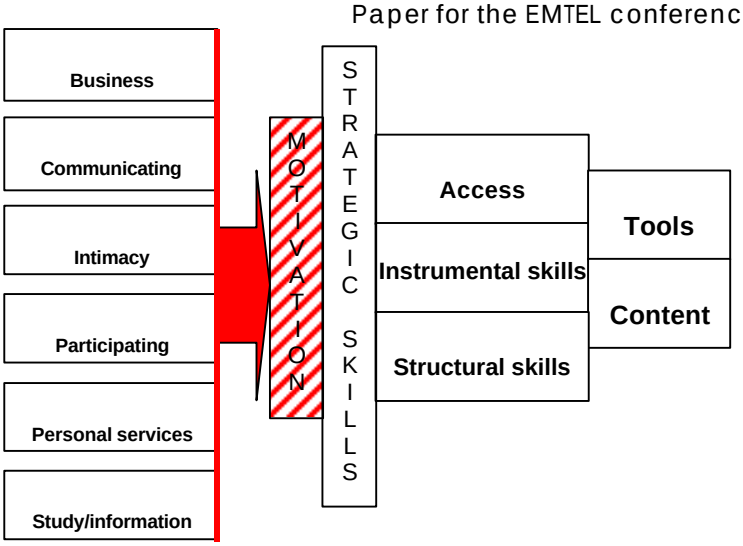
From our empirical material, it is very hard to associate Internet with increased levels of information as the surveyed Internet users mention Internet much less frequently as important source for information than the traditional channels, like TV, radio and newspapers. But still the

fact that is was mentioned among the top three information sources show, at least some people have found Internet useful in this regards.

Internet does much better in being a channel for communication – as we look at the e-mail, an average level of 61% of users uses it very often. But, Internet as a communication channel is used when frequency of the Internet usage is higher, thus people who use Internet on less frequent bases, do not use it as communication channel.

The third lot of empirical material looks at the different usages of the Internet. Two main conclusions can be drawn from here. First of all, there are variety of services people used from Internet – some of the overlap with the expected benefits to the society (participation, studying, transactions), others have more personal benefits (personal services, erotica). What is interesting still to see is that in each of those indexes, there are people who have not used any of those possible services listed.

Coming back to the initial model, we can now try to develop it a bit further by adding the different things you can do with Internet in the picture. (Figure 6). And for discussion, also factor of motivation/strategic skills, as the possible reason for why people choose some services to use and do not choose the others. With the scheme of the digital divide improved with those variables, we can see that the dualistic picture of internet usage may not be the most accurate one. At least the empirical material here shows that there are many issues of the digital divide that have not yet reached the public agenda and by turning attention to them, we might be able to improve the communication of the possible benefits from the Internet. By taking into account that different people benefit from Internet in a different way, it may help to address those groups with better communication.



From the empirical material, the most interesting question that arises is: what are the factors that make people chose from some of the services offered in the Internet and not to choose the others. As we can associate it with motivation and the different levels of skills, it would be beneficial to look for the factors that influence it. It would be an interesting add-on to the digital divide debate if we could look at the different factors behind different activities.

This paper has tried to look at some of the aspects which show that Internet usage is not one unilateral process. One of the future projects will be trying to look more deeply into online behavior and its connections to the existing and possible even increasing economic, social and cultural capitals. So, in conclusion we can say that in an attempt to answer some of the theoretical considerations, we have created even more questions to be answered with further work.

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