

PhD dissertation theses

**The use of the Internet and
electronic communication among the
teacher-trainees at the University of
Debrecen**

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1. The Aims of the Dissertation

Our dissertation centres on the effects of information communication devices, which play an important part in the changes of our society. Our aim is to follow these changes in the medium defined by the Internet and computers, since we presume that these devices comprise to the process of individual socialization. According to our views, family is the primary, school is the secondary place of socialization and we are arguing for the point that information society makes the third place of socialization, whose main advantage is – concerning mostly the younger generation – that school mediates patterns and values only during their school years, whereas information society – similar to the family – provides a life-long way of formation, as in this type of society ICT devices contribute to the various forms of contacting.

In our paper we examined the full-time teacher-trainees of the University of Debrecen. With the help of this research we were looking for the answers to the basic questions of how they are trying to categorize themselves as the citizens of the information superhighway, how they are building up and maintaining contacts, and with what regularity and intensity they get in touch with information communication devices. The aim of the theoretical framework of our thesis is to present the big global change, whose result is called information society, and which is fundamentally changing not only the economy, the culture and the structure of the society,

but has an effect on the individual way of life, interpersonal communication and on our relationships already formed and those still being formed.

Several international and Hungarian scientific researches are examining the effects of the computers and the Internet on social structures, economy or even on the individual; however, we were examining it from a new angle: from the perspective of the appearance and the mechanisms of socialization, contact network and contact assets. This medium is regarded as a homogenous one in several ways. There were numerous branches of science involved in the research and measurement of the effects of information society. In our paper we thematized and summarized the experiences drawn by the researches of each branch of science on information society. We agree with the statement that information society is a new type of society, as its formation is the result of the technological development of the 20th century. Our work is supplementary in the way that we were focusing our research attention to the examination of attitudes and opinions regarding the given technological devices and the communication patterns generated by this new type of society. We considered the research on the ICT usage and attitudes of the would-be teachers as highly important because their homogeneity of age and heterogeneity regarding their composition from different faculties provide us with the excellent possibility for the manifold examination of a given generation; on the other hand, it is their attitude and

tool use that will be of great importance in the socialization of their students during their career.

2. The outline of research methods used in the dissertation

The framework of our dissertation is made up by a three-pillared conceptual system which interprets and connects the theoretical background and the empirical research of the paper. Our basic aim was to explore the students' integration into the information society (how deeply integrated, how regular and essential their ICT usage is), their electronic communication pattern with the help of ICT devices and contact net, in the light of the utilization of the Internet in higher education as well as the social factors which differentiate the chances of access and usage. The first unit of the threefold conceptual framework is the manifestation of inequalities connected to the primary digital fault lines, which is an essential question in the problems of the scientific definition of information societies, and in connection with which the description of the demographical differences among those entering the Net and the social inequalities come into the fore. The definition and empirical examination of the second key issue of the dissertation had been paid less attention to in previous scientific papers. The pioneer enterprise of our work was to refine and

empirically grab the definition of secondary digital fault lines. The latest means – pointing beyond the primary digital fault lines – the individual orientations, attitudes and the personal relationship to the ICT devices. There is no doubt that digital inequalities contain the differences appearing along the primary digital fault lines, however, based on them will also appear the differences lying in the individual way of life and lifestyle patterns. In the background of the emergence of secondary digital fault lines we may assume the manifestation of socialization, because although we can experience differences of social status and demographic factors in the expansion, access and social appearance of the devices, there are micro-environmental actions of mechanism that have an overwhelming effect both on the society and on the individuals within the society, and they seem to be becoming part of the individual lives. Finally, the third conceptual pillar in our work is the interpretation and reinterpretation of network communities. We tailored the structure of the results of our empirical research to the threefold structure of the above introduced conceptual system. From the general theories of the information society, through the formation of computer networks and their social, economic and educational utilization we will reach the for us most exciting element, the realisation of the interpersonal communication via the Internet, the appearance of contact and social assets, and we can also give an explanation to the question how all these factors are shaping the socializing processes,

how the society of digital inhabitants described by Prensky (2001) can be characterised and structured.

The basis of our empirical research were the theories showing the utilization of computers and the Internet in education. Taking these theories into consideration, we examined in which direction the processes of the use of ICT devices were heading for in Hungary in 2008-2009. In our research we were focusing on the most sensitive group of higher education within the wide spectrum of education, i.e. the full-time students, not only because they are the best measurable units of the above mentioned changes of the information society, but also because the quickly extending social functions of the higher education justify why we were focusing on them. In our cross-sectional research we scrutinized the highly important group of would-be graduated employees, the teacher-trainees. We believe that they are the ones who are right in the middle of the global changes; they have been constantly in touch and interaction with information-technological devices, and as teachers they will have to face the higher and higher social demands of the development of abilities among the younger generation. We consider it an important research goal to acquire information about the tool use as well as the ICT-backed communication habits of the would-be teachers, as they have been socialized within the mechanism of action of computers, mobile phones and the Internet; their norms and values developed during this process will serve as an example for the future generations.

The main questions of our research are the following: What kind of inequalities can be detected in the ICT usage of the would-be teachers? What kinds of socialization effects vary the differences along the primary digital inequalities? Which are the communities that can appear through the ICT devices and how are they being formed?

During the research on the role of the Internet in education and in the life of the students we took the following into consideration: accessibility, availability, the skill of use and the targeted use, as well as the presence of attitudes towards these devices. We chose our sample population from the students of the University of Debrecen in the period of the survey (2009), from whom the samples were chosen from the teacher trainees of the given year. With the help of the self-filling questionnaire handed out to the students (N=385) we could get the widest range of information about the communication habits, contacting forms and the use of the Internet of full-time students. We divided our questionnaire into seven topics: demographical features, previous IT experiences and studies, common computer and Internet usage, opinions about computers, the Internet and online presence, forms of contacting, as well as economic features in connection with ICT devices.

During the survey we applied crosstabs analysis, variance analysis, two-sample T-test, and for creating groups from certain items we used cluster analysis. Furthermore, we thought it useful to compare our results with the results of the statistical

surveys of other institutes and researchers; this way we compared our data among others with the results and statements on the use of computer and internet of the younger generation by SÁGVÁRI (2008), Bauer and Szabó (2009).

3. The results of the dissertation

Our paper is a contribution to the series of researches that aim to give an in-depth mapping about the social utilization of the Internet and which are examining the regularities of the process during which the Internet is becoming a part of our everyday lives. The most important results of our work are connected to a group of young people who play a special role in society. We consider it a major research result that looking beyond widespread examination of the supply of tools and tool use we approached the Internet-based contact net and communication from several angles.

We dealt especially with the social relationships forming on the Web, being friendship or emotional relationship. We interpreted these processes as the forming of the so called online personalities, in between pointing out the plasticity and vulnerability of the relationships forming on the Web due to the facelessness of the Internet and the characteristics of human personality. The results of our research showed that the World Wide Web has a

really exciting and valuable feature: it can support and foster the formation of two or more people's relationship.

According to our first hypothesis among the full-time teacher trainees who took part in our research the use of computers and the Internet is independent from the social background variables.

Although studies have shown a strong connection between social status and the use of ICT, this connection is not that evident in younger age groups, as due to their special stratum in society, besides their families' economic dependence it is the university's infrastructure that provides them with certain tools. Students examined in our research made up a quite heterogeneous group in social and demographic aspects. Different place of residence, marital status, type of settlement, age, faculty, grade, major as well as different proportion of economic goods and ICT devices characterised them. In spite of the differentiated social and economic numbers, we could observe a rather high frequency of computer and Internet usage. Both the computer and the Internet have a major role in facilitating learning processes. Entertaining contents and pastime also appear among the activities in the form of frequent listening to music, browsing, on the other hand in the form of games, forums, reading of blogs and watching films – these later with a lesser intensity. Students regularly take advantage of the technical and communication possibilities offered by these devices compared to the social averages of the same age group.

According to our second hypothesis, computers and the Internet have become an integrated and pronounced determinative factor in the socializing process of the students, which can be traced back in the sameness of their physical presence and online presence, the frequency of their network communication, and in their cultivating of online relationships.

Based on Bronfenbrenner's model (1979) we created the theoretical model of the socialization medium which is determinative in information society. With the help of this model we positioned our students within the information society. The medium determined by the ICT devices makes up an effective agent of socialization processes, as long as their social acceptance can be proved to be a large-scale one. To empirically underline this hypothesis, we measured the students' opinions about ICT devices and online presence. We found out that students accept the presence of these devices in their lives and they use them, too. They turned out to be curious about the technological devices and innovations, they were clearly aware of the possibilities and dangers of computers and the Internet, they use them as primary and important but questionable and not exclusive source of information. Students' attitudes towards computer and the Internet are mostly positive. The favourable attitudes appeared in the manifold use and frequent use of the device and interface. We stated that students use the Internet primarily for offline communication and gathering information. A

significant part of them are members of some social networking site.

In our third hypothesis we assumed that students use the Internet first and foremost to communicate and foster, build their already existing social relationship, which helps their social embedding, not hinder it.

Internet-based communication appears as a new means of interpersonal communication, which the individual use to build and foster their relationships, and to transmit their contact assets. We found that students use the Internet every day for offline communication: they send emails on a daily basis and they use other text- and voice-based communication programmes for keeping in touch, however, not on a large scale and not very often. They are not really good at creating Internet contents, but they take part in the lives of forums on a larger scale than in reading and writing Internet diaries, blogs. At the same time, the majority of the questioned students are a member of some social networking site, among which the Hungarian site is on the top. It was justified that acquaintances and of the contact net in real life, too.

It is a relevant recognition that the Internet makes students' keeping in touch easier, as they offer fast and effective forms of communication, however, all these do not replace but only complete regular personal meetings, and not eradicates them. There are differences between friendships and acquaintanceships concerning the frequency of online and real-life meetings. In close friendships,

the physical form of keeping in touch is more frequent and preferred, but mobile communication and online communication were also popular, whereas in looser acquaintanceships students considered the lower-frequency physical meetings also primary. At the same time, exchanging emails, text messages and writing messages on social networking sites turned out to be the next frequent contacting forms. Challenging the theses about the alienating effect of the Internet, we stated that the online form of keeping in touch won't replace physical meetings, but makes maintaining relationships easier.

In our fourth hypothesis we assume that student build their real and virtual relationships the same way. Those having an extensive contact net in physical reality also maintain numerous contacts on the Internet.

To check our hypothesis, we examined the distribution of opinions about online and real-life presence in three student groups created with self-classification; on the other hand we looked into the number of relationships in the scope of physical contacts and virtual relationships. Opinions on online presence show that students see themselves the same way both in the virtual and in the real space, their commutation and psychological features don not differ from each other. The number of online friendships, however, is overtaken by relationships based on physical meetings, actually, the proportion of these are much higher. In the meantime, there are

far less loose and tight relationships that exist only in online space.

According to our fifth hypothesis, students regarded as digital inhabitants do not make up a homogeneous group. We thought that there appear a kind of secondary digital fault line which can be observed within the features of attitude, communication and tool use.

In our survey students had to identify themselves in three separate categories: digital advanced, digital intermediate and digital beginner. During the interpretation of the three groups we separated the differences in the feelings and opinions about the device, era and technology on the one hand, the differences in tool use on the other. We made up the three basic categories on our own experiences and on the theoretical definitions of Prensky (2001), Palfrey-Gasser (2008), and SÁgvári (2008), trying to cover with these three groups the possible ways, and stages of integrating into information society, and separate the different attitudes. Scientific sources basically separate the categories of digital inhabitants or digital natives versus digital immigrants, primarily based on the social divergences due to age differences. On the contrary, we assumed that in case of our samples differences can be detected also within a given community of homogenous age, and accordingly, we accentuated the differences appearing in attitudes and opinions on tools, as well as the divergences in the frequency of usage when creating the types of digital advanced and intermediate individuals. The

group of digital beginners created by us can mostly evoke the differences of use due to age characteristics.

In our research the major part of students considered themselves as digital advanced, whereas only about one third of them viewed themselves as digital intermediates and a minimal 2% as digital beginners. It is a considerable result that there is no significant divergence in the type of computer and Internet usage within the student groups based on self-categorization, but in the frequency and opinions on the tools. This controversy can be explained with the socialization model described in the first hypothesis; since students meet the structures and technical devices of information society at a basically young age, they could integrate these into their everyday lives; divergence appears only in the degree of attraction.

With the help of Cluster analysis we examined all the computer user and all the Internet user behaviour separated. On the frequency indicators of the different surface usage of the computer and the Internet we created three-three cluster groups that we compared with the students identifications groups. The experienced overlaps between the groups, give us to make a conclusion, that the usage of ICT devices are different on a level of identification and practice.

According to our sixth hypothesis, the use of computers and Internet of male and female students show differences due to different gender socialization. We expected the male students to be at

the forefront in the use of programmes requiring technical preparedness and deep user knowledge.

We found no major differences between the use of the Internet of male and female students, however, in the case of particular areas, e.g. studying, reading belletristic literature or scientific texts on the Internet, female students proved to be more active, whereas in case of computer and Internet-based games, downloading music and programmes the male students showed a higher rate of frequency. At the same time, we observed significant differences between male and female students in word processing, photo and picture editing, computer-aided filming as well as listening to music. Looking at activities on the Internet, there was a significant difference in reading news and information, reading scientific texts, listening to online music, buying electronic and technical goods, taking part in online auctions, and in internet-based phoning. So our sixth hypothesis was partly fulfilled, because although it did not show any divergences in frequency when using programmes requiring any technical preparations and deep user knowledge; we experienced significant differences only in particular areas mentioned above. A detailed description of gender differences requires further research.

Finally, in our seventh hypothesis we assume that due to the different disciplinary socialization of the university faculties there are differences in the use of computers and the Internet.

The university campus creates a special disciplinary socialization milieu for students. In the

research on the use of ICT devices in different faculties we noticed that although the toll use moves on a wide scale and these activities are really accepted, there was a difference in the frequency of usage and in the opinions about the devices according to the specific scientific branch. It was the IT students, who were on the forefront in the frequency of tool use and in the numbers of hours spent online, and they have the most positive attitudes towards the devices, however, they can see the real dangers much clearer than their fellow students. During the survey on students from three faculties, the number of hours spent on the Internet showed significant differences. Considering computer aided activities, there was a major difference in word processing, making presentations, spreadsheet application and games; considering Internet based activities, there was a difference in reading literature and scientific texts and online games.

Our research cast a light on the important fact that students use info-communication devices frequently and in various ways. Among their activities it is the communication and keeping in touch, which plays a major role, the Internet appears to be an important but by no means a decisive field of transmitting contact assets. The results of our dissertation can further be strengthened and extended. One of the possible directions of further research is the study of students' contact net on social networking sites with sociometrics or some

other methods, because the Internet functions as a community space, which has local and global results as well. At the same time, we believe that an important research direction is the study of differences arising from the status in society and differences between generations with respect to tool use. It would be useful to expand our research horizontally, as our results are suitable for both national and international comparison.

4. Publications on the subject

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