

Internet usage of fourth-grader primary school pupils

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The development of information and communication technologies has resulted in revolutionary changes, which seem to continue in economy, society and many areas of life. The most important resource of the new social structure emerging as a result of technologies is information, thus the development of human capacity related to the use of information is extremely important. It may not be easy for parents and teachers to face the fact that the majority of their children/pupils know more about cyberspace than themselves. But are primary school pupils really better versed? Does digital literacy indeed automatically evolve? Does the use of the internet by all means improve children's academic performance?

In our current study we are researching how primary school pupils in the easternmost part of Hungary use the internet, and what effects it has on their studies. We would also like to emphasize the role of teachers working at the lower grades of the primary school in the formation of pupils' digital literacy. In 2013 190 fourth-grader primary school pupils of eight schools filled in our questionnaire.

Based on the data negative correlation was found between the time spent on web browsing and the academic average. Analysis of variance also revealed that those pupils have a higher academic average whose parents regularly check the purpose of their children's internet usage. Our research results showed that the pupils who use the internet and the library equally to search for new information have a higher academic average compared to those pupils who only make use of either the traditional or the online option only. The most important result of the research is that in the case of adequate parental or professional (teacher) control internet may have fruitful effects on pupils' studies, but in the lack of such control the opposite is more likely.

Keywords: Internet, digital literacy, primary school

Introduction

The development of information and communication technology in the last few decades has resulted in revolutionary changes, which continue in the economy, society and in many areas of life (Balogh, 2006). Networks have become a defining element of human civilization. Internet, the global network interweaving the entire globe, is used by hundreds of millions of people on a daily basis. Therefore, it has a key influence on the social connection systems, both formal and informal structures, social capital, and confidence (Molnár, Kollányi and Székely, 2007). It develops new kinds of space-time relations, and also offers new opportunities for the people for the use of space. It changes our way of life, as it affects us even if we personally do not use it (Mészáros, 2006). So everything that happens in information technology in connection with the internet is not only technological, but also a fundamental social issue (Havass, 2000).

However, it has been accompanied by very little critical recognition and its real long-term consequences have not been taken into consideration. Hymns in praise of the new technologies do not always have sufficient academic grounds. The hosanna accompanying the unfolding of the technical possibilities - combined with the advertising campaign of equipment and services - has created the effect that the new information and communication technologies, as well as the related services possess magical properties (Melody, 2003).

It has appeared that the use of info-communication technology (ICT) will be able to solve the social and economic problems of a company, the society and the whole world. People have constantly been encouraged to subordinate themselves to the rule of these technologies (Melody, 2003). The hysterical visions highlighting the downsides of information society give a contrary interpretation of its effects on society. According to a number of researchers one of the threats to modern societies is that more and more organizations based on impersonal relationships forge ahead, while the role of communities mediating the social value system is declining. Many typical processes today strengthen the decline of civil activity and the appearance of individualization (Molnár, Kollányi and Székely, 2007). The most important resource of the new social structure emerging as a result of technologies is information, thus the development of human capacity related to the use of information is extremely important (Havass, 2000). In the societies before the industrial revolution children acquired this ability during everyday work and ceremonies in the family and social life growing into the bequeathed activity system. Socialization was achieved within the frameworks of the family, the village and the Church in a uniform manner.

However, in modern industrial societies, the tasks of education and upbringing have been taken over by specialized institutions. The school system has become multifunctional and received a service feature, as it has been given a vast range of tasks from babysitting to moral education (Bessenyei, 2007). It was partly due to the acceleration of technological development after World War 2, when the traditional ways of knowledge transfer proved to be less and less able to serve the changing needs of the labour market, since because of the huge amount of the accumulated knowledge it has become inaccessible to achieve a broad general knowledge.

The main objective of teaching has become to have the pupils acquire the abilities, skills and competences which are required to enable the individual to get the appropriate knowledge according to his/her life situation and endowments. With the help of this knowledge the individual will be able to succeed in the specialized economic environment. Knowledge applicable in these specific situations is so varied and changes so rapidly that it is impossible to acquire in basic education. So one of the new tasks of public education is to transfer the ability of the acquisition of new knowledge - essentially the competence of lifelong learning - outside the frames of formal education (Horváth and Könczöl, 2005). Accordingly, the teacher's role is transformed, one of its most important elements will be the teaching of advanced techniques of learning (Kőfalvi, 2006), as alternative sources of knowledge - such as the internet - are available for more and more people today. Therefore, teachers should give their students a new means by which they will be able to obtain the knowledge needed for their further work independently (Horváth and Könczöl, 2005).

With the fast, simple and wide-range spread of information we have become the citizens of a knowledge-based society where information and knowledge are determinants of prosperity and power (Gergó, 2004). Kőfalvi (2006) predicts that because of the transformation of the mechanism of knowledge transfer, the job of the school teacher in the future will be more and more likely to simply organize and coordinate the progress of knowledge. Their work, however, will not become obsolete only its character will change. At school technology will complement the role of the teacher, but the success of the educational system will most likely be greatly influenced by the right proportions of traditional and new forms of education (Kőfalvi, 2006). The American sociologist Don

Tapscott's *Growing Up Digital: The Rise of the Net Generation* is about the internet generation, about the young people who have been growing up surrounded by digital technologies, and who, as a result of this, study, play, purchase, and communicate in a completely different way than the generations before them. As these young people are born into technology, they obviously have more expertise to manage technical novelties than their parents or their teachers. It may not be easy for parents and teachers to face the fact that the majority of their children/pupils know more about cyberspace than themselves (Gergó, 2004). These students often do not find their place in the traditional education system (Horváth and Könczöl, 2005).

But is it true to each and every pupil? Is it really so obvious that all of the children acquire these competences with such ease? According to Havass (2000), due to the lack or low level of human ability related to the use of information the electronically organized society might extract the world of "digital homeless" who are unable to acquire the new literacy (Havass, 2000). In literature the expression "digital divide" is used for the social divisions created by the different usages of internet (Csepeli and Prazsák, 2010). Mészáros (2006) also suggests that the populist claim that cyberspace is an equality arena must be handled with reservation. The political and economic benefits associated with the use of cyberspace are located along the traditional spatial and social divisions. From this it might be concluded that cyberspace will reproduce or even strengthen the disparities within the individual countries and regions, the differences between the developed and underdeveloped world, and it will create new inequalities which could further increase the social divide (Mészáros, 2006). According to Csepeli and Prazsák (2010) the question really is not whether or not individuals use the internet, but what impact digital inequality has on the other manifestations of social inequality (Csepeli and Prazsák, 2010).

It seems clear that there is a strong correlation between the spread of the use of the internet and the socio-demographic characteristics that are generally associated with social inequality. Csepeli's and Prazsák's (2010) path model demonstrates that the use of the internet is directly and indirectly determined by each explanatory variable. The internet use is most directly affected by the financial situation of the household. Thus, the wealthier a family is, the more likely it is that its members use the internet. In the case of age a strong effect was also observed, however, with a reversed sign. But age does not only play a direct role in the formation of internet usage, but also through other variables. The young age itself represents a remarkable driving force, but it becomes even more so, if it is combined with advantageous financial situation, foreign language skills, and high educational level of the parents. Csepeli and Prazsák (2010) conclude that the primary explanatory factor of digital inequality is age, but it is certainly not independent of other factors involved in the development of social inequality (education, financial status, place of residence), either. The young age gives one a chance to break out of the suffocating ring of social disadvantages, but grasping this chance is obviously the hardest for the disadvantaged families (Csepeli and Prazsák, 2010).

The research

In our current study we are researching how primary school pupils in the easternmost part of Hungary use the internet, and what effects it has on their studies. We would also like to emphasize the role of teachers working at the lower grades of the primary school in the formation of pupils' digital literacy. During our research - with the help of the sophomore students of the College of Nyíregyháza majoring in communication and media science - seven primary schools in Szabolcs-Szatmár-Bereg County and one primary school in Borsod-Abaúj-Zemplén County were visited in November, 2013, and the fourth-grader pupils were asked to fill in our questionnaire. The selection of the schools (Table 1) was based on a non-probability sampling procedure at our own discretion.

A total of 190 nine-to-ten-year-old fourth-grade primary school pupils (52.7% female, 47.3% male) filled in our questionnaire. 33.7% of the respondents live in the county seat (Nyíregyháza), 26.8% in smaller towns (Záhony, Tokaj, Nyírbátor), 33.7% in villages

(Ramocsaháza, Nyírbétek, or other settlements near the towns involved in the research), 5.3% in other settlements. One person - probably wrongly - identified the capital as their permanent residence. In 36.8% of the respondents' family there are two, in 26.8% there are three, in 10.5% there are four, and in 4.2% there are even more children. 21.6% of the respondents have no brothers or sisters.

TABLE 1. SCHOOLS PARTICIPATING IN OUR SURVEY

School	Settlement	Respondents
Árpád Vezér Primary School	Záhony	18 pupils
Szent László Primary School	Nyírbétek	21 pupils
II. Rákóczi Ferenc Primary School	Tokaj	23 pupils
Göllesz Viktor Special Primary School	Nyíregyháza	25 pupils
Móricz Zsigmond Primary School	Nyíregyháza	25 pupils
Reformed Primary School of Nyírbátor	Nyírbátor	30 pupils
Apáczai Csere János Primary Practice School	Nyíregyháza	26 pupils
Nyárády Mihály Primary School	Ramocsaháza	22 pupils

The financial situation of the respondents was aimed to be measured by listing nine luxurious possessions out of which they were asked to choose the ones their family had. Based on this three financial categories were identified. 20.5% of the participating children come from low-income families, 60% of them live in average financial situation, and 19.5% are wealthy. Two-thirds of the students have smartphones capable of connecting to the internet as well.

Results

Children participating in the survey have used the internet for an average of 3.4 years, which almost exactly coincides with the date when they started school. Many of the respondents (24.2%), however, have been regularly browsing the web for five or six years. Most often, they connect to the internet at home (90%), but it is not uncommon that they also do so at school (56%) or in the homes of friends (55%). Most of the pupils use desktop computers (53.8%) most frequently for web surfing, but many of them prefer a notebook (25.5%) or a smartphone (20.7%) for this purpose. Most of the respondents use the internet for playing games (85%), maintaining community relations (74%), and listening to music (72%), but it is important to note that the learning activities option also received a high 66% getting even ahead of watching movies (65%). To keep in touch with the classmates outside of school hours they prefer the chat applications (68%) of social networking sites, some of them use the mobile phone (17.45%) for this purpose, however, email (5.8%) or Skype (8.7%) are less popular. 81.4% of the pupils consider that the internet has a positive impact on their studies, but the web is primarily used at their home, the majority of the pupils (70%) rarely or never go online on school computers.

The majority of the respondents (~68%) use the internet for 1-3 hours on a daily basis, but more than 5 hours only a relatively small proportion of them (~10%). During the data analysis of our survey a significant ($p=0.01$) negative correlation was found between the time spent on web browsing and the academic average. So the more the student surfs on the web, the worse their school performance results are (based on the academic average of the previous semester). It is interesting to note that the parents of one-fifth of the responding students do not limit the time their child might devote to access the internet, and a quarter of them never check what purpose their child use the internet for. However, the responses received also show that nearly half of the parents (48.2%) regularly determine how much time their child can spend on surfing, and 40.2% of the parents frequently or consistently always check the purpose of the internet use of their child. Analysis of variance also revealed that those pupils have a significantly ($p=0.039$) higher academic average whose parents regularly check the purpose of their child's internet

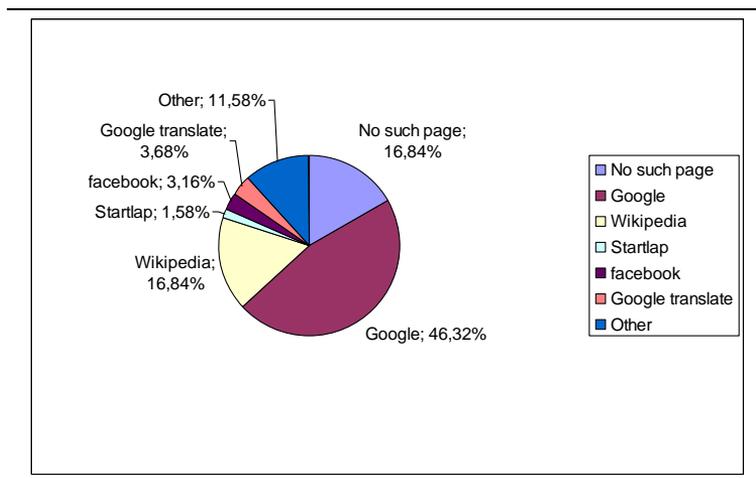
usage. (Table 2) It certainly does not mean that the fact of control is the direct determinant of the better academic achievement, a number of other variables might also play a role.

TABLE 2. THE ACADEMIC AVERAGES OF STUDENTS WITH REGARDS TO THE FREQUENCIES THEIR PARENTS CHECK THE PURPOSE OF THEIR INTERNET USE

	N	Academic average
Never	49	4,02286
Sometimes	62	4,15935
Often	36	4,13139
Always	39	4,41718
Total	186	4,17204

To our open question which website is most often visited by the students for learning purposes, thought-provoking responses were obtained. (Figure 1) Nearly half of the pupils (46.32%) identified the Google search engine as such a page, which can be very dangerous, because Google only provides a search service, it cannot be held responsible for the validity and reliability of the referenced content. Here comes the duty of the teachers to teach the pupils to manage the information found on the internet with reservation, and to show them sources where reliable study materials can be found. Such activity of the teachers is particularly necessary, as it can be seen from the data that more than half of the parents (59.8%) only occasionally control or do not control at all the web contents displayed by their child.

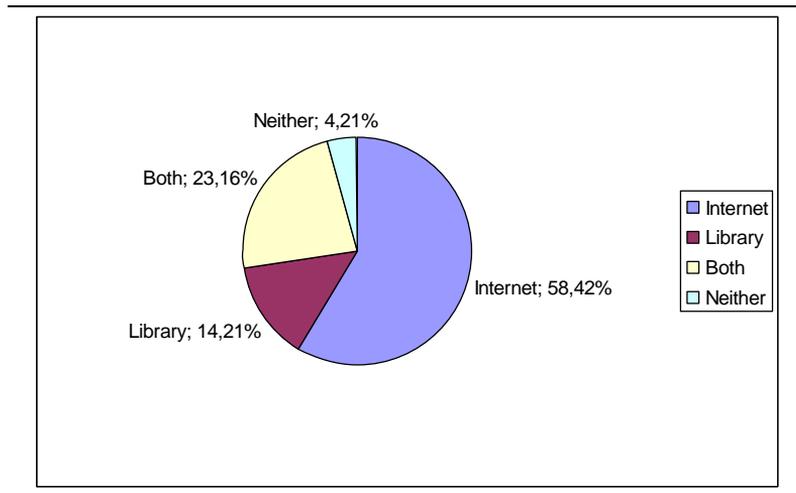
FIGURE 1. WEBSITES VISITED FOR STUDY PURPOSES



The second most visited site for learning purposes is Wikipedia (16.84%). Though Wikipedia strives to check the information on their webpage, the teachers are responsible for calling their students' attention to the instructions accompanying the use of information, texts found on this page. Students may not know, cannot know whether or how they are allowed to insert information found on Wikipedia or any other web source into for example a take-home essay. It is very important that students learn it at the lower grades of the primary school, because as well as many other competences, the ICT competence, the ability of digital literacy, is acquired at this age. Again, we would like to

stress the responsibility of teachers, because as it can be seen in the Figure 2, 58.42% of the pupils prefer the internet for finding new information, while only 14.21% use the library for this purpose.

FIGURE 2. PUPILS' PREFERENCE FOR FINDING NEW INFORMATION



Teachers must teach it to the pupils that from the nature of the required information they will be able to decide where to look for it: when it is more favourable to search in electronic sources, and in what cases it is more appropriate to make use of the traditional options. Our research results showed that the pupils who use the internet and the library equally to search for new information have a significantly ($p=0.016$) higher academic average compared to those pupils who only make use of either the traditional or the online option only (Table 3).

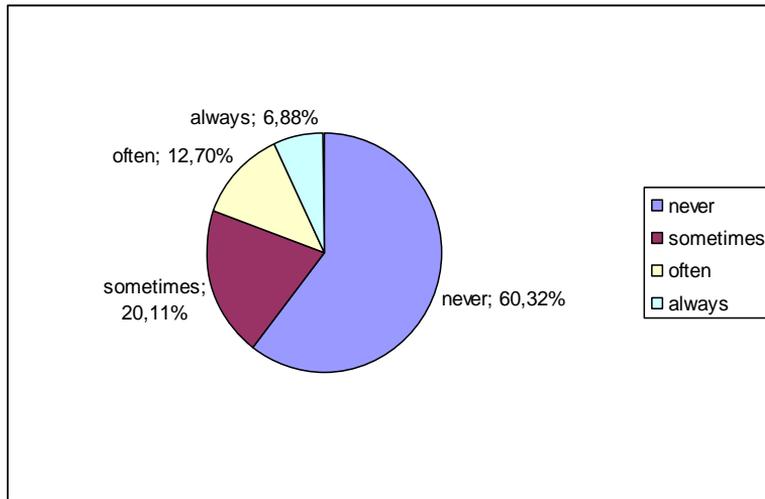
TABLE 3. THE ACADEMIC AVERAGES OF STUDENTS WITH REGARDS TO THEIR PREFERENCE OF THE MEANS FOR SEARCHING FOR NEW INFORMATION

	N	Academic average
Internet	111	4,10505
Library	27	4,08370
Both	44	4,45636
Neither	8	4,07500
Total	190	4,18211

For their studies the pupils rarely visit other websites, some mentioned Google translate, Startlap, and Facebook. Teachers should not ignore the potential of educational opportunities hiding in social networking sites (and primarily Facebook, since today it is the most popular of these kinds of sites), especially because students prefer to use the chat applications of such sites (68%) to keep in touch with their classmates beyond school time. Nevertheless, 60.32% of the pupils taking part in our survey have never used this website to talk about a school project with their mates. (Figure 3) Based on our own experience, we can necessarily count on our students' interest and activity with an exciting task posted on Facebook at a proper time and in an appropriate manner, in a way that they do not even notice the learning nature of our entry, they only see a "post" to which

they must respond. Being a teacher of English language and literature, I called this kind of activity of the teachers in the social networking sites “*guerrilla homework*”.

FIGURE 3. DOING HOMEWORK TOGETHER WITH THEIR CLASSMATES ON THE INTERNET



The present research results show that pupils who often solve homework assignments together with their classmates on the internet have significantly ($p=0.005$) worse academic averages than those who only sometimes or never do so (Table 4). It might also call our attention to a possible abuse of the internet: it is much easier for the pupils to copy the solution of a task from the others' entries than to solve it for themselves. Due to the pupils' strong preference of social networking sites, however, teachers must use their educational potential, but they have to post tasks which encourage thinking together, and do not facilitate mechanical copying.

TABLE 4. THE ACADEMIC AVERAGES OF STUDENTS WITH REGARDS TO THE EXTENT TO WHICH THEY USE SOCIAL NETWORKING SITES TO SOLVE HOMEWORK ASSIGNMENTS TOGETHER

	N	Academic average
Never	114	4,28421
Sometimes	38	4,15789
Often	24	3,95000
Always	13	3,72308
Total	189	4,17778

Conclusion

In conclusion, we would like to formulate the now seemingly self-evident fact that the internet is not a panacea. Its use will not erase students' learning difficulties, the need to invest energy, and it will certainly not make teachers' work unnecessary, but if teachers adequately exploit its potential, they will be able to greatly enhance the effectiveness of traditional classroom work.

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