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COMPARATIVE QUANTITATIVE ANALYSIS OF WRITING AND READING HABITS ON PAPER AND DIGITAL

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Abstract: With the appearance and spread of the internet and of the means of mass communication the media market and also the market of printed communication have changed significantly. Digital technology has filtered through people's everyday life. The electronic media have significantly affected the printed media products. Instead of reading printed newspapers, magazines, many have changed over to reading internet news sites and using e-book readers to read books. All this noticeably affected the print run of printed products. These changes also greatly influenced young people's lives, their reading and writing habits changed. The aim of this paper is to study the influence of digitalization on today's university and college students' reading, and writing habits in Hungary. We examined how people read on digital screens versus in hard copy as well as how people write using a digital device versus writing by hand with a pen. The methodology applied in this study is quantitative analysis. For the survey we used a questionnaire which had 32 questions. We compared our results with the survey was performed in Serbia. Our results are based on 400 responses. The principal results of this study showed that reading and writing functions are changing with the use of digital technologies but that paper and digital interactions are typical nowadays.

Keywords: paper/digital writing, paper/digital reading, reading/multitasking, reading/writing/concentration

1. INTRODUCTION

Due to advance in technology, mass communications as well as their means have changed and improved. This modernization had an impact on the traditional printed products and brought along the innovation of electronic media. People's views changed significantly, nevertheless a new era started with the appearance of the internet news websites. People's reading habits have changed and lots of them get informed about the news through the internet, instead of printed newspapers. Moreover the appearance of e-book reader made it possible to read books on an entirely new kind of surface (Anon. 1, online) (Stranegger, online).

Although the information content of printed media (text, figures, graphics) is stable/static and it cannot be changed quickly, in an interactive way, new technologies make it possible to produce the content tailored to the claims and needs of customers to an increasing degree. The strength of printed media is that they are easy to use nearly anywhere and in any environment – without the use of a special device.

Electronic media include the newest developments of the Internet, the World Wide Web (www) and CD-ROMs. They also cover the traditional forms, like radio and television, and the different forms of recording (recording and storing media), video and audio recording and computer-aided animations connected to them. Electronic media make it possible to integrate audio and video (speech, music and animations) into information documents (e.g. CD-ROM), besides textual, graphic and visual information. This information interaction provides the users with numerous possibilities. However, special devices are necessary to be able to use electronic information, especially during recording, playing and the display of data (Anon. 2, online).

Printed media products are typically produced in medium and large print runs. The products of electronic media are made in small or very small (even one) numbers. A part of printed products, like





packaging materials cannot be substituted. The electronic equivalents of other products, like magazines, newspapers, catalogues and books are now available in a large number. The modern electronic media products, a very short time after their appearance, made (and still make) a deep impact on print runs in the printing industry (Kipphan, 2001) (Smithers Pira Market Intelligence, online).

The aim of the research is to study the effect of digital technology and electronic media on printed media products. We examined the Hungarian university and college students' reading and writing habits, what urges them whether to use digital displays or traditional paper to read and write on. We compared our results with the survey that was performed in Serbia.

2. METHODS & BACKGROUND INFORMATIONS

In this study, a quantitative research method was applied in order to analyze today's young people's (university and college students') attitude and willingness to the traditional way of reading and writing on paper in pen, as against to the modern way, done on electronic devices. In the survey, the students were asked about their habits concerning digital and traditional reading and writing. This study is part of an international research project exploring how people read on digital screens versus in hard copy as well as how people write using a digital device versus writing by hand with a pen (Kaputa, Paulus, 2013) (Fortunati, Vincent, 2016) (Taipale, 2016).

The questionnaire contained 32 questions altogether, with the following sets of questions:

- ≡ Background information
- ≡ Reading and writing
- ≡ Reading in hard copy or on digital screen
- ≡ Text length
- ≡ Reading and multitasking
- ≡ Reading and concentration
- ≡ Writing and concentration
- ≡ Additional comments

During the survey we received 400 questionnaires that were evaluated. Most of the questionnaires, 273, were filled in on paper and in the online version by 127, by 370 full-time and 30 part-time students. Most of them (66%) were women. The majority were 20-25 years old, the average age being 24.68. Out of the students 360 are doing their BSc, 36 the Master and 4 people the PhD course. We asked them about their reading and writing habits connected to their school work and free time (e.g., novels, magazine articles). They were not asked about their reading for other purposes (e.g. a job, volunteer work, Facebook status updates).

In the survey made in Serbia also 400 valid questionnaires were evaluated, which were filled in by university and college students born between 1980 and 1996 (all on paper), 279 boys and 121 girls, of whom 319 were taking part in BSc, 72 in MsC and 9 in PhD training during the time of the survey.

In both countries, the survey was completed between 1st January and 1st September 2015.

Most young people (93% of all Hungarian responders, i.e. 347 people) have smart phones, laptops are owned by 83% (332) the third most popular device is the desktop computer (43%). Tablets are had by

barely one third (105), while the rest of the devices (hybrid laptops, e-book readers, non-smart phones, etc.) are owned by 18% of all responders. In the „Other” category mainly smart tvs and iPods were mentioned (Figure 1).

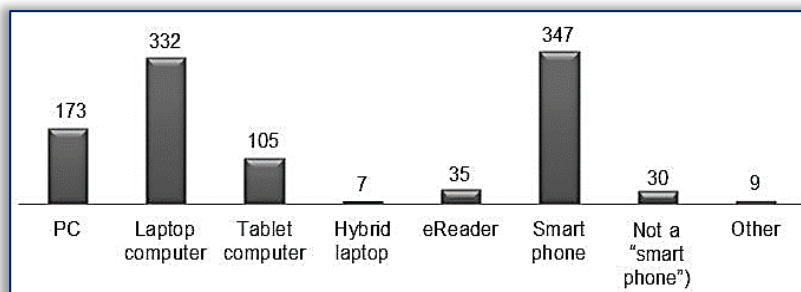


Figure 1: Digital device having (number of Hungarian responders)

smart phones (86%, 344 people) and laptops (89%, 357 people), but desktop computers are used in a bigger proportion (61%, 244 people). A little fewer students have tablets, 71 people.

3. RESULTS END DISCUSSION

» Reading and writing

In their school work when they reading most of those interviewed use laptops (203, 51%), while paper is used by 115 and desktop computers only by 45 students. The rest of the responders, i.e. 17, prefer





tablets and mobile phones. When reading as a free time activity, preference was given to paper, 237 (59%) students read on this surface most often, laptops were ticked by 57 (14%), and mobile phones by only 24. Desktop computers, tablets and e-book readers are used by about 15% of the responders. There were also some who don't read books for pleasure (5).

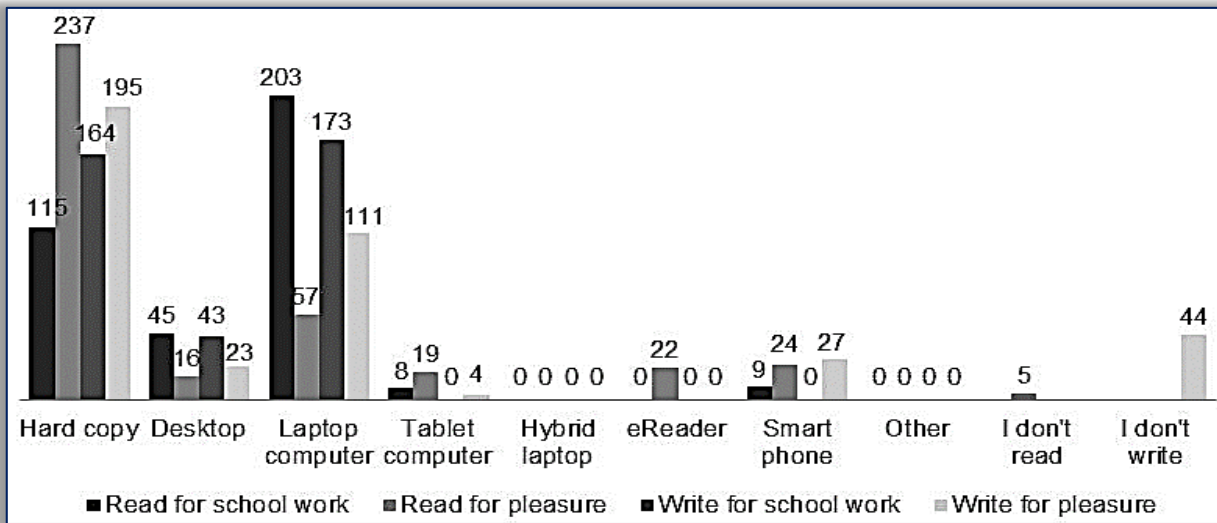


Figure 2: Hard copy or digital device using for school work and for pleasure (number of Hungarian students)
 NOTE for the questionnaire: Check only one answer. "Hard copy" means a printed word, including material you have printed yourself.

When using devices for writing we got similar results. For school work, 43% of responders (173) use laptops, 39% (164) write on paper, and 11% (43) on a desktop computer. The responders do not write school tasks on other devices. In their free time, 195 (49%) students write on paper and laptops were ticked by 111 (28%). Mobile phones and desktop computers are used by 50, tablets by 4 students when they write something in their free time. 44 (11%) responders do not write anything at all in their free time (Figure 2.).

The Serbian students interviewed, when reading for school tasks - contrary to Hungarian ones - use printed materials in a greater proportion (62,5%, 250 people) and only 28.5 (114) use laptops and 5.5% (22) desktop computers. When reading in their spare time, 202 students read in hard copy, in a smaller proportion on an electric device, 31.5 % (126) on laptops, 6% (24) on desktop computers and 2.25% (29) on smart phones. 1% (4) don't read anything for pleasure.

When writing for school tasks, similar results were obtained in case of those using paper (49.25%, 197) and laptops (41%, 167). 8.5% (34) do their tasks on desktop computers. When writing in their free time, for pleasure, more students prefer paper (48.75%, 195), as in case of Hungarian students. 107 young people (26.75%) use laptops and 37 (9.25%) don't write anything for pleasure.

» **Reading in hard copy or on digital screen**

The next set of questions asked the students to estimate about how much time they read in hard copy (i.e. using a printed book, an academic journal, or a paper copy they have printed out from online) or on a digital screen (i.e. desktop or laptop computer, a tablet, an eReader, or a mobile phone).

Nearly one third of those Hungarian interviewed (127) read for 3-4 hours a week for school work, the number is only 82 (21%) for 5-6 hours a week, and for 7 or more hours about 19% (76) of the responders. In their free time, 26% (103) of those interviewed spend 3-4 hours reading book, 5-6 hours were ticked by 18.5% (74) and 7-8 hours by 7.5% (30). The number of those students who spend 9 or more hours reading a book was 46 altogether. 142 students (35.5%) spend 2 hours or less a week reading for pleasure (Figure 3).

The Serbian students' answers differ a lot from the above. 30.25% (121) of Serbian students interviewed spend more than 10 hours reading for school tasks. 49 students (12.25%) read 7-8 hours, 58 (14.5%) 5-6 hours, 77 (19.25%) 3-4 hours per week. Only 12 people interviewed read less than 1 hour (3%). The number of hours spent reading in their free time is similar to that of Hungarian students. 20.75% (83) of those interviewed spend 3-4 hours, 21.75% (87) 1-2 hours, and 10% (40) 7-8 hours reading in their free time.

Less than 1 hour in a week is spent by 46 (11.5%) students reading for pleasure.



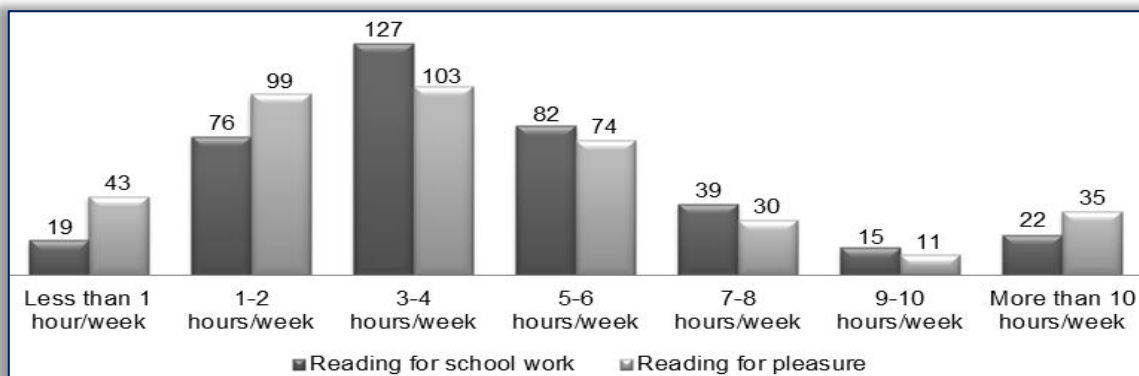


Figure 3: Amount of reading for school work and for pleasure (number of Hungarian students)

» **Text length**

The next set of questions asked the students about how the length of text influences whether they prefer to read on a screen or whether they would rather read in hard copy.

The text length research showed that when students read short texts for school work, the amount of reading on a digital display is nearly the same as reading on paper. But for 29.5% (118 students) it was all the same what surface they read on.

However, texts of more than 3 pages are read by most responders on paper (280, 70%).

When reading for pleasure, device selection is very similar when the text is short, i.e. 3 pages, the maximum. However, in case of long texts the proportion is different. Only 64 (16%) student said they read texts of more than 3 pages on a digital display, while 291 (73%) prefer reading on paper, and it's all the same for 40 people (Figure 4).

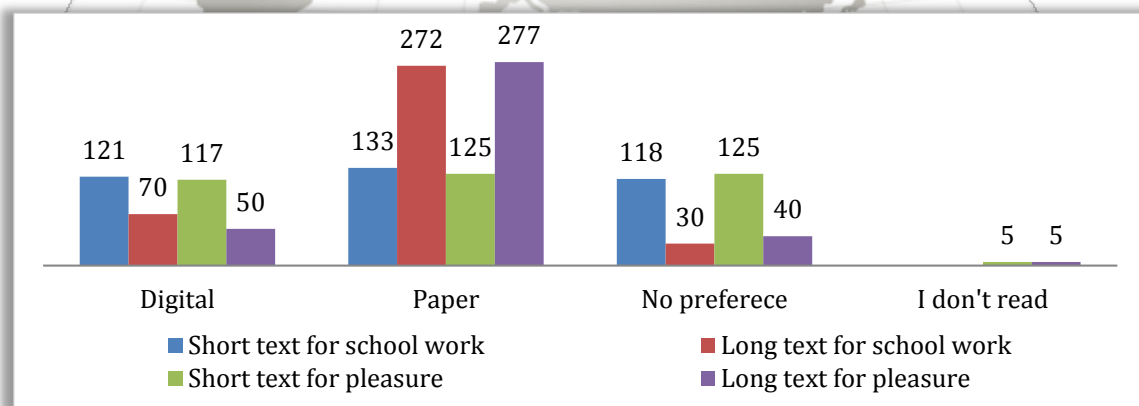


Figure 4: Text length (number of the Hungarian respondents)

When Serbian students read for their studies, they prefer printed forms both in case of short (3 pages maximum) and long texts. In case of short texts this number is 194 (48.5%). 108 young people (27%) read on digital display, and to 98 people it doesn't matter on what kind of surface they read short texts for school tasks. If the text is long (more than 3 pages), most students (88%, 352) marked reading on paper, and 22 the electronic version.

When they read short texts in their free time, the proportion of hard copy, digital display and the no matter which answer is nearly the same (29.5%, 35.75% and 32.5%). When reading longer texts, 286 young people prefer paper, 53 a digital display and it is all the same for 50. Similar results were obtained in the Hungarian survey.

» **Reading and multitask**

Sometimes when people are reading, they find themselves engaging in other activities at the same time (multitasking). We asked the students about their multitasking habits when they are reading in hard copy and when they are reading on a digital screen.

When reading a printed text, about 20,2% (81) of the responders aren't doing anything else, but 45,5% (182) are doing some other activities, although rarely. Only 6 of all the responders said, they're always doing something else, too, when reading. Those who read on a digital display more often do some other activities besides reading. Only 25 students said, they aren't doing anything else when reading. More than half of the students often do some other activities while reading on a digital platform (Figure 5).





While reading on paper, about 20% (80) of those interviewed are doing something on their mobile phones. 53 students are doing some other activity on a computer and 53 are talking to someone in person. 80 people find other activities, which are most often listening to music, eating and drinking. Many people read when they travel or watch tv, smoke or walk.

When reading on a digital screen, most of the students (60%) and most often are doing some other activity on a desktop computer (included in this category is the use of a tablet, a laptop and a desktop computer). While reading, 50 of them are using their mobile phones. 27 students generally talk to someone. 44 students do other things, too, like listening to music, eating and drinking, watching television and listening to the radio. Just a few people gave doing some sport or work as an answer to this question.

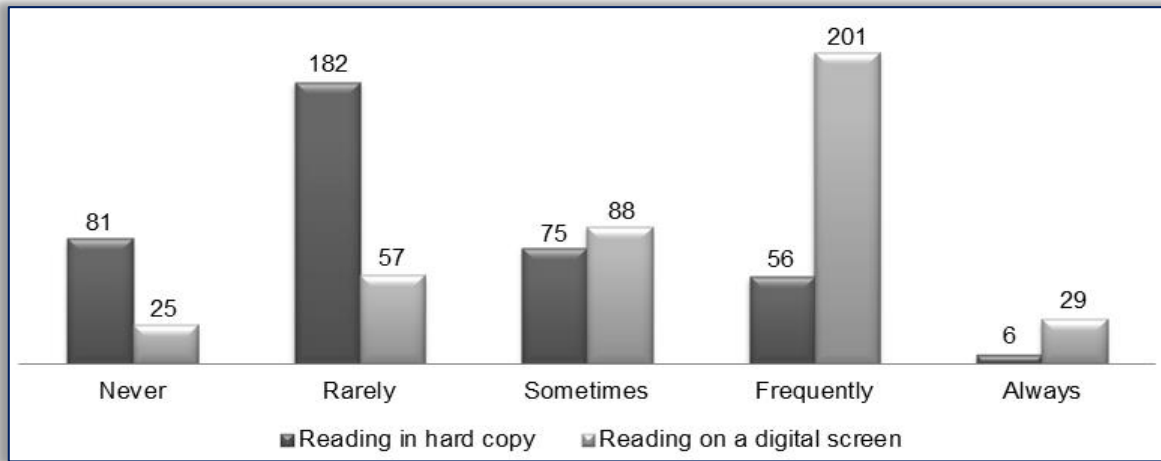


Figure 5: Reading and multitasking (number of Hungarian students)

The results of the survey completed among Serbian students are different from the above. Only 28 young people don't do any other activities when reading a printed material, 170 rarely, 99 often and only 12 always does something else when reading in hard copy. Most of them (126) talk on their mobiles while reading. When reading on a digital screen, 23 never, 69 rarely, 18 sometimes, 139 often and 41 students always does something else, too. Most of them (208) also does something else on the computer, 78 students talk on their mobiles and 33 talk to someone in person.

» **Reading and concentration**

Most students can concentrate on reading the most easily on paper, almost 90% (355). 19 (5%) students can concentrate the best on a computer or a laptop. Concentration is the hardest on a digital device. About 44% of the students (176) can concentrate on what they are reading on a laptop or a computer the hardest. While reading on paper 26 can concentrate hard, and this number is 10 for e-readers (Figure 6.)

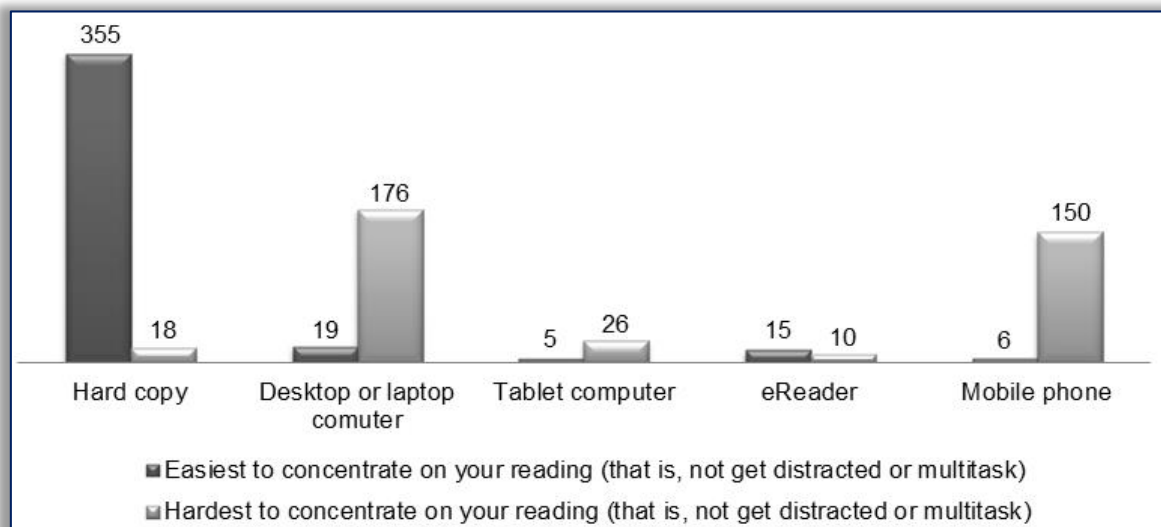


Figure 6: Reading and concentration (number of Hungarian students)

NOTE for the questionnaire: Think about the different platforms on which you might read.





Similar results were obtained about the Serbian young people. 373 of them can concentrate better when they are reading on paper. The hardest to concentrate on mobile phones is for 193 students and on a computer for 177. To concentrate on paper is hard for only 12 students.

» **Writing and concentration**

The students can concentrate most easily when writing on paper. 306 (76.5%) of them chose this option. 81 (20%) students can best concentrate when writing on a computer or a laptop. Only 7 can focus on writing on an e-book reader or a mobile phone without distraction. The hardest for them to concentrate is when writing on a mobile phone (161, 40%). About one third of the responders (129) can concentrate hard on a computer or a laptop (Figure 7.)

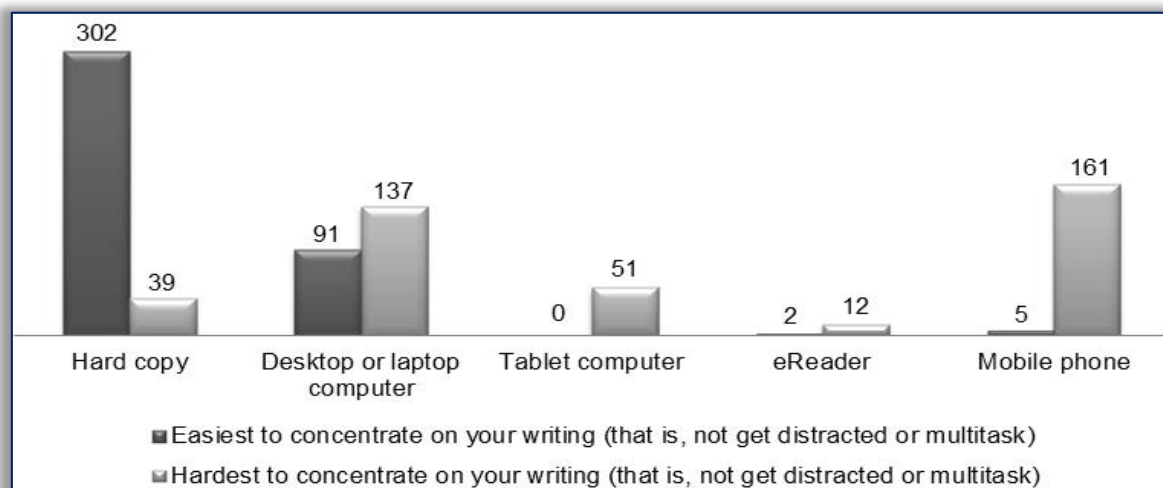


Figure 7: Writing and concentration (number of Hungarian students)

NOTE for the questionnaire: Think about the different platforms on which you might read.

The Serbian survey showed similar results. Serbian young people can concentrate most easily on paper (283), and on a desktop computer (112). It is the hardest to concentrate on mobiles (207). And for 29 students it is hard to concentrate on paper.

» **Additional comments**

We asked the students taking part in the survey to give a short-text opinion, to share the viewpoints with us why they choose paper or a digital display when reading/writing.

Some of the answers are as follows:

- ≡ „It’s much easier to learn from a book. It’s simpler to scroll back, find 1-2 important things and I can take it anywhere, as it doesn’t need electricity.”
- ≡ „I like the hold of a book, I can see how much there is to the end.”
- ≡ „For me a book is worth more in a printed version than in a digital form.”
- ≡ „It’s more comfortable and cozier to read a printed book.”
- ≡ „ I can simply underline the essence and I can see it better where I am in it.”
- ≡ „Paper is more „mobile”, I can learn/read anywhere, while a digital display makes me stoop and I get eye pain.”
- ≡ „Easy to survey, it’s simpler to handle, the pages can be turned, it’s easier to learn this way.”
- ≡ „Paper is not tied to a place, it doesn’t irritate my eyes.”
- ≡ „It’s easier to survey it in a printed form, can be remembered better. The digital display vibrates, it disturbs me.”
- ≡ „Paper, because I like scribbling on it, highlighting the essence.”
- ≡ „If it’s available in a digital form, I choose that. It’s a pity to cut down trees for so little use.”
- ≡ „Digital display: it’s simpler to get the material, store it and carry it.”
- ≡ „Printing is expensive I would have to carry lots of paper with me.”
- ≡ „E-book: Sometimes it’s hard/expensive to get foreign language books.”
- ≡ „ In my free time I browse on the Internet.”
- ≡ „When travelling I don’t want to take extra weight (books) with me.”
- ≡ „Most books can be downloaded for free in a digital form.”
- ≡ „Everything else that I do in my free time is nearer: music, email, facebook, internet.”
- ≡ „I always have my phone with me.”
- ≡ „Easier transportability (E-book reader)





4. CONCLUSIONS

In the survey we asked university/college students about their reading and writing habits. The results of the questionnaires were analyzed and conclusions were drawn regarding the basis of motives which make Hungarian young people prefer reading/writing on paper or on digital devices, during their studies and in their free time.

From the results of the study it's clearly visible that handwriting means an emotional link to Hungarian students, even if they prefer digital communication. Writing on paper is considered more flexible in practice than the digital version. In their free time, Hungarian students write in hand more willingly, and they choose a digital device for school work. When writing on paper it's also easier to concentrate, they are thinking during the process, which is beneficial for the complete sentence.

Whether they read a text on paper or on a digital display depends on the typology and the length of the text. According to the survey, too, there is a correlation between device selection and text length. When reading on a digital display, the reading of shorter texts is preferred, while they are more willing to read longer texts on paper. Students also like the physical nature of paper, it's tactile, pages can be turned and it's easier to take it anywhere. While they are learning, they like scribbling on the paper and highlighting the essence.

When reading for pleasure, Hungarian young people use both paper and the digital devices with pleasure. A decisive argument for paper was that it's more comfortable to read a printed material and it doesn't fatigue the eyes. They mentioned that they like the feeling of holding a book in their hands, they like the atmosphere. In case of books, the stability of value and the love of traditional things were also mentioned, and that they prefer reading on paper, because it grabs the attention better and there are no disturbing circumstances. It's also a fact that reading on paper is possible anywhere and in any posture. An important advantage for students is the portability of books, although electronic devices are now manufactured so that they can also be taken anywhere. When using paper and printed books we are not tied to electricity and internet access.

Hungarian students agree that reading on a computer screen can make their heads/eyes ache. At the same time, large proportion of school textbooks is only available in an electronic form.

The digital display was chosen by those who think it's more comfortable and quicker to learn from a digital surface. A tablet doesn't take up much space still a huge number of data can be stored on it. There are also young ones who choose the digital solution because of newer information.

Those who read on digital surfaces in their free time explained this mainly because it's more comfortable and they usually read different articles on the internet. There were ones among the students who prefer reading an e-book, because they regard it cheaper than traditional books. Many think that a digital device takes up little space, so it's more practical and we can take it with us more easily.

Compared to the survey carried out among Serbian young people, most results were similar. However, there was a difference when analyzing the use of digital devices. While 43% of Hungarian young people use a desktop computer for their school tasks and in their free time, for Serbian students this percentage is 61%. Moreover, a greater part of Serbian young people read printed material (paper) when doing their school tasks, in case of both short and long texts. The biggest difference can be seen when analyzing the time spent reading. Most Hungarian young people read 3-4 hours a week for their school tasks. 30.25% of Serbian students spend more than 10 hours a week reading and learning, as opposed to 5.5% of Hungarian students.

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