HABITS OF USING INTERNET AND DIGITAL DEVICES IN EDUCATION

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Abstract. *According to Central Statistical Bureau data of 2017 at least 46.8 % of Latvian population are involved in educational activities. Such digital devices as computers (both desktop computers and laptop computers), tablets, smartphones, book readers, etc. and the internet directly or indirectly are used in both formal and non-formal education. Digital devices can be used in training or study process, or some part of it directly, as well as students or training participants may be assigned tasks to be performed with these devices – searching for information, reading and learning e-material, writing articles, etc. In addition to statistical data research, two e-polls were conducted for respondents who are computer users in different age groups. Respondents were asked about their habits in using the internet and digital devices, additional interest was about which of the digital tools are used and for what purposes these devices are used. All answers have been analysed. The survey results show that the responses provided by the participants of the sample group are very close to the whole population, both for the use of the Internet and digital devices. The results also show the purpose of using digital devices, especially in education, and which devices are most commonly used for each purpose. More than 90 % of respondents use digital devices to get information. In order to participate successfully in e-learning and e-studies, users need both good e-skills and well-designed e-learning materials: high-quality content, comfortable, easy-to-understand and comprehensible text, suitable formatting parameters of text.*
Keywords: education, e-study, Information Technologies, internet, users' habits, digital devices.

Introduction

Can you imagine your daily routine without the Internet or digital devices? According to Internet World Stats data of 2017, at least 51.7 % of world population use the Internet. (Miniwatts Marketing Group, 2017; Kemp, 2017) It depends on the world region but there are 80.2 % Internet users in Europe (Miniwatts Marketing Group, 2017) and 85.7 % in the EU. (Miniwatts Marketing Group, 2017) Growth of the Internet usage is incredible. Average growth rate is 976.4 % in World during last 17 years. (Miniwatts Marketing Group, 2017)

There are 66 % unique smartphone users worldwide (Report, 2017) and more than 31-34 % active smartphone users. (Statista, 2017) In Europe it is almost

100 % and 40 % respectively. (Report, 2017) Annual growth of active smartphone usage is 30 % worldwide and 11 % in Europe. Also, Internet use on mobile phone at least 46-50 % of total population (year-on-year change +30 %), laptop and desktop computers – 45 % (year-on-year change -20 %), tablet devices – 5 % (year-on-year change -5 %) and other devices – 0,12 % (year-on-year change +33 %). (Report, 2017) This is still increasing at an impressive rate. We all are part of it.

The Internet is no longer just a rare-use information search place, and devices are no longer just sometimes-helping tools - it's the "must-have engine" of modern society. It is connecting us to the people and things daily and the process of transforming numerous areas of our everyday lives. As a result, it is becoming a norm to get most information through it.

Digital devices provide information and knowledge. Digital devices can be divided into two main categories. First, we find the devices specifically designed for reading, like Kindle from Amazon, which use electronic ink on their screens. In the second category, there is the rest of the digital devices used in digital life: tablets, computers, cell phones, smartphones, televisions. They are not specifically designed for reading. (Martinez & López-Río, 2015)

Reading research shown that screen reading is much difficult (Khan & Khushdil, 2013). There are seen different effect on reading, learning and comprehension as well as on vision functions. (Olyslager, 2012; Khan, & Khushdil, 2013)

Internet and digital devices have deeply rooted themselves into schools and universities. Students are increasingly moving away from paper books toward screens. E-learning and e-study have become common practice in the education and study system. Such digital devices as computers (both desktop computers and laptop computers), tablets, smartphones, book readers, etc. and internet directly or indirectly are used in both formal and non-formal education. Digital devices can be used in the training or study process, or some part of it directly as well as students or training participants may be assigned the tasks to be performed with these devices - information searching, reading and learning of e-material, writing articles, etc. (Vincent & Haddon, 2018; Saulles, 2015)

It is known, nowadays, getting knowledge by using digital devices and the Internet begins in the education process as early as kindergarten and continues all life. Reading on digital devices has become a widely debated issue in mass media and academia (Martinez & López-Río, 2015). But how much and how often the Internet and digital devices are used in Latvia for getting knowledge?

The aim of the study is to review the current situation in usage of the Internet and digital devices in Latvia, especially in the field of education.

Also, these results are planned to be used in research to develop a tool for formatting e-materials based on vision science and user-preferences: to make sure

what reading on digital devices is up to date and research end-goal is important and up to date in the current situation worldwide. Main question is how to help and facilitate reading and comprehension as well as make it suitable for visual features.

Research methodology

First, Central Statistical Bureau data research has been made. There have been used data about Latvian inhabitants for an overview of the current situation: Latvian population distribution by age, gender; if they are involved in educational activities and in that kind of education; internet and computer using habits; what kind of problems want-to-learn persons meet.

Second, additional to statistical data research, two e-surveys in Latvian were conducted for respondents from Latvia. They were freely available online. Respondents are Latvians and computer and Internet users in different age groups. All respondents participated in the surveys on a voluntary basis.

Respondents were asked about their internet and digital devices using habits, additional interest were about which of the digital tools are used and for what purposes these devices are used. All answers have been analysed.

Data analysis methods

Statistical data and e-surveys descriptive statistics analysis have been made.

An overview of current situation

According to Central Statistical Bureau data of 2017, the population of Latvia is 195,0116 people. (CSB, 2017) Of course, it is only 0.03 % of the world population but each person in the world is very important. For population distribution Worldwide and in Latvia see Table 1.

Statistical data show that at least 46.8 % of the Latvian population are involved in educational activities: 94.3 thousand are pre-school students, 215 thousand - pupils in general education schools, 29 thousand - students in professional education establishments, 82.9 thousand - students in universities and colleges, and 485.9 thousand - in non-formal education. (CSB, 2017)

Table 1 **Population distribution Worldwide and in Latvia**

Distribution	Global Overview report, 2017, Worldwide	%	Central Statistical Bureau data, 2017, Latvia	%
Total	7476000000	100	1950116	100
Females	3705000000	49,6	1054433	54,1
Males	3771000000	50,4	895683	45,9
0-4 y.o.	655000000	8,8	106973	5,5
5-9 y.o.	632000000	8,5	101634	5,2
10-14 y.o.	610000000	8,2	94980	4,9
15-19 y.o.	600000000	8,0	85799	4,4
20-24 y.o.	601000000	8,0	102510	5,3
25-29 y.o.	612000000	8,2	137155	7,0
30-34 y.o.	564000000	7,5	138635	7,1
35-39 y.o.	514000000	6,9	125024	6,4
40-44 y.o.	490000000	6,6	132105	6,8
45-49 y.o.	471000000	6,3	133550	6,8
50-54 y.o.	425000000	5,7	135855	7,0
55-59 y.o.	342000000	4,6	144574	7,4
60-64	303000000	4,1	123413	6,3
65-69	235000000	3,1	110632	5,7
>70	422000000	5,6	277277	14,2

Table 2 **Computer and Internet use distribution, % to all population of Latvia**

Distribution	Have used ever		Use regularly: (at least once a week)	
	Computer	Internet	Computer	Internet
Total	84,1	84,2	76,2	78,5
Males	84,1	84,3	76,4	78,6
Females	84,0	84,0	76,1	78,3
16-24 y.o.	99,5	99,5	95,8	98,9
25-34 y.o.	99,6	99,7	92,9	97,3
35-44 y.o.	95,3	96,0	89,6	92,5
45-54 y.o.	87,3	87,5	78,7	80,0
55-64 y.o.	72,4	72,3	61,6	62,6
65-74 y.o.	45,6	45,3	34,9	35,5
Pupils, students	99,7	99,5	95,8	98,4

Statistical data in January 2017 show that 84.2 % of the population of Latvia have used the Internet and 84.1 % - computer but 78.5 % regularly used (at least once a week) the Internet and 76.2 % - computer. (CSB, 2017) But data in Jun /

July 2017 show that 85.6 % of Latvians use the Internet. (Miniwatts Marketing Group, 2017) It is 1.4 % grow of the Internet usage in 6 months. It is a huge growth amount for such a small country as Latvia.

Also, almost all pupils and students use both computer and the Internet. The least use of computer and the Internet are in 65-74 y.o. group of population. See Table 2.

Results of surveys

Two e-questionnaires have been analysed. There are 146 respondents (102 females and 44 males) in Questionnaire 1 and 106 (70 females and 26 males) – in Questionnaire 2. As the target group was computer users, the results are not surprising, they showed that all respondents use the Internet regularly.

Only 6.8 % of respondents in Questionnaire 1 use the Internet less than once a day. Questionnaire 2 doesn't have such data. Mostly, in both surveys, respondents use the Internet several times per day (temporarily) – about 41 %. Nearly ¼ of Internet users admit that they use the Internet almost continuously all-day long. See Table 3.

Data show that all respondents not only use the Internet but also different digital devices. The most popular digital device among respondents is the smartphone. Both laptop and desktop computers follow it. The least popular are book readers. See Table 4.

Table 3 **Internet use frequency**

Internet usage frequency	Users' Questionnaire 1		Users' Questionnaire 2	
	Number of respondents	%	Number of respondents	%
several times per day (temporarily)	54	40,9	42	40,8
every day	39	29,5	13	12,6
almost continuously all-day long	32	24,2	48	46,6
less than once a week	5	3,8		
2-3 times a week	4	3,0		

Table 4 **Internet and digital device use**

	Number of answers	%
Internet	106	100,0
Smartphone	81	76,4
Laptop	80	60,6
Desktop computer	69	52,3
Tablet	49	37,1
Book reader	16	12,1

Not only the Internet is used a lot. 45.6 % of respondents use digital devices almost continuously all-day long. One third use them several times per day for a long time. Only 5.8 % use devices every day but rarely. See Table 5.

Table 5 **Digital device usage frequency**

Digital device usage frequency	Number of respondents	%
almost continuously all-day long	47	45,6
several times per day (each time more than 20 min)	34	33,0
several times per day (each time less than 20 min)	16	15,5
every day (rarely)	6	5,8

98.6 % respondents of Questioner 1 and 96.2 % respondents of Questioner 2 use digital devices for getting knowledge in different ways. 78.1 % of respondents use digital devices for learning and study e-material reading and 75.3 % - for creating them. Directly for e-learning and e-study devices have been used by 65.1 % of respondents. Most respondents use digital devices for the Internet access, e-mail reading and social media access. Also, there are other different device using purposes. See Table 6.

Table 6 **Purposes of all digital device usage**

Purpose	Number of answers	%
Total number of respondents	146	100
Internet access	129	88,4
E-mail reading	123	84,2
Social media (Facebook, Instragram, Twitter)	121	82,9
Learning / study material reading	114	78,1
Work / personal document reading	113	77,4
Work / personal document creating	113	77,4
Learning / study material creating	110	75,3
Long text reading	109	74,7
Game playing	108	74,0
e-Learning/ e-study	95	65,1
Book reading	87	59,6
Other reasons	53	36,3

For book reading, e-mail reading, social media access, game playing, and other purposes, that are not mentioned, the most popular device is smartphone. For learning and study e-material reading and creating, work and personal

document reading and creating, long text reading, and e-study and e-learning respondents most often use laptops.

Table 7 **Digital device and purpose**

Digital device	Book reading		Learning / study material preparing		Learning / study material reading	
	resp.sk.	%	resp.sk.	%	resp.sk.	%
Smartphone	23	17,4	33	25,0	40	30,3
Laptop	18	13,6	67	50,8	56	42,4
Desktop computer	15	11,4	45	34,1	41	31,1
Tablet	16	12,1	15	11,4	18	13,6
Book reader	19	14,4	8	6,1	8	6,1
Don't use for this purpose	22	16,7	8	6,1	9	6,8
	Work / personal document preparing		Work / personal document reading		Long text reading	
	resp.sk.	%	resp.sk.	%	resp.sk.	%
Smartphone	15	11,4	39	29,5	41	31,1
Laptop	66	50,0	59	44,7	58	43,9
Desktop computer	51	38,6	46	34,8	34	25,8
Tablet	12	9,1	24	18,2	22	16,7
Book reader	0	0,0	6	4,5	7	5,3
Don't use for this purpose	7	5,3	6	4,5	11	8,3
	E-mail reading		Social media		Game playing	
	resp.sk.	%	resp.sk.	%	resp.sk.	%
Smartphone	81	61,4	101	76,5	65	49,2
Laptop	63	47,7	57	43,2	43	32,6
Desktop computer	51	38,6	38	28,8	35	26,5
Tablet	26	19,7	29	22,0	30	22,7
Book reader	0	0,0	1	0,8	0	0,0
Don't use for this purpose	3	2,3	5	3,8	8	6,1
	e-learning / e-study		Other reasons			
	resp.sk.	%	resp.sk.	%		
Smartphone	35	26,5	28	21,2		
Laptop	53	40,2	21	15,9		
Desktop computer	31	23,5	22	16,7		
Tablet	13	9,8	11	8,3		
Book reader	4	3,0	3	2,3		
Don't use for this purpose	10	7,6	15	11,4		

Analysis the purpose of digital device usage shows that all devices are multipurpose. Tablets are mostly chosen for game playing, book reader devices -

for book reading, smartphone – for social media access, laptop – for work and personal document reading, and desktop computers – for work and personal document creating and e-mail reading. For book reading and other reasons not mentioned in the table, digital devices are used the least. For more detailed view see Table 7.

Conclusions

The survey results show that the choice group responses are very close to the whole population in Latvia and Worldwide, both for the use of the Internet and digital devices.

Results show that all digital devices are multipurpose. Most popular are smartphones and laptops. Most respondents use digital devices for the Internet access, e-mail reading and social media access.

Nearly half of respondents use digital devices almost continuously all-day long. It brings a big near work load for vision system daily, which, in turn, brings us to big nowadays problem – myopia progress Worldwide.

As at least 96.2 % respondents use digital devices for getting knowledge in different ways, it is important to know how devices affect users' reading and learning possibilities and try to eliminate disadvantages and improve digital device suitability for getting knowledge.

To successfully participate in e-learning and e-studies, users need both good e-skills and well-designed e-learning materials: high-quality content, comfortable, easy-to-understand and comprehensible text, suitable formatting parameters of text.

Summary

The purpose of this study was to show the present situation of the Internet and digital devices usage in population worldwide and in Latvia. It was theoretical research of statistical data global and local. Additional e-surveys helped to get more detailed information on how often the users of the Internet use digital devices and what their purposes are.

The most important finding is that nearly half of the respondents use digital devices almost continuously all-day long as well as that at least 96.2 % respondents use digital devices for getting knowledge in different ways.

It shows that information reading in digital devices is up to date. It means, that research end-goal - development of a tool for formatting e-materials based on vision science and user-preferences - is important and up to date for the current situation worldwide and for the population nowadays.

As digital devices and learning by using devices is topical nowadays, the questions arise how it affects population's vision system and quality of life. Are digital devices suitable for comfortable knowledge getting? How is it possible to improve quality of text comprehension from screens?

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