

# A COMPARISON OF THE VIEWS AND THE EXPECTATIONS OF PARENTS, STUDENTS AND TEACHERS REGARDING DIGITAL TECHNOLOGIES AND THE FORMATION OF DIGITAL LITERACY

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## Abstract

At present, all across Europe there are insufficient research data about the degree, scope and opportunities of using the new multimedia devices at an early childhood age in the family, in the community and at school, as well as about the extent to which reading literacy affects digital literacy and vice versa. According to Richard Lanham, literacy has extended its semantic reach to meaning “the ability to understand information however presented”. It is necessary to study the new trends so to give the most adequate manner to pedagogues for their work with the “digital children”.

The purpose of the fundamental project “Digital Competencies and Media Education at Pre-school and Primary School Age” (DN 05/8) is to study and explore the conditions, methods, and approaches that need to be applied for the propaedeutic acquisition and formation of digital competences. To accomplish the aim, there are specific objectives. One of them is to investigate the connection between interest in reading and the level of digital literacy of students up to 11 years old. The aim this Work package that the author has been participated in is to analyse the relationship between reading literacy and the impact of digital technologies. At the first stage of the project (December 2016 to June 2019) three types of surveys are designed and conducted – surveys for students (primarily for 4th grade students), surveys for parents and surveys for teachers. Based on the preliminary studies and theoretical research are developed the instruments and they are implemented in the surveys.

The focus in this article is a comparison between results from three surveys – for students, parents and teachers and their interpretations towards digital technology and the formation of digital literacy of students up to 11 years old. The Questionnaires are designed with four sections – „Reading“, „Digital literacy“, „Connection between reading and digital literacy's formation of students up to 11 years old“ and Demographic section. The current article focuses on parts connected with digital technologies and demographic profiles of the respondents.

In 2018 there were interviewed 637 children from 13 Bulgarian towns; 144 parents and 186 teachers. It is important to analyse the respondents' answers connected with questions about their abilities for using digital devices as content creation, communication, problem solving and safety. It is worrying that almost half of the surveyed children do not know about the dangers of the Internet and how to protect themselves. There are dramatic gaps between students' self-assessments and their teachers' assessments towards to digital competence – 20% difference. According to Self-Assessment Grid for Digital competence (Europass) 35% of the students defined their selves as Basic users; 29% defined their selves as Independent users and the other 29% as Proficient users. Almost 1/3 of these 182 'Proficient users' children don't know about dangerous in Internet and how to block someone's account.

The problem of digital literacy has not been studied enough in Bulgaria. Therefore, the study of comparison between parents', teachers' and students' answers towards digital competence and its relation to children's lives can contribute to acquiring sustainable knowledge that can be used in teachers' guidebooks, educational policies and recommendations for parents and practitioners.

Keywords: digital literacy, comparison, surveys, parents, teachers, students.

## 1 INTRODUCTION

At present, all across Europe there are insufficient research data about the degree, scope and opportunities of using the new multimedia devices at an early childhood age in the family, in the community and at school, as well as about the extent to which reading literacy affects digital literacy and vice versa. According to Richard Lanham, literacy has extended its semantic reach to meaning “the ability to understand information however presented”. It is necessary to study the new trends so to give the most adequate manner to pedagogues for their work with the “digital children”.

As digital natives [1, 2] the students are connected with technologies all the time.

The New London Group (NLG)'s Pedagogy of Multiliteracies is "the central manifesto of the new literacies movement" [3, 4]. The problem of digital literacy has not been studied enough in Bulgaria. The purpose of the fundamental project "Digital Competencies and Media Education at Pre-school and Primary School Age" (DN 05/8) is to study and explore the conditions, methods, and approaches that need to be applied for the propaedeutic acquisition and formation of digital competences. To accomplish the aim, there are specific objectives. One of them is to investigate the connection between interest in reading and the level of digital literacy of students up to 11 years old. The aim this Work package that the author has been participated in is to analyse the relationship between reading literacy and the impact of digital technologies. At the first stage of the project (December 2016 to June 2019) three types of surveys are designed and conducted – surveys for students (primarily for 4th grade students), surveys for parents and surveys for teachers. Based on the preliminary studies and theoretical research were developed the instruments and were implemented as set of the surveys.

The focus in this article is a comparison between results from three surveys – for students, parents and teachers and their interpretations towards digital technology and the formation of digital literacy of students up to 11 years old.

## 2 METHODOLOGY

All three questionnaires are designed with four sections – „Reading“, „Digital literacy“, „Connection between reading and digital literacy's formation of students up to 11 years old“ and Demographic section. The current article will take on foci only parts connected with digital technologies and demographic profiles of the respondents.

The Criterion „The role of digital technologies on child of today life“ may measure with indicators as an access to technology at home; a Screen-time; an Attitude towards technology; a usage of different applications, etc. All questions from the Second section from the questionnaire for parents are connected with parents' attitudes towards digital technologies and the indicators that have been sought are the personal example of parents, the purchase of digital devices, ages when the children started using technologies. In searching the correlation between reading and digital literacy there are used indicators that have sought the impact of technology on the children's desire for reading and learning, for enrichment of knowledge, and for possibilities for skilful handling of information, etc.) [5].

The questionnaire for students analyses the role of digital technologies in every day children's lives. The indicators are an access to technology at home; screen time; an attitude towards technology, and more used applications. The criterion *Formation of digital literacy* may measure with indicators like *critical thinking* (identifying, searching, storing and critically evaluating information); *online communication*; *creating digital content* (creating and editing text, photos and videos, etc.); *online safety* (knowing of the risks on the internet, problem solving skills); a *self-estimation of digital competencies*, etc.

The questionnaire for teachers is designed to investigate teachers 'attitude toward their students' formation of digital literacies.

## 3 RESULTS

The results of the research conducted by parents, teachers and students up to 11 years old show their attitudes towards digital literacy and children's attitudes towards technology and can be analyzed in several separate areas.

### 3.1 Demographic profiles

#### 3.1.1 Demographic profiles of the parents

- 90% of the responders are mothers;
- 71% have a bachelor's or master's degree;
- 95% of the surveyed parents are between 30 and 49 years old.

The parents who responded to the survey have a variety of professions – among them teachers, doctors, pharmacists, lawyers, financiers, brokers, architects, managers, police officers, accountants, hairdressers, coaches, tailors, etc. The largest percentage is economists – 10%.

28% of the respondents have got a one child, 67% – two, 5% – three, and only one parent shared that they have 4 children. It is a well-known fact that older siblings influence younger children in the family both in terms of reading and in the use of digital technologies.

The employment status is as follows: jobless – 8 people; students – 2; freelancers – 6; half-day work – 3; full-day work – 117 respondents, no answers – 8. That means that the majority of parents are busy throughout the day and cannot have direct control to the activities of their children during the day. These active parents have got long work experience. 27 respondents have between 5 and 10 years work experience and 74 (61% from answered) – over 10 up to 20 years work experience; 11 – over 20 years, but 8% are less than 5 years on the job [6].

### 3.1.2 Demographic profile of teachers

Of the 186 teachers who responded, 141 are women and nine are men. 150 teachers provided information about their age, roughly equal in number of teachers are between 40 and 49 years and between 50 and 59 years. Only seven teachers are under 29 years old and three teachers (one man and two women) are over 60 years old. The 139 responded teachers answered for their length of service, the distribution is as follows: 5 are newly recruited, 18 have between 1 and 4 years of experience, 11 have worked at a school of 5 to 9 years, over 10 years have 39 teachers, and 81 teachers have over 20 years of experience.

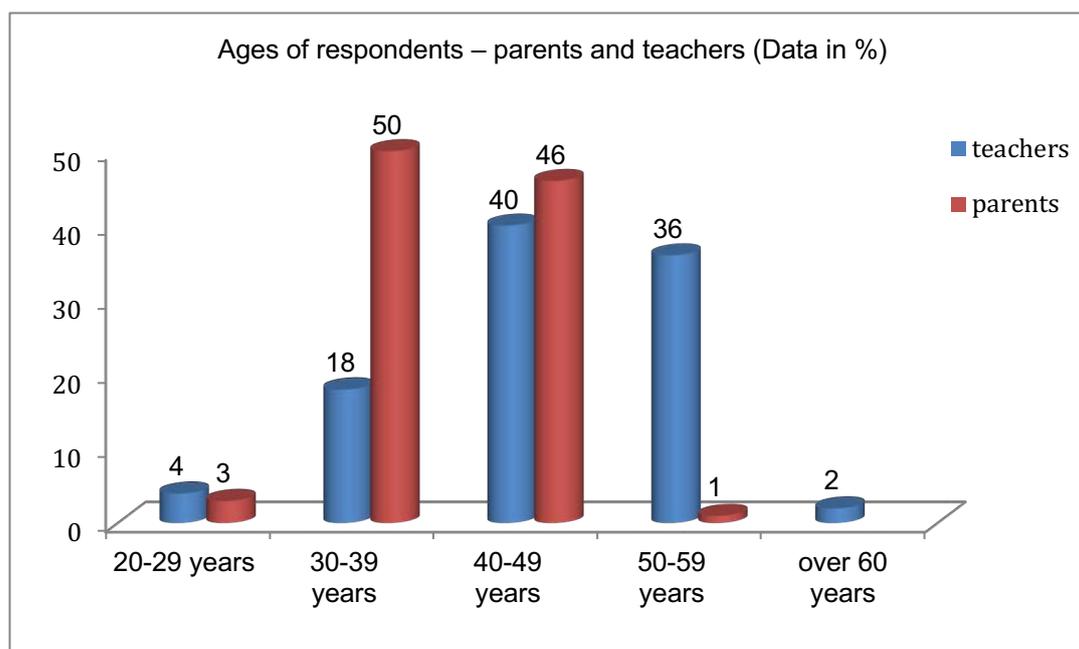


Figure 1. Comparison between parents' and teachers ages

Digital technologies, as an integral part of the modern world, are integrated in almost all professions. The level of competence and handling is different, which is determined by the age characteristics of users, their learning opportunities, their predisposition to technology, etc. [7]. A well-known fact for the Bulgarian educational system is that the older age of the teaching workforce. This also can see in the Figure 1. Only 22% of the respondents are teachers aged 20-39. This fact also explains the attitude of the majority of older teachers to new technologies.

Naturally, the generations of Digital Aliens and Digital Immigrants [2] do not take technology as a natural part of their daily lives and they need to experience digital value but their adaptation to digital technologies is difficult.

### 3.1.3 Demographic profile of the students

The surveyed students are from 13 Bulgarian cities, and the research covered all types of settlements according to data from the National Statistical Institute for population as of 31<sup>st</sup> December 2017.

The survey conducted in the capital (329 respondents), very big cities (with a population of over 200,000) – 78, big cities (with a population of 100,000 to 200,000) – 59 students, middle cities (with a population of 30,000 to 100 000) – 141, small towns (with a population of 10,000 to 30,000) – 28 students surveyed, and a very small town (with a population of less than 10,000) – 2 students surveyed.

88% of the students who indicated their age are between the ages of 10 and 11 – the age that children complete the initial stage of primary education.

51.4% are boys. As a priority there are interviewed students from the 3rd (117) and 4th (494) grades, because according to the State Educational Requirements an essential literacies are acquired in the elementary education.

## 3.2 The children up to the age of 11 and new technologies

### 3.2.1 Ownership of digital technologies in the family

Parents play an important role in providing their children with opportunities to access and use digital devices at home that affect their learning [6].

The question for students is ‘What kind of devices do you personally use?’ and for parents – ‘What kind of devices does your child use?’

<b>Parents' answers</b>	90%	87%	74%	9%	62%	38%	23%	18%	6%	-
What kind of devices does your child use? What kind of devices do you personally use?	TV	Smartphone	Tablet	E-reader	Laptop	Personal computer	Game console	PSP	iPod	other
<b>Students' answers</b>	93%	86%	70%	13%	66%	32%	20%	32%	12%	4%

Figure 2. The answers of students and parents of the question about digital devices that families own

Almost all responded families have got and their children use TV-sets, smartphones, tablets. The e-readers are not so popular in Bulgaria.

### 3.2.2 The age that children begin to use new technologies

The same question is posed to parents and students regarding the age that the children started using digital technology. Both parents and students respond that age before and beyond the age of 7 is important for gaining experience with digital technology (16% of parents claimed that their children started using digital technologies before the kids turned 6 years old; 18% of parents – before 7 years old; students' answers are as follow: 20% – before they turned 6 years, and 39% – before 7 years old. The warning fact is that 9% of the surveyed parents said that their children started using digital devices before they turned one year old.

### 3.2.3 Europass' ‘Digital competences - Self-assessment grid’

According Europass' ‘Digital competences – Self-assessment grid’ the levels are Basic User; Independent user; Proficient user. The questions for students are being modified using the main components of matrix of digital competence – an information processing, a content creation, a communication, a problem solving, and a safety. Main components of matrix of digital competence can

measure by questions about possibilities to send a message, to insert text on computer or on other device, to tape a sound, to avoid dangerous in Internet, etc.

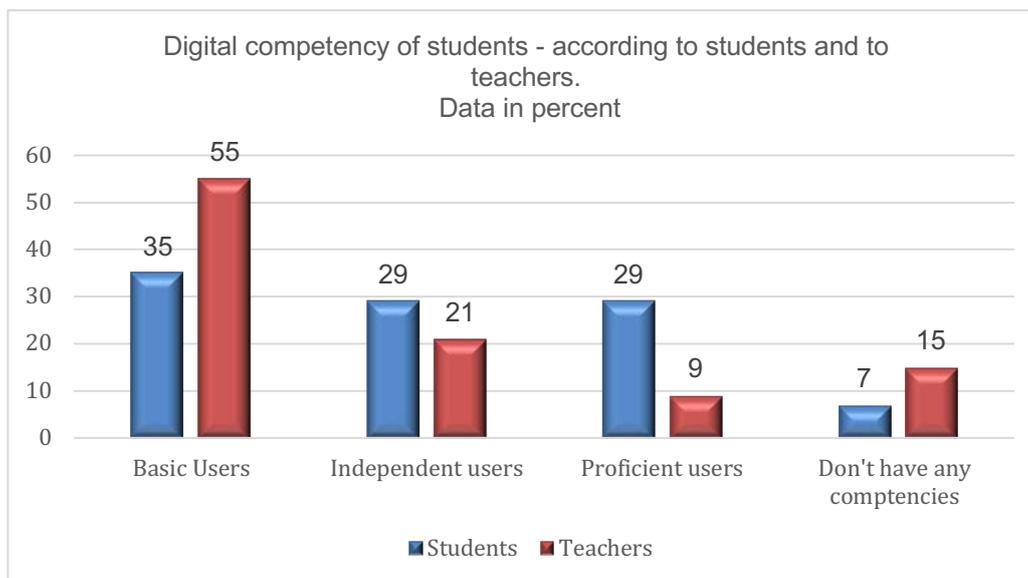


Figure 3. Answers to the question for the teachers "How do you determine your students' digital skills?" and to the question for the students "How do you define your digital technology skills?"

The same question is posed to students and teachers regarding to students' digital competence. The figure 3 shows that the surveyed students have a high self-image for their digital technology skills – 29% rate their skills as Independent Users and equally as Proficient users. More than half of the responding teachers define their students' skills as Basic, and only 9% think that their children have Proficient competencies. It is interesting to note that 15% of Bulgarian teachers believe that students do not have any digital competences.

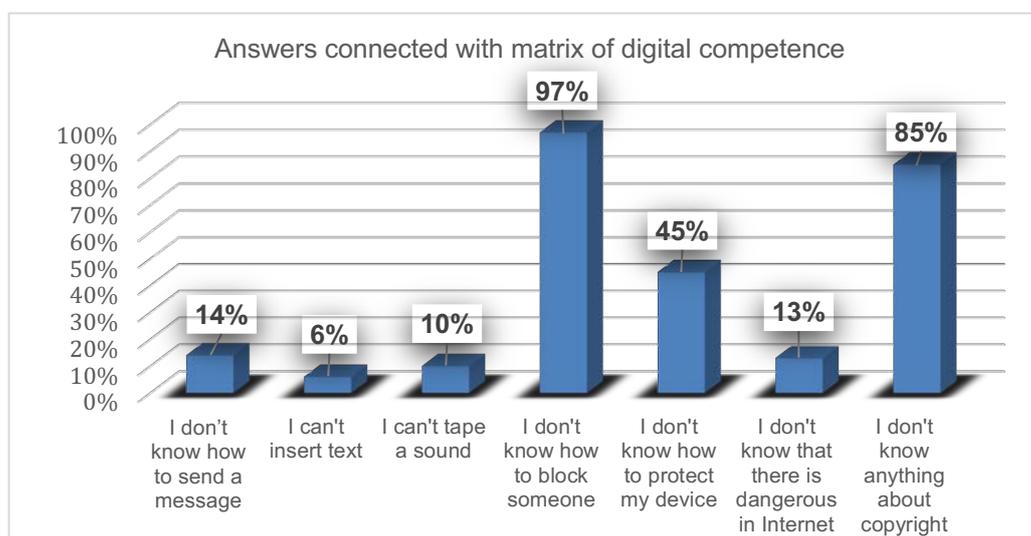


Figure 4. Some chosen answers of students

There are dramatic gaps between students' self-assessments and their teachers' assessments towards to digital competence – 20% difference. According to Self Assessment Grid for Digital competence (Europass) 35% of the students defined their selves as Basic users; 29% defined their selves as Independent users and the other 29% as Proficient users. Almost 1/3 of these 182 'Proficient users' children don't know about dangerous in Internet and how to block someone's account for example.

### 3.2.4 Screen time

There is no doubt that people spend most of their waking hours staring at screens. The children do the same.

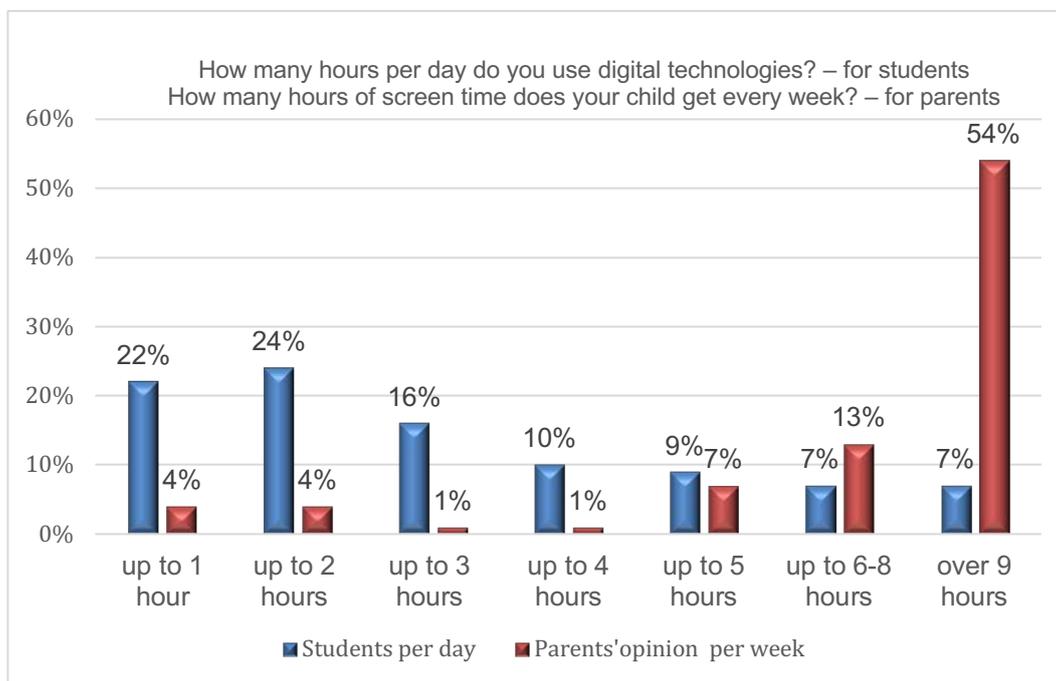


Figure 5. Hours of usage digital technologies (per day; per week)

The students up to 11 years old give the answer to the question of how many hours per day they use digital technology. 40 children respond – over 9 hours, some of them said – 15-16 hours, and others – 24 hours. Parents' answers demonstrate one thing – the lack of control over screen time, the lack of commitment, and the negligence of the risks of long standing on the screen. One parent replied that he did not know how many hours his child spent with digital devices. Just as one has stated that his child does not use digital devices. Curiously, the highest result given by parents is 70 hours a week, which averages 10 hours a day. At the same time, the students calmly respond that they use the devices for 13-14 hours per day.

The American Academy of Pediatrics has recommended no more than two hours of screen time for children and teenagers, and absolutely no screen time for children under 2 [8], which is absolutely impossible in Bulgarian conditions. It should be borne in mind that “the screen time directly interferes with both play activities and parent-child interactions” [9]. Adding to the situation described in this way, and the fact that students use new technologies mainly for fun, not for learning and creativity (such as in the UK), we can conclude that serious work is needed for educators, parents and educators in digital literacy aimed at recreational activities.

### 3.2.5 Forming of digital literacy of students

It is very important question about the motivation of student for acquiring digital competencies and digital literacy. The questionnaire for teachers consists the question in this direction. The teachers are pleased to estimate their students' motivation. The answers are connected with Likert scale from 1 up to 5 as 5 is high motivated. The results are as follow: 3% - very low motivation; 9% - low motivation, 36% - middle; 38% - good motivation and 15% of teachers think that their students have high motivation for improving their digital literacy.

81% of responded teachers didn't answer to the question whether their students have “Information technologies” as a subject in the school's curriculum. 88% answered that the students don't study subject as ITs. May be the explanation is that there aren't computer equipment in many Bulgarian schools.

There is no strong result as whether touchscreens develop children's motor skills – for example, fine motor control, hand-eye coordination, visual attention (49% of parents said no; 51% – yes).

## 4 CONCLUSIONS

The quality of the relationship between parent, child and school has significant influence on the child. The digital literacy competence of students depended on several factors, including English language proficiency, and the design of multimodal forms in digital contents [10] and these factors should be deeply analysed. It is necessary to create Screen Time Guidelines for parents from Bulgarian educational and health institutions.

The problem of digital literacy of Bulgarian students is important and needs adequate solutions. This comparative analysis of parents', teachers' and students' answers towards digital competence and its relation to children's lives can contribute to acquiring sustainable knowledge that can be used in teachers' guidebooks, educational policies and recommendations for parents and practitioners.

The author absolutely agrees with Simpson's conclusion: "In terms of examples of practice we have only scratched the surface, not least because the new technologies themselves offer a range of materials growing at a speed faster than anything imaginable in traditional print media" [11], but we have to try to make good decisions for our children's future.

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