

# Possible social Risk and Risks arising from Information and Telecommunication Tools in the Hands of second primary Education Stage Pupils in Slovakia

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Original Article

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## Abstract:

The current era is characterised by many technologies with online access. This paper lists the most significant negative phenomena associated with the use of modern technologies: the harmfulness of Internet use in general, Internet addiction, bullying through information and communication technologies (ICT), sites with toxic content, defamation and intolerance, false and fraudulent messages and conspiracies, radicalization, communication with unknown people via the Internet and explicit content. Other risks include: the spread of child pornography, sexting and cyberbullying. Our research and its results will show how information and telecommunication technologies are used by second primary education stage pu-

pils attending selected primary schools. The paper concludes with recommendations for practice that emerged from the empirical findings.

### **Current status of the issue under study**

Information and communication technologies have become one of the cornerstones of modern society and are becoming more and more important. They have changed the way humanity communicates, exchanges and acquires information. However, there are various threats and risks associated with the use of ICT. With the rapid development of technology, various negative phenomena and addictions are developing through information and telecommunication technologies, online games, mobile phones, the Internet, etc. The fact remains that an increasing number of children and adults are abusing and becoming addicted to information and communication technologies.

We list the most significant negative phenomena associated with the use of modern technologies: the harmfulness of the Internet in general, Internet addiction, bullying through ICT, sites with toxic content, defamation and intolerance, false and fraudulent messages and conspiracies, radicalization and communication with unknown people via the Internet. Other risks include the spread of child pornography, sexting and cyberbullying.

According to new findings, a person checks their phone on average every 12 minutes during the day (Brejčák, 2019). One of the motives for parents to get a mobile (or smartphone) phone for their child is to be able to check on them. Since the mid-2000s, when researchers first used the term “problematic mobile phone use” in conjunction with the Internet, problem users have reported feelings of addiction and urge. Also frequently reported are physical health consequences such as neck, shoulder and arm pain, headaches, concentration problems and fatigue (Randler et al., 2016). The results show a negative association between ICT use time and psychological well-being in children and adolescents (Twenge, Campbell, 2018). They point to the risk of increasing incidence of brain tumours, physical illness, psychosocial difficulties and cognitive impairment in younger people. Many studies have found that excessive smartphone use is associated with several health risks rang-

ing from psychosocial disorders such as anxiety, depression and sleep problems to potentially fatal injuries caused by car accidents. Cross-cultural research involving 10,930 adolescents from six European countries has shown an association between problematic Internet use and a higher risk of overweight/obesity through various information and communication technologies as well as reduced academic performance (Tsitsika et al., 2016; Raudsepp, Kais, 2019).

### **Internet addiction**

Although Internet addiction is not yet included in the International Classification of Diseases ICD-10, it is only a matter of time. Nevertheless, this term has been used by experts in various publications. According to Kusý (2013), Internet addiction is one of the newest non-substance addictions that, broadly speaking, is an activity to which an individual devotes a lot of time and one that limits his or her social functioning. According to Sejčová (2018), Internet addiction (e-mail, surfing, chatting, online games, online shopping, virtual sex) is an addictive disease of non-chemical nature, a so-called non-substance addiction. This phenomenon is called netholism. Netholism is defined as an individual’s behaviour leading to pathological phenomena in the mental, school (professional) and social spheres that is caused by excessive use of the Internet.

### **Symptoms of Internet addiction**

The main symptoms include trance-like states, resistance to parental interventions and inability to adhere to time limits set for online activities. Other symptoms of this kind of addiction include: getting less work done, feeling empty when not on the computer, loss of control over the time spent on the computer, getting up early to use the computer or staying up late on the computer, growing nervous and restless when unable to be on the Internet for long periods of time, thinking about the computer when not using it, stealing money to buy games, spending more and more time on the Internet to satisfy oneself, lying about one’s addiction,

a means of escaping personal problems, disrupted relationships with family, neglecting learning, abandoning earlier interests and friends, and deteriorating school performance.

### **Diagnostic tools for Internet addiction**

A number of assessment tools have been used to diagnose Internet addiction or problematic Internet use. Young's Internet Addiction Test, the Problematic Internet Use Questionnaire (PIUQ) developed by Demetrovics, Szeredi and Rozsa, the Compulsive Internet Use Scale (CIUS), among others, are examples of tools used to assess this disorder (Cash et al., 2012). In 2014, a review study was published focusing on questionnaires measuring Internet addiction as well as various subtypes thereof (diagnostic measurements of non-substance addiction), stating that there were at least 45 of them at the time of the study, and more are being added (Laconi, Rodgers, & Chabrol, 2014). A useful research tool for diagnosing Internet addiction is the Problematic Internet Use Questionnaire (PIUQ). There are three forms of this questionnaire consisting of different numbers of items (18, 9 and 6 items). All the forms have a reliable composition, as research has proven their validity across different types of data collection and age cohorts. Only the 6-item version of the Problematic Internet Use Questionnaire used in the research by Demetrovics et al. (2016) pointed out the acceptability of three psychometric factors (obsession, neglect and impaired control).

All of these risk factors for Internet addiction reduce the quality of life of an individual, which is an important factor for social prevention and the work of school social workers and school psychologists in this field.

### **Objectives and methods of research**

Our main objective was to find out how information and telecommunication technologies are used by second primary education stage pupils attending selected primary schools (aged 11 to 15 years). As part of the sub-objectives, we studied which ICT is used most often, for what activities and how much time pupils spend using technology. Based on the research objectives, we developed 9 questions that formed Part I of the questionnaire. Part II of the questionnaire was aimed at identifying the existence of the risk of

problematic Internet use using the PUIQ-6 questionnaire. The results are presented in the form of a graphical representation.

Sub-objectives of the research:

- C1: Find out what technologies are most often used by pupils.
- C2: Find out what activities pupils use information and telecommunication technologies for.
- C3: Find out how much time pupils spend with information and telecommunication technologies.
- C4: Find out how many pupils are at risk of problematic Internet use.
- C5: Identify and compare differences based on the age and gender of pupils.

### **Research ethics was ensured in the following way:**

Prior to the collection of questionnaires, written informed consent was obtained from pupils' legal representatives, and verbal consent was obtained from pupils. Pupils were guaranteed anonymity and were allowed to choose the option "I do not have", "I do not use", "I do not spend time" for each question.

### **Research sample**

The basic research population consisted of five groups of pupils from 5th to 9th grade, i.e., pupils in the second primary education stage. In agreement with the principals of the selected primary schools and after obtaining informed consent for pupils to complete the questionnaire from their legal representatives, we personally distributed 285 questionnaires in printed form to primary schools. For our research we used 233 relevantly completed questionnaires, which constituted 100% of the respondents. The research sample consisted of 128 (55%) girls and 105 (45%) boys.

### **Research methods**

After collecting the respondents' answers to each question, we mainly used the computer programs Microsoft Excel 2019 and Microsoft Word 2019. The data are presented in graphical form with absolute and percentage values.

Statistical data processing was used to obtain the results. The sum of numbers from all six questions concerning the frequency of Internet

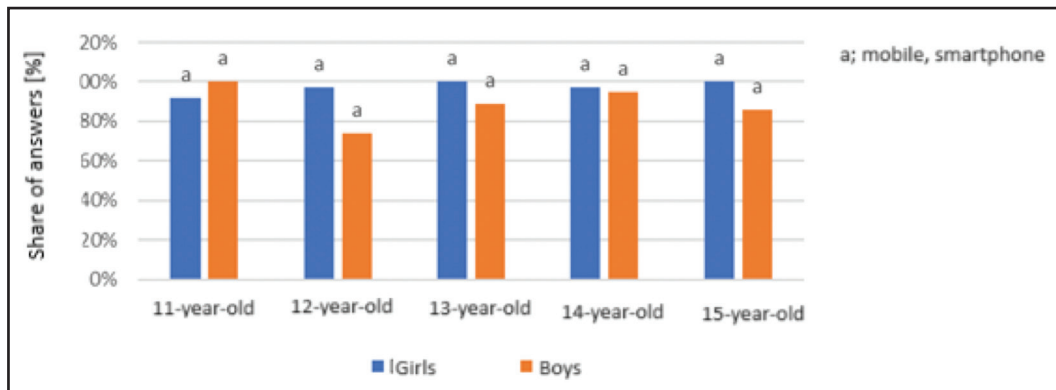
use gave us the number of respondents classified as pupils with problematic Internet use, i.e., with a total of 15 points or more. The results are again shown in graphical form (in percentage).

Of the 285 questionnaires distributed, we evaluated a total of 233 collected questionnaires. Some questionnaires could not be evaluated because they were incomplete or had not been returned for various reasons.

## Research results

### What technologies are most often used by pupils

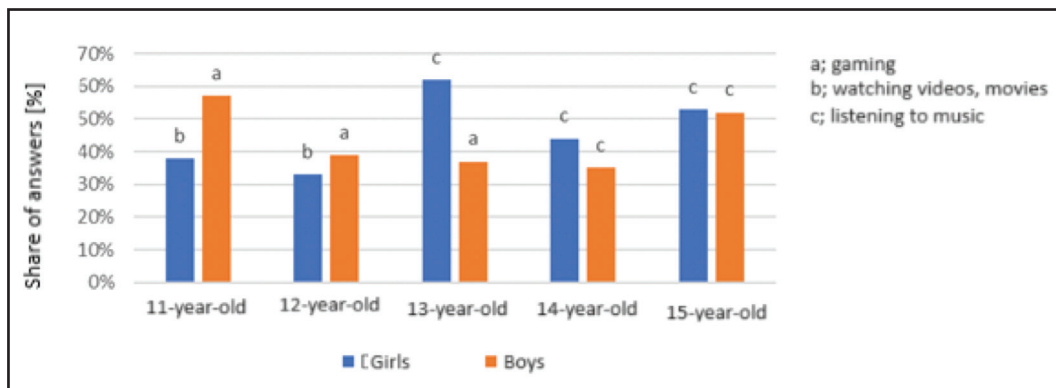
**Chart 1** Most commonly used information and communication technologies



*Finding:* The results of our research show that the most used technology among girls of all ages is a mobile phone or smartphone. The same is true for boys. Our research shows that the use of ICT technology for different activities differs neither in terms of gender nor in terms of age.

### Activities using information and telecommunication technologies

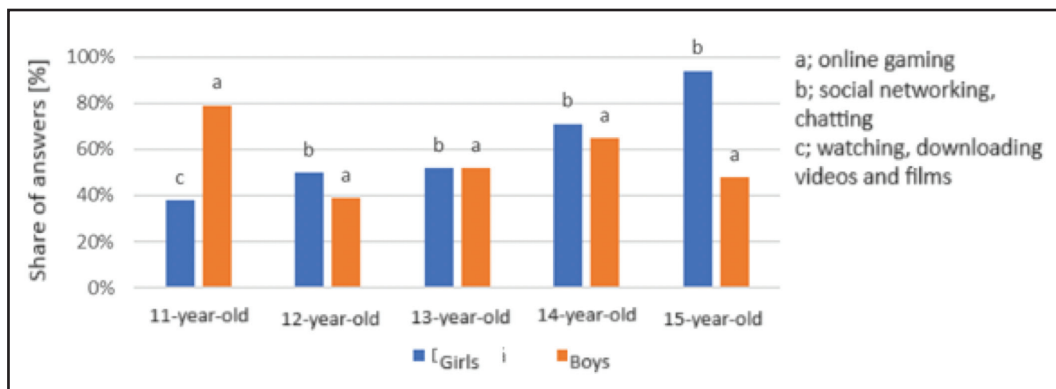
**Chart 2** Activities using information and communication technologies without Internet access



As an additional dimension, we assessed activities without Internet access. The results showed that girls aged 11 (38%) and 12 most often watch videos and movies, and girls aged 13 (62%), 14 and 15 said they listen to music. Boys aged 11 (57%), 12 and 13 (37%) mainly play games using ICT without online access. Like girls, boys aged 14 and 15 reported listening to music. The difference in activities in terms of gender is significant for 11- and 13-year-old pupils.

In the above categories of pupils, we found a significant percentage of answers between girls and boys. We concluded that girls at younger ages engage in different activities than boys at the same ages.

**Chart 3** Activities using information and communication technology with Internet access

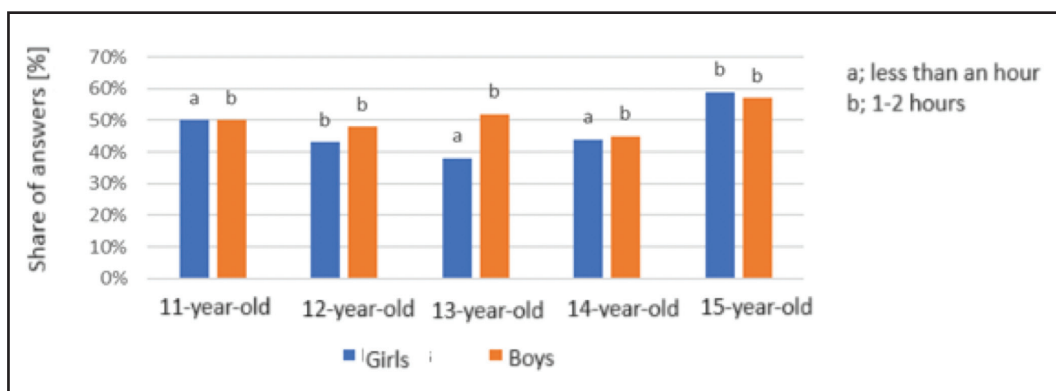


Our findings for Internet access were as follows: 10 (38%) girls aged 11 most often use ICT to watch/download videos and movies, and all other age groups we surveyed, i.e., 12-, 13-, 14- and 15-year-old girls, indicated social networking as the answer. In contrast to girls, boys at all ages preferentially use ICT for online gaming. The research showed a difference in activities with Internet access between genders across all ages.

In terms of age, we can see that almost all girls reported the same activity; for boys of all ages, the most common way of using ICT is online gaming. The most significant difference in answer rates is in the category of 11- and 15-year-old pupils. 79% of boys aged 11 most often play online games, whereas for 96% of 15-year-old girls social networking and chatting dominate.

### Time spent with information and telecommunication technologies

**Chart 4** Time spent without Internet access



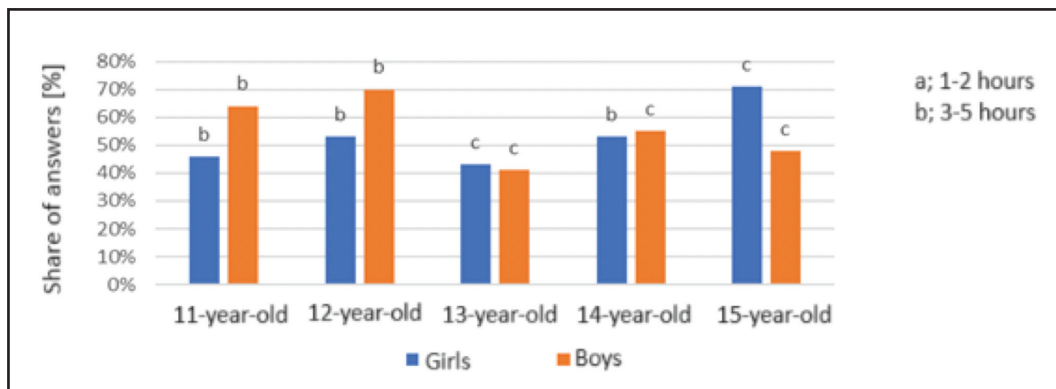
We found that 11-, 13- and 14-year-old girls on average spend less than an hour of time per day on non-Internet activities, and for 12- and 15-year-old girls it is an average of 1-2 hours per day.

In terms of age, there was no difference in time spent on the Internet for boys, with all respondents averaging 1-2 hours per day without Internet access.

The survey showed that girls spend less time without Internet access than boys. The highest

percentage determining the amount of time spent offline on the Internet was observed in the group of 13-year-olds.

**Chart 5** Time spent with Internet access

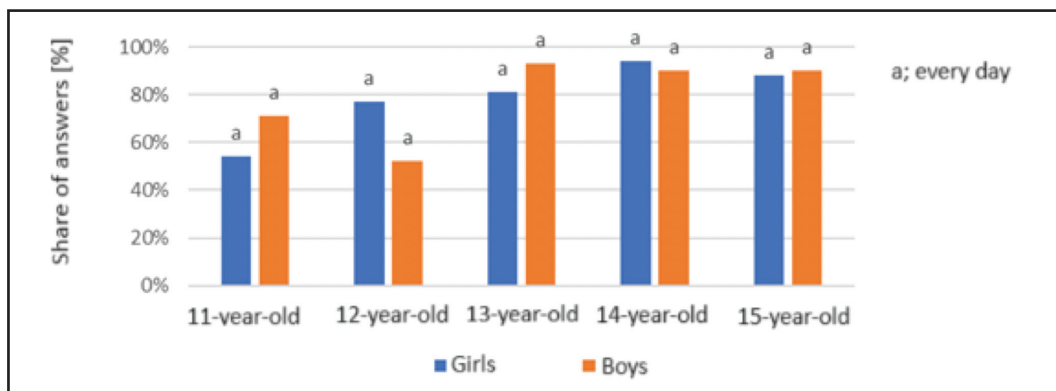


The average time spent with Internet access for girls aged 11, 12 and 14 is 1-2 hours per day. 13- and 15-year-old girls spend on average more time on the Internet (3-5 hours per day). 1-2 hours on average per day was the answer chosen by the category of boys aged 11 and 12. For boys aged 13,14 and 15, it is 3-5 hours per day on average.

We found that 14-year-old boys’ Internet access per day is on average longer than that of the girls. We also found a significantly higher percentage of answers among girls aged 11, 12 and 15 and boys of the same age. While 46% of 11-year-old girls spend 1-2 hours of time on the Internet, this figure rises to 64% for boys and 53% for girls aged 12. The latter also reported spending 1-2 hours on the Internet, but the same time was reported by around 70% of boys. As noted above, there was also a significant difference in girls aged 15 (71%) who were online for 3-5 hours, compared to 48% of boys spending an average of 3-5 hours online each day.

**Number of days spent on the Internet**

**Chart 6** Number of days on the Internet



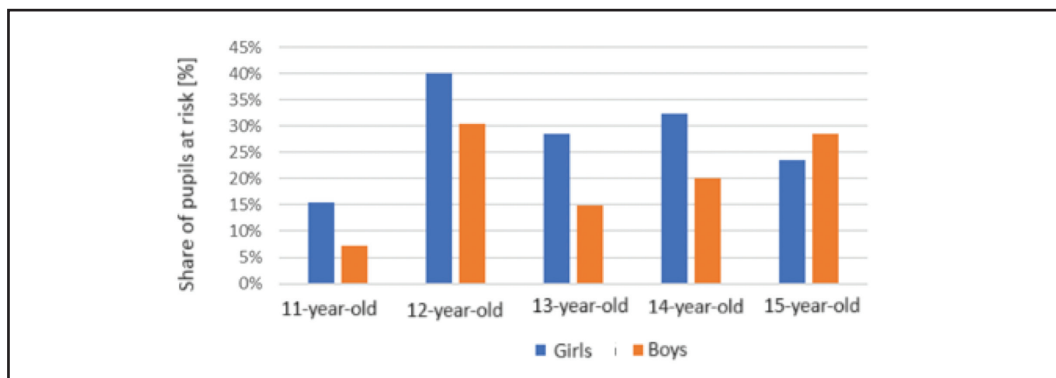
101 (79%) out of 128 girls across all ages were most likely to respond that they spend time every day with the possibility of connecting to the Internet. 84 (80%) of the 105 boys in all surveyed categories also use the Internet every day.

The research tells us that there is no difference in the observed dimension in terms of gender

or age. However, 54% of girls aged 11 go online every day compared to 79% of boys. In terms of gender, we observed a difference in the group of 12-year-old pupils. 77% of girls and only 57% of boys said they go online every day. With the 13-year-old respondents, the percentage of answers is less significant, as 81% of girls and 93% of boys spend time online every day.

## Occurrence of the risk of problematic Internet use

**Chart 7** Occurrence of the risk of problematic Internet use



We found that in terms of age cohort, there is a difference when it comes to demonstrating the occurrence of risk of problematic Internet use, as well as a difference in the occurrence in terms of age.

Our results show that the occurrence of risk is higher with girls aged 11, 12, 13 and 14 compared to boys of the same age. The highest percentage at risk of problematic Internet use is among 12-year-old girls - 43% (boys 26%), followed by 14-year-old girls - 32% (boys 20%), followed by 13-year-old girls - 29% (boys 15%), and the lowest percentage was found among 11-year-old girls - 15% (boys 7%). A change was noted in 15-year-old pupils. We know from the research that girls (24%) at this age are slightly less at risk than boys (29%).

## Discussion

Our findings are not only interesting, but also highlight the risks and social threats posed by the information and telecommunication tools in the hands of second primary education pupils.

### What technologies are most often used by pupils

A question in the questionnaire aimed at finding out what technologies are most frequently used by children and adolescents gave us the following results: Out of 233 respondents, 218 (94%) respondents indicated that they use a mobile and smartphone the most often, 8 (3%) respondents out of the total number use a desktop computer, 4 (2%) respondents chose a laptop as their answer and 3 (1%) respondents use a tablet for their activities.

### Activities using information and telecommunication technologies

To find out what activities pupils do with ICT, we divided the questions in the questionnaire into:

- activities carried out via ICT without Internet access
- activities carried out via ICT with Internet access

The results showed that the highest number, i.e., 79 respondents (34%), use ICT without Internet access to listen to music, 54 respondents (23%) play games and 52 respondents (22%) use ICT offline to watch videos and movies. Further, answers such as making telephone calls were given by 13 (6%) respondents, and 14 (6%) respondents indicated that they use ICT for other unlisted activities. 9 (4%) respondents answered that they use technology without online access to prepare for school, 6 (3%) respondents send

text messages and MMS messages, and 6 (3%) respondents stated they do not use ICT without Internet access at all.

Through another question on the questionnaire we found that 101 (43%) respondents do online activities through ICT on social networking sites including chatting, 65 respondents (28%) play online games and 22%, i.e., 52 respondents, watch videos and movies. Surfing was chosen as the answer by 4 respondents (2%), 4 respondents (2%) chose school preparation and 5 (2%) respondents chose the answer "other". 2 respondents (1%) use ICT with Internet access for emailing.

### **Time spent on information and telecommunication technologies**

Two questions from the questionnaire section were devoted to finding out how much time children and adolescents spend using ICT. To find out the time spent by pupils using ICT, we divided the time into two categories, namely:

- how much time pupils spend using ICT without Internet access
- how much time pupils spend using ICT with Internet access

The first of the above questions led to the following finding: Of the total respondents, 102 (44%) use ICT without Internet access for an average of 1-2 hours per day, and 82 (35%) use it for less than an hour. Our other finding is that 31 (13%) respondents use ICT for an average of 3-5 hours per day, 12 (5%) respondents for more than 5 hours and 6 (3%) respondents do not use ICT without Internet access at all.

Our finding from the second question: 102 (44%) respondents use ICT with Internet access for 1-2 hours, 78 (33%) respondents spend on average 3-5 hours, and 31 (13%) spend less than an hour on the Internet per day. We further found that 22, which is around 9% of the respondents, spend more than 5 hours of their time using ICT with Internet access.

The time spent on the Internet also included the number of days that children and adolescents spend using ICT with Internet access. 187 (80%) respondents go online every day, 32 (14%) respondents go online 3-5 times a week and 14 (6%) respondents use ICT with Internet access 1-2 times a week.

### **Occurrence of the risk of problematic Internet use**

The second part of the questionnaire was devoted to finding out the occurrence of the risk of problematic Internet use, i.e., the number of pupils who are at risk of Internet addiction. Respondents were allowed to express their opinion on each question using the corresponding scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often and 5 = always/almost always). In our research, we were guided by the number of points obtained for the answers. The total number of possible points scored was 30. We established four levels of risk of problematic Internet use:

- I. Score: 1-14 no signs of threat
- II. Score: 15-20 mild signs of threat
- III. Score: 21-25 moderate signs of threat
- IV. Score: 26-30 risk of problematic Internet use

By evaluating the questionnaire, we found that out of 233 respondents, 23% of the respondents (53 children) showed moderate signs of being at risk of problematic Internet use, i.e., they scored 15-20 points. Four (2%) respondents had a total score of 21-25 and thus belong to the medium risk level. Two (1%) of the respondents showed the highest risk level. Based on the problematic Internet use questionnaire, we found that out of 128 girls, 37 (30%) were at risk of some degree of problematic Internet use. Another of our findings is that out of 105 boys, 22 (20%) showed some degree of risk. We note that a total of 59 respondents showed some degree of risk of problematic Internet use, which means that 174 respondents belong to the group who are not at risk of problematic Internet use at all.

### **Differences in observed dimensions in terms of age and gender**

We previously reported the results of the research for all respondents. In this subsection, we presented the differences in ICT use in terms of the age and gender of the respondents, the results of which are shown graphically.

### **Conclusion**

Technology has become commonplace in the lives of children and adolescents. They can look up a lot of data in seconds, use it to communicate, prepare for school and play games with anyone in the world. They spend a lot of time on



various activities through ICT, which is associated with a lot of negative phenomena.

We pointed out the many risks associated with them and the need for social prevention in this area.

From the findings of our survey, we have drawn several **recommendations for practice**:

- conduct more extensive research (involving more primary schools across the country, a larger number of respondents) to point out the activities and time spent using ICT, both without and with Internet access
- carry out experiential learning more widely outside of school and offline
- use prevention programmes in schools to raise awareness and address the potential risks of virtual space, draw attention to victims of cyberbullying from real cases and encourage a responsible approach to ICT use
- teach pupils how not to become victims of cyberbullying - defence and protection
- promote the healthy use of ICT in schools

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