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for Russian Schools.”

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Abstract

The number of Internet users is growing day by day and at the same time, users are becoming younger and younger. Children are starting to use computers and the Internet of a very early age. The Internet can be a wonderful and useful tool for learning, leisure and communication. Nevertheless it can also be related to several dangerous crimes such as fraud, sabotage, phishing or other forms of misuse. Virtual communication provides additional opportunities for criminals to harm children. Furthermore a lot of materials on the Internet are of aggressive and socially dangerous nature. Therefore there is a need to raise awareness about the existence of such threats and Internet-safety – especially for children and their parents. The goal of this master thesis is to develop and implement a teaching framework to promote and distribute information about safe surfing for students in Russia. The main learning resource is the e-learning tool translated into Russian and adapted to the legal framework in this countries.

Keywords: child protection on the Internet, safe surfing, sexual abuse, cyber bullying, cyber grooming

Die Anzahl der Internet-Nutzer wächst mit jedem Tag, und zur gleichen Zeit werden die Nutzer immer jünger. Kinder beginnen, Computer und das Internet in sehr frühem Alter zu benutzen. Das Internet kann ein wunderbares und nützliches Werkzeug für das Lernen, die Freizeit und Kommunikation sein. Dennoch ist es auch mit verschiedenen gefährlichen Straftaten wie Betrug, Sabotage, Phishing oder anderen Formen von Missbrauch verbunden. Virtuelle Kommunikation bietet zusätzliche Möglichkeiten für Verbrecher, um Menschen, insbesondere Kinder zu schädigen. Darüber hinaus sind viele Inhalte im Internet von aggressiver und sozial gefährlicher Natur. Daher ist es notwendig, das Bewusstsein über die Existenz solcher Bedrohungen und über die Internetsicherheit zu erhöhen - vor allem bei Kindern und ihren Eltern. Ziel dieser Masterarbeit ist die Entwicklung und Umsetzung eines Unterrichtskonzeptes, um Informationen über sicheres Surfen für Schüler in Russland zu fördern und zu verbreiten. Das wichtigste Lernmittel ist ein E-Learning-Tool, das auf Russisch übersetzt und an die rechtlichen Rahmenbedingungen in Russland angepasst wurde.

Stichwörter: Kinderschutz im Internet, sicheres Surfen, sexueller Missbrauch, Cyber-Mobbing, Cyber-Grooming

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1 Introduction

The Internet permeates every organization, public agencies, educational institutions, and our homes. The number of Internet users in Russia is growing rapidly, the proportion of young users is very high. For many, especially young people, the Internet is an information environment and they cannot imagine their life without the Internet. The Internet becomes ingrained in our everyday lives. And this is not surprising: On the Internet one can find information for the lecture or course, listen to music, buy one's favourite book or discuss different topics in many forums. The Internet can be a wonderful and useful medium for education, recreation or socializing with friends. But just like in the real world, it can also be dangerous: it has its own crime-hooligans, fraud and other unpleasant effects. Virtual communication provides people with bad intentions additional opportunities to harm children. Recently a lot of material of aggressive and socially dangerous content appears on the Internet. According to Internet World Stats there are 68 billion people in Russia using the Internet and therefore Russia takes the 6th place worldwide (statistics on June 30, 2012).¹

This master thesis describes the importance of the Internet security for children. The main goal of this master thesis is to increase the awareness about the safe use of the Internet among Russian students in the age of 13-15 years. To achieve this goal a teaching framework and an e-learning tool were developed, which can be used by teachers in Russian schools for teaching the topic Internet security.

The thesis is structured in the following way. The first chapter provides an introduction into the master thesis. The second chapter focuses on the current situation in Russia. First of all it gives an overview over the main dangers in the Internet. The other important aspect is the legal basis in Russia. The regulations about illegal content on the Internet and about national or racial enmity were considered. The second chapter provides readers with information about the organisations which deal with the topic Internet security. It describe the situations with the subject „Computer science and ICT“ and the use of e-learning tools in Russian schools. The third chapter gives a presentation about the e-learning tool and describes advantages and goals of its use at school. The next chapter is an excursus into the blocks of a teaching framework. It describes social forms and resources needed for teaching. The application of the theory from the chapter four is described in the fifth chapter. This chapter gives a concrete example for a lesson. In the chapter six is dealt with the results of the execution of lessons by evaluating questionnaires from teachers and students. The last chapter reflects the previously described work and analyses the results of the master thesis. It summarizes the major findings of this thesis and offers possible improvement. For this Master Thesis it can be concluded that the teaching

¹ **Internet World Stats.** Miniwatts Marketing Group. *Top 20 countries in the Internet by number of users on June 30th, 2012.* www.internetworldstats.com/top20.htm retrieved September 9th, 2013

framework and the e-learning tool fits for teaching at the Russian schools and that the teachers and the students find the topic Internet security important.

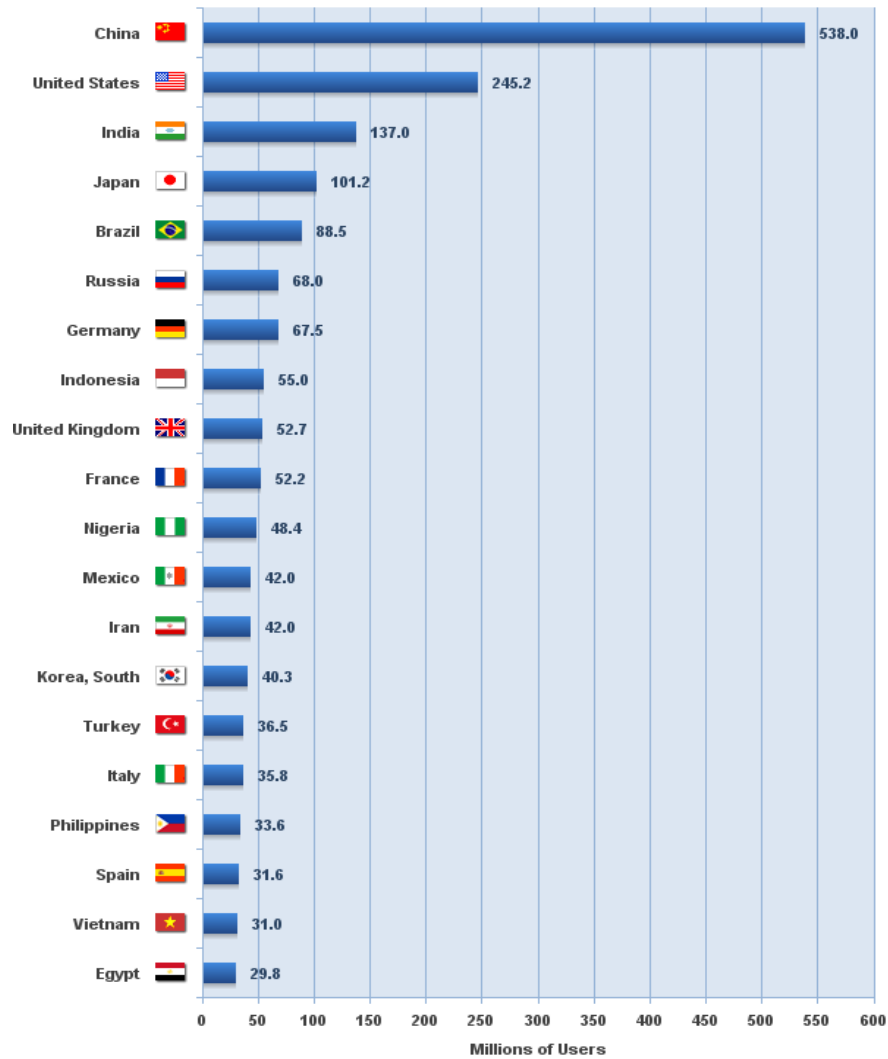


Figure 1: Top 20 Internet countries¹

2 Situation analysis

2.1 Overview of selected major problems on the Internet in Russia

To understand how we can protect children from dangers on the Internet we need to know which dangers exist and what their main features are.

2.1.1 Viruses, Trojans, Malware

Malware is a software used or created by attackers to disrupt computer operation, gather sensitive information, or gain access to private computer systems. It can appear in the form of code, scripts, active content, and other software. The functions causing damage are either disguised or the software runs undetected in the background.²

Malicious software may be installed on the computer over different ways, usually without the knowledge of the computer owner. This occurs most often when visiting an infected website or downloading software from the Internet. Malicious software includes well known types like viruses, worms, spyware, and Trojans.

Today, malware is used primarily to steal sensitive personal, financial, or business information for the benefit of others. Malware is sometimes used broadly against government or corporate websites to gather guarded information, or to disrupt their operation in general. However, malware is often used against individuals to gain personal information such as social security numbers, bank or credit card numbers, and so on.

Example: In 2005 the 25-year old Nikita Kuzmin and his crime accomplices with the virus called "Gozi" could steal millions of dollars from different bank accounts. Victims of the hackers were not just banks - the virus had infected about 190 NASA computers. As a result the agency lost about 40,000 dollars. For this Nikita Kuzmin faced 95 years in prison.³

2.1.2 Phishing

Phishing attacks are typically executed through malicious emails that victims receive, which convinces them to visit a fraudulent website at which they are tricked into giving away sensitive information (e.g. user names and passwords, financial accounts information, credit card details, etc.). This type of information can then be later used

² **Nash, T. (2005):** *An Undirected Attack Against Critical Infrastructure*. September 2005. <http://ics-cert.us-cert.gov/sites/default/files/documents/CaseStudy-002.pdf> p. 10, retrieved October 9th, 2013

³ **Tkachenko, E. (2013):** *За Gozi век свободы не видать*. January 21st, 2013. <http://www.gazeta.ru/business/2013/01/24/4938921.shtml> retrieved October 9th, 2013

to the victims disadvantage.⁴ Communications pretending to be from popular social web sites, auction sites, online payment processors or IT administrators are commonly used to lure the unsuspecting public.

Under the threat of phishing attacks stay regular users especially who have online accounts and credit cards. This kind of the fraud on the Internet has an aim to betray users. The stealing of sensitive data in consequence of illegally access to personal information (bank account numbers, passport details, codes, passwords, etc.) can cause material and financial damage.

Example: In 2003 clients of Westpac New Zealand Bank in New Zealand were cheated by revealing their online banking passwords to fraudsters. Westpac customers received on the weekend e-mail with request to confirm their personal details. The message came from a fake website of Westpac bank. After this clients were asked to confirm their banking online passwords. Approximately 300 people have fallen for this simple trick.⁵

2.1.3 Copyright infringement

Copyright infringement is the unauthorized use of works under copyright, infringing the copyright holder's "exclusive rights", such as the right to reproduce, distribute, display or perform the copyrighted work, spread the information contained within copyrighted works, or to make derivative works. It often refers to copying "intellectual property" without a written permission from the copyright holder, which is typically a publisher or other business representing or assigned by the work's creator. Copyright abuse has grown with the spread of computers and the Internet because of the simplicity of copying and downloading of a digital file.

A special place in the copyright abuse takes file-sharing. File sharing networks are used to upload and download files of whatever source. The people who use file-sharing platforms infringe a copyright if downloading or uploading videos and music. Usually copyright infringement is punished by imposition of high monetary fines depending on the seriousness of the crime. The government of Russia has provided specific dimensions of consequences for piracy, depending on possible damages caused to the author by the offender.

Example: A good example for copyright violation is the Swedish resource "The Pirate Bay" - the largest bit torrent tracker. The International Federation of record companies IFPI sued the four owners of the service, accusing them of "Assistance of third parties in violation of copyright law". After several months of court hearings, the owners of the resource were found guilty and sentenced to be confined to one year of prison and fines totalling \$3.62 million. The defendants took an appeal, and decided

⁴ **Stavroulakis, P. (2010):** *Handbook of Information and Communication Security*. Springer, 2010, p. 433.

⁵ **The age (2003):** 300 NZ Westpac customers duped in email scam. 04.11.2003
<http://www.theage.com.au/articles/2003/11/04/1067708175321.html> retrieved June 9th, 2013

to seek justice in the European Court, accusing Sweden of violating human rights and bias. But the judgement was confirmed.⁶

Noteworthy is the fact, that it is wrong to think that there are only legal processes against the administrators of torrent trackers and file sharing sites. Recording Industry Association of America (RIAA) brought cases to court against individual users who had participated in file sharing and violated the copyright. The process against the American Jamie Thomas, who uploaded 24 songs to the file sharing network Kazaa, went several years. She was found guilty and sentenced to pay compensation in the amount of \$ 1.92 million. In 2008, the RIAA sued eight thousand dollars from a teenage girl who had posted 10 songs on the Internet.⁶

2.1.4 Cyber bullying

Cyber bullying is a bullying via the use of internet, mobile phone, or a combination of both (e.g., bullying by phone call, text messages, instant messaging, emails, posting or sending embarrassing photos or video clips, creating “hate-websites”) to harm other people in a deliberate, repeated, and hostile manner which could contain aggression, offensive language, and sexual abuse. Cyber bullying can take forms like exchange of information, contacts, intimidation, imitation, hooliganism (internet trolling), or social boycott. The anonymity and physical distance may help cyber bullies to lose their inhibitions, making it easier to say or write things they normally would not say in a face-to-face interaction. The technology allows potential bullies to distance themselves from their victims and disperse harmful material to a larger audience than ever before.⁷

Cyber bullying is especially dangerous for children and teenager because the opinion of other people is very important to them and they are seeking for acknowledgement from others. Cyber bullying can result in long-term psychological harm to victims, including low self-esteem, depression, anger, school failure and avoidance, and in some cases school violence or suicide. The victims of cyber bullying lost their face often for many years, sometimes it has impacts for the future life and can cost a good job.

Example: In October 2012, Amanda Todd (who was 15 years old) committed suicide in a small town near Vancouver, Canada. Amanda explained the reasons for her decision in a video clip posted on the Internet. Like any teenager, she began to actively meet and communicate in social networks with using a web camera. Once one of her companions persuaded her to show him her breasts. Afterwards a photo with her breasts was watched by almost all teachers and classmates of Amanda.

⁶ **Safer Internet Center Russia (2012):** *Файлообмен: угроза или взаимопомощь?* 20.02.2012. <http://www.saferunet.ru/adult/news/656/> retrieved July 17th, 2013

⁷ **Russian Kids Online (Дети России Онлайн):** *Интернет-риски.* <http://detionline.com/help/risks> retrieved September 30th, 2013

This type of bullying was one of the reasons why she was changing schools and cities so often.⁸

2.1.5 Online shopping and auctions

Consumer risks means the misuse of consumer rights on the Internet. To this type of risks belongs the risk of purchasing low quality goods, various fakes, counterfeit products, the loss of money without having to purchase a product or service, theft of personal information to cyber fraud, etc.

Consumer risks concern people who buy goods on the Internet, take part in online auctions, and who are generally at least 16 years old. In Russia it is allowed to buy online only when you are 18 or older. Problems that can occur with these types of services are monetary loss and receiving damaged goods.

Example: In 2009, in the UK serious fraud had been disclosed on eBay. An international team of criminals traded counterfeited clothing and accessories of different golf clubs through auctions. The products from China were sold under the diverse label of expensive brands. From 2003 to 2008, criminals sold fakes valued at several million pounds. The investigation began after an elderly woman who was not satisfied with the quality of her purchase on eBay contacted the police.⁹

2.1.6 Internet rip-off

Every day internet users are attracted with alleged “free” offers, phishing emails, fake winning notifications, Trojan programs, unsafe Facebook applications, value-added SMS subscription, etc. These offers sound promising, but in order to get these “free offers” the user will be prompted to register and to accept the terms and conditions. However, these vendors hide their prices so well that they are difficult to notice and then the person already receives an invoice. If these invoices are not paid, the person will be scared by threats of debt collection and enforcement.

The victim of an internet rip-off can be anyone, especially trustful people who use email, online services or downloading some applications. Internet rip-off does not represent a real danger, but it can be unpleasant and accompanied with monetary loss.

Example: in December 2011, Google removed tens of applications from the Android Market supposed to send SMS-messages secretly to short numbers. These applications did not attempt to bypass the security of the operating system and were not diagnosed as malicious. Masqueraded as normal programs like horoscopes and games they asked the user while installing to accept the terms of the user agreement which looked like a standard one. Among the specific conditions for the agreements was sending of SMS-messages from the user's device to expensive telephone numbers

⁸ **Die Welt (2012):** *Der stumme Hilferuf der Amanda Todd (†15)*. Katja Mitic 22.10.2012 <http://www.welt.de/vermischtes/article110103789/Der-stumme-Hilferuf-der-Amanda-Todd-15.html> retrieved June 10th, 2013

⁹ **Safer Internet Center Russia (2012):** *Интернет-аукционы*. 13.02.2012. www.saferinternet.ru/adult/news/929/ retrieved July 15th, 2013

in different countries. Accepting the agreement, the user voluntarily authorized the installation of these applications and recognized his mistake only when big amounts of money were noted on his telephone bill.¹⁰

2.1.7 Cyber grooming

Communicating on the internet, children add people to their virtual friend list which are completely unknown to them and which they have never seen in real life. In this case, grooming is especially dangerous: the establishment of friendly relations with the child for the purpose of a personal meeting and sexual exploitation. Such acquaintances frequently occur in a chat, a forum or a social network. Communicating in person (“in private”), an attacker often introduces himself like a peer, to get the confidence of the child, and then tries to find out personal information (address, phone, etc.) so that he or she can arrange a meeting. Sometimes these people find out information of children in order to black mail the child, for example, with personal photos.¹¹

This is especially a problem, because many young adolescents are looking for new friends online, especially girls in the puberty phase. The kids are usually not expecting such forms of dangers.

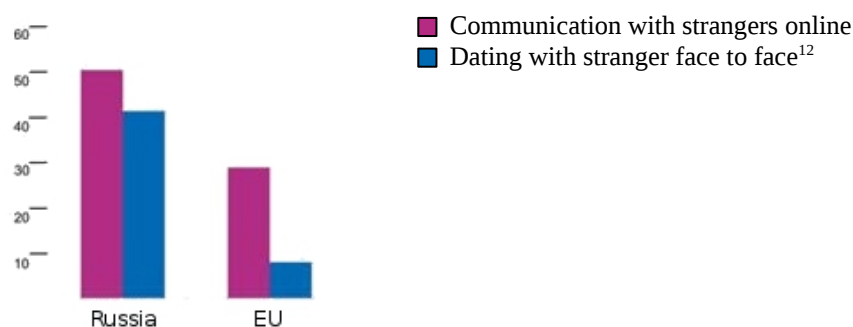


Figure 2: Communication with strangers¹²

Cyber grooming is particularly dangerous because it can lead to misusing and sexual abuse of children. There are the reports about missing children, who met with their chat partners face-to-face. The victims are mostly girls between 12 and 16.

¹⁰ **Safer Internet Center Russia (2012):** Мобильная безопасность. 13.02.2012. <http://www.saferunet.ru/teenager/news/805/> retrieved July 15th, 2013

¹¹ **Derr, R. (2009):** Sexuelle Gewalt in den neuen Medien. Monatsschrift Kinderheilkunde, 2009, Vol.157(5), p.449-455.

¹² **The Foundation for Internet Development (Фонд Развития Интернет) (2010):** Дети в интернете: Россия, Европа, мир. Первые результаты международного исследования. 2010. <http://www.fid.su/about/news/?page=12&newsid=1292600760> retrieved August 11th, 2013

Teenagers feel totally misunderstood, quarrel with their parents and want to collect the first sexual experience. This is misused by criminals mercilessly, looking at online communities or chat rooms specifically for girls who want to talk about their problems.

2.1.8 Child pornography

According to the National Coalition for the Protection of Children and Families, "child pornography consists of photographs, videotapes, magazines, books, and films that depict children in sex acts, all of which are illegal. These laws also include some child nudity, simulated sex involving children, and material that is computer-doctored to look like child porn. The very existence of child porn is considered "contraband", or illegal because the very act of photographing a child in any sexual context is abusive." The Internet has become an increasingly vast area where those involved in child pornography have found their niche. The Internet has escalated the problem of child pornography by increasing the amount of material available, the efficiency of its distribution, and the ease of its accessibility.¹³

The production and distribution of child abuse material are facilitated through commercial websites, user generated websites and peer-to-peer file sharing networks. Offenders take sexual pictures of minors and one can even order a live online molestation of a real child and infant for viewing. The prevalence of home video production facilitates the making and posting of sexual images online. Internet sex trading, where goods or money are offered to teenagers in exchange for sexual favours, is on the rise.

During 2011 the level of web-based reports processed by INHOPE Hotlines increased from 24,047 in 2010 to 29,908 in 2011 which represents an increase 24% in 12 months. While this reflects the success of the increased visibility and awareness of Hotlines by the public, it also indicates the continuing global distribution of child sexual abuse material.¹⁴

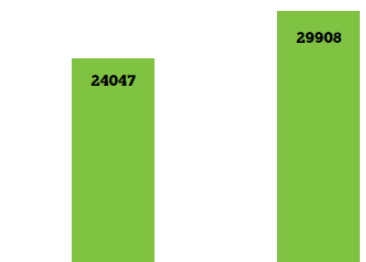


Figure 3: Level of reports to INHOPE Hotlines¹⁴

¹³ Plato, J. (1999): *Child Pornography on the Internet*. 05.03.1999.

<http://education.illinois.edu/wp/crime/childporn.htm> retrieved August 9th, 2013

¹⁴ INHOPE Annual Report (2011): <http://www.inhope.org/tns/resources/annual-reports.aspx> p. 16-17 retrieved January 14th, 2013

For girls, there is a higher risk for unwanted contacts, also for older adolescents (14 – to 17-year-old), especially for frequent Internet users, users of chat rooms and for young people, who do not use the Internet in the parental home.

In 2011 70% of reports assessed as illegal concerned females, 20% males and 10% had both male and female victims.¹⁵

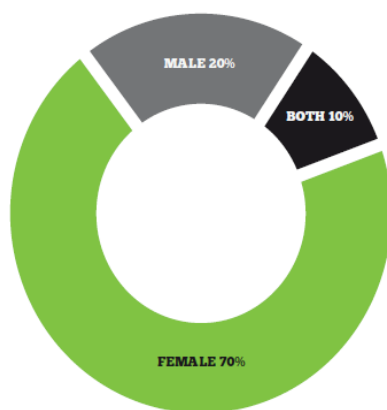


Figure 4: Gender grouping of victims 2011¹⁵

A worrying and developing trend is the increasing incidence of very young children including babies as victims. In 2011 the breakdown was pubescent 23%, pre-pubescent 71% and infant 6%.¹⁵

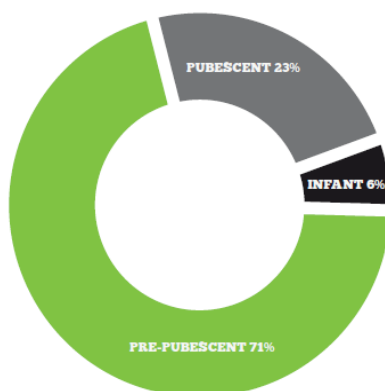


Figure 5: Age profile of victims in 2011¹⁵

¹⁵ INHOPE Annual Report (2011): <http://www.inhope.org/tns/resources/annual-reports.aspx>
p. 16-17 retrieved January 14th, 2013

An analysis from the online posts in Russia, showed that 9512 resources (addresses) contained content with features of child pornography (some websites or content in specific sections / pages).¹⁶

According to the UN figures, Russia along with USA and Thailand, are the three leading countries in terms of child pornography distribution.¹⁶

2.1.9 Illegal forums and chats, illegal content

Content risks include materials that contain illegal, unethical and harmful information.

Negative content material can be divided into two groups:

- illegal materials, which may include: child pornography (including production, distribution and storage), drugs (production, sale, propaganda of use), all materials relating to racial or religious hate (extremism, terrorism, nationalism, etc.), gambling games, etc.¹⁷

- unethical materials which contradict the social norms.¹⁷

Examples of such materials can be pictures of a sexual nature, including pornography, violent online games, gambling games, promotion of unhealthy lifestyle (drugs, alcohol, smoke, anorexia, bulimia), strong language, abuse, etc.

Illegal content is specially problematic for children because they have difficulties to distinguish a bad information from a good one. Illegal information can have a negative influence to the child's psyche and might be harmful to their health and development.

2.1.10 Internet addiction

Internet addiction is an obsessive desire to use the Internet while offline and the inability to get out of the internet being online. The internet addiction is similar to already known forms of addictive behaviours like alcohol or drugs. The symptoms of Internet addiction is closer to that of gambling and video game addiction (such as World of Warcraft) and for this condition there are the following symptoms: loss of sense for time, failure to stop, detachment from reality, euphoria while working on the computer, annoyance and irritation if you cannot get online.¹⁷

Internet addiction does not only affected young people and adults, but it is especially dangerous for children and young people who cannot manage their time so well and could use the Internet as a means of escaping problems or relieving bad mood.

The consequences of too much time spent on the Internet can be reduction of performance, loss of interest in what is happening around, sleeping difficulty, and

¹⁶ **Safe Internet League annual report (2012):**

<http://www.ligainternet.ru/upload/docs/LSI-ANNUAL-REPORT-2012.pdf>

p. 2, retrieved September 14th, 2013

¹⁷ **Russian Kids Online (Дети России Онлайн): Интернет-риски.**

<http://detionline.com/helpline/risks> retrieved September 30th, 2013

frequent mood swings. People with internet addiction change their attitude towards real life. The border between offline and online life disappear. It might cause the loss of a significant relationship, job, education or career opportunity.

2.1.11 Games addiction

Online games addiction is a form of psychological dependence, obsessive passion for video and computer games.

An irresistible attraction to online games stays in one line with pathological disorders like shopping addiction or kleptomania. Generally, addicted people have defects or problems that complicate social contacts. The most common are social phobia, defects of appearance, overweight, speech defects, sexual problems, difficulties in communication, and a lack of self-esteem.

Addiction to online games is becoming more widespread among vulnerable young people. Addicted gamers spend so much time playing that their personal relationships become neglected and sometimes disappear altogether. Physical consequences of gaming addiction include carpal tunnel, migraines, sleep disturbances, backaches, eating irregularities, and poor personal hygiene.

Example: Games that are most addictive, are network games, especially MMORPG (Massively Multiplayer Online Role-Playing Game). There are cases where too long gaming led to fatal consequences. In October 2005 a Chinese girl (with the nickname “Snowly”) died of exhaustion after playing World of Warcraft for many days in a row. After that, the gamers organized a virtual funeral.¹⁸

2.1.12 Personal data protection and identity theft

Very often we leave personal information like our e-mail address, places of work and study, living address, phone numbers, compromising photos and videos without thinking that it could be used against us by others. Furthermore, once an information was posted online it can spread without any control by the person who has posted it and can use to their detriment. It should be noted that it is difficult to delete information completely from the internet. Identity theft is a very common example.¹⁹

Identity theft can be defined as the misuse of personal data of a natural person by a third party. Especially threatened with identity theft are people who have accounts in social networks and use the Internet very often as a tool of communication.

Example: According to a survey of the anti-virus developer Eset, approximately 60% of users of social networks in Russia have at least once had lost the access to their accounts due to the actions of criminals, 25% of user profiles have been hacked

¹⁸ **SecurityLab (2005):** Китайской геймерше устроили виртуальные похороны. 08.11.2005. <http://www.securitylab.ru/news/241863.php> retrieved June 15th, 2013

¹⁹ **Safer Internet Center Russia (2012):** Угроза персональным данным в Интернете. 20.02.2012. <http://www.saferunet.ru/adult/news/552/> retrieved July 20th, 2013

repeatedly. Cyber criminals hack accounts of social networks for extortion or to resale the password for sending spam or phishing emails, for personal use, etc.²⁰

2.1.13 Netiquette

“Netiquette” is derived from the words “network” and “etiquette.” Netiquette refers to an etiquette on computer networks. More specifically the term “netiquette” has been described by Netcom Services as “the conventions of politeness recognized on Usenet and in mailing lists.”

The rules of netiquette are not universal and differ depending on communities. Since the main purpose of the netiquette is to provide better communication in the community, the rules can be set based on the objectives of the community and adopted to a communication style, technical limitations, etc.²¹

Harassment, malicious flooding, advertising and self-promotion are generally understood as a violation of netiquette. Other possible breaches of etiquette may be slander and other malicious disinformation (fraud) or plagiarism that can be punished in the form of a fine or imprisonment.

Example: In 2009 the blogger Michael Verbitsky, known by the nickname “tiphareth”, accused the popular cat tamer Kuklachev of cruelty to animals in his blog. He argued that Kuklachev use electroshock in training of cats. The tamer denied this information and filed a suit against Verbitsky, demanding 100,000 rubles as a compensation for moral damages. The victim claimed that while training he only use non-violent methods, and demanded to delete all false information. The process was ended in July 2010, when the court decided to collect 40,000 rubles from Verbitsky in favour of oppressed Kuklachev.²²

2.1.14 Spam

Spam are unwanted messages, sent to numerous recipients by email, which usually contains advertising content. The company Symantec distinguishes following spam categories:

Category name	January 2013
Sex/Dating	71.65%
Pharma	14.87%
Watches	7.29%

²⁰ **Kudrina, I. (2013):** У 60% пользователей соцсетей в РФ хоть раз взламывали аккаунт. <http://digit.ru/internet/20130723/403616483.html> retrieved October 10th, 2013.

²¹ **Scheuermann, L., Taylor, G. (1997):** *Netiquette*. Internet Research: Electronic Networking Applications and Policy. Volume 7, Number 4, 1997, p. 269

²² **Safer Internet Center Russia (2012):** Клевета в Интернете. 31.01.2012 <http://www.saferunet.ru/teenager/news/969/> retrieved July 21st, 2013

Casino	3.50%
Software	1.52%
Jobs	0.55%
Mobile	0.24%
Lotto	0.05%
Newsletters	0.04%
Degrees	0.01%

Table 1: Global Spam categories²³

Literally each person who uses e-mails, deals with spam frequently. A great number of useless messages causing obvious damage to the recipients. First of all it is about time wasted to unnecessary screening of mail and seeking out the right individual letters. Very often, Internet traffic is expensive and the user has to pay for the unwanted messages. Clicking on links in spam email may send users to phishing web sites or sites that are hosting malware. Spam emails may also include malware like scripts or other executable file attachments.

Example: Well-known Russian spammer Leonid Kuvaev, who has the second place on the list of the worst spammers on the Internet, started his business in America, but in 2005 came under the court: A Massachusetts General Attorney determined that the spamming network of Kuvaev, including the affiliated program BadCow, generates \$ 30 million annually. He was sentenced to pay a money penalty in the amount of \$ 37 million. However, he went back to Russia, where it was not possible to get him even with the FBI. The site continues to sell "Viagra" without license and send spam through bot nets. In December 2009, Kuvayev was arrested in Moscow for paedophilia.²⁴

2.2 Children on the Internet

Modern teenagers are always on the way and are afraid to missed something, so they very often use mobile phones, typically with internet access. These smart phones wakes them up, are used as a camera or music player, helps to change their plans and appointments quickly.

The fact that young people might replace real relationships through electronic communications could even be more dangerous. Young people have fun, to meet new people online. A large part of the teenagers are registered in several communities. But

²³ Symantec Intelligence Report (2013):

http://www.symantec.com/content/en/us/enterprise/other_resources/b-intelligence_report_01-2013.en-us.pdf p.3, retrieved July 15th, 2013

²⁴Habrhabr (2010): «Король спама» Леонид Куваев посажен в тюрьму, но дело его живёт. 12.08.2010. <http://habrhabr.ru/post/101599/> retrieved November 15th, 2013

in the acquaintanceship the personal relevance still plays an important role, as they do not know people from Africa or Japan, but people who they theoretically can meet in real. They like to find new friends over common interests. They have more real and online friends, but not more time. The result is that the individual relationships are less intense and deep. Many young people are aware of the problem of having many superficial contacts. The internet ensures that teenager stay in better contact with each, but on the other hand leads to an alienation of people.

The presentation of your own person in an online community can also help to satisfy another basic need: the wish of a partner, of love and of sex. Girls in their puberty phase are defined by relationships and guys through games. But when their real relationships are not satisfactory, then they are aligned in the internet.

Teenagers usually go through a period of low self-esteem, seek support from friends and do not want to listen to their parents. They are looking for their place in the world and trying to find their own independence, while at the same time they want to become familiar to family values. In this age they already fully communicate with the world. On one side they have many new thoughts and ideas, on the other - a lack of experience.²⁵

What attracts children and adolescents on the Internet:

- diverse communication
- satisfaction of curiosity and hunger for information
- search for new forms of expression
- virtual anonymity and freedom (simulation of many "I")
- gaining a sense of community and belonging to the group

Searching queries of children

Symantec has released a list of the most popular search queries made by children in 2009. The statistics are based on information collected from the cloud service "OnlineFamily.Norton", which allows parents to keep track of what their children surf on the Internet.

The first five items in the list of five hundred most popular queries clearly illustrate the popular trend of the world wide web. The top three rankings occupy YouTube, Google, and Facebook, and on the fourth and fifth place were such queries like "sex" and "porn". The top ten included well-known Internet services like Yahoo, MySpace and eBay.

How often do children use the Internet?

Russian children use the Internet more intensively than children in European countries. On average, a bit over 70% of children go online every day or almost every day. Every second Russian child aged 9-10 uses the internet every day, and almost one third of children use it one or twice a week. The older children are, the more frequently they go online: thus, over 80% of 13 year old go online every day.

²⁵ **Microsoft (2006):** *Безопасность детей в Интернете.* 2006, p. 24
<http://www.ifap.ru/library/book099.pdf>, retrieved June 5th, 2013

Boys and girls are almost equally active in their Internet use (73,5% and 70% respectively).²⁶

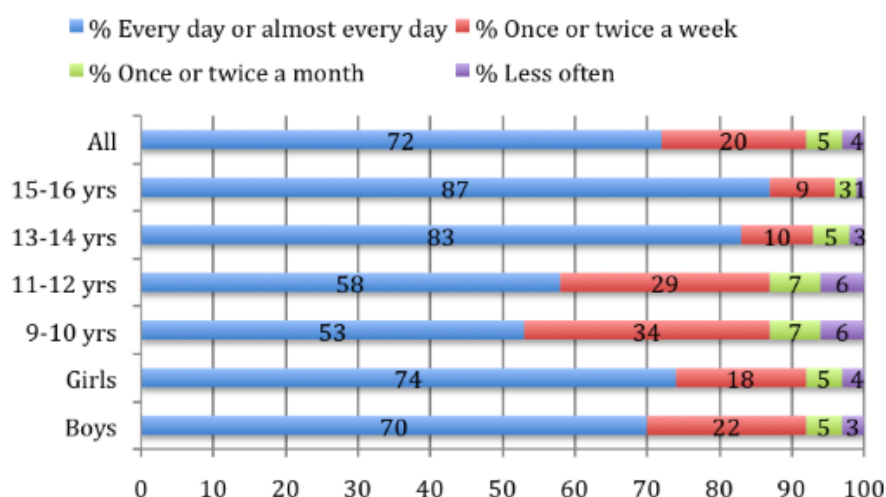


Figure 6: How often do children use the Internet. Comparison Russia and EU.²⁶

What do children do online?

Online activities become more and more diverse, with every modern child being able to find something of their interest. Participation in many online activities is a building block of successful online socialization. That is why it is not only important to assess time spent online, but to also keep track on what exactly children do while being online. According to the research of the organisation Russian Kids Online, Russian school children try to embrace almost all available types of online activities and prioritise those activities that assume communication:²⁶

	13-16 years			
	boys		girls	
	RU	EU	RU	EU
Use Internet for educational purposes	82	87	87	90
Visiting social networks	84	79	93	77

²⁶ Soldatova, G., Rasskazova, E., Zotova, E., Lebesheva, M., Geer, M. and Roggendorf, P. (2010-2011): *Russian Kids Online. Key findings of the EU Kids Online II survey in Russia*. Foundation for Internet Development. Lomonosov Moscow State University, Department of Psychology, 2010-2011, p. 29-30, 45-46.
http://detonline.com/assets/files/helpline/Russian_KidsOnline_Final_Report_2013.pdf
 retrieved January 15th, 2014

Playing games alone or against computer	76	86	67	83
Download videos and music	77	59	77	55
Send/check emails	71	72	78	72
Watch videos	73	76	67	51
Use messenger (ICQ, AIM, Skype, etc.)	64	75	76	74
Upload photos, music and videos for common use	63	53	68	52
Read news	58	59	60	57
Playing games with others	60	62	32	31
Chatting	42	34	37	27
Use file-sharing programs	49	27	34	20
Post message or comments on a website	40	37	34	37
Use web camera	36	42	36	37
Post something in blog	16	13	14	15

Table 2: What do children do online?²⁷

All these online activities can increase the chance that children eventually will encounter online risk of some sort. Quite often these risks are in the legal area. There are quite objective reasons for that, as in Russia the copyright protection problem as an area for discussion arose only some time ago. Various torrents and social networking sites provide users with every opportunity to download almost all existing films and music, quickly and free of charge. Most of this content is, however, illegal.²⁷

Digital literacy

Children caught up by limitless opportunities that modern technologies provide them with, often fail to identify online risks and threats, and, as a result, become the most vulnerable group of internet users. To help a child avoid possible unpleasant outcomes, it is important to teach them to use the internet safely.²⁷

% who say they can...	13-16 year old	
	boys	girls
Block messages from someone you don't want to hear from	81	80

²⁷ Soldatova, G., Rasskazova, E., Zotova, E., Lebesheva, M., Geer, M. and Roggendorf, P. (2010-2011): *Russian Kids Online. Key findings of the EU Kids Online II survey in Russia*. Foundation for Internet Development. Lomonosov Moscow State University, Department of Psychology, 2010-2011, p. 33, 45-46.
http://detionline.com/assets/files/helpline/Russian_KidsOnline_Final_Report_2013.pdf
retrieved January 15th, 2014

Bookmark a website	74	75
Change privacy settings on a social networking profile	70	75
Find information on how to use the internet safely	70	65
Delete the record of which sites you have visited	64	63
Block unwanted adverts or junk mail/spam	62	51
Compare different websites to decide if information is true	52	47
Change filter preferences	43	30

Table 3: Children's digital literacy and safety skills²⁸

2.3 Organizations in Russia

2.3.1 The Safe Internet League

The Safe Internet League is the largest Russian organization fighting dangerous web content. The mission of this organization is to eradicate dangerous content through community action by IT professionals, industry players, and regular Internet users.

In 2012 this cyber guard force was seen mustering 20,000 volunteers from various regions of Russia and its neighbouring states.²⁹

To accomplish their mission, the League's members undertook the following tasks:

- fighting dangerous content
- uniting a professional community and industry players to work out self-regulation mechanisms in order to avoid top-down regulation and Internet censorship
- providing help to children and teenagers victimized by the spread of dangerous Internet content
- assisting the authorities in tackling web site owners who are creating and distributing dangerous content – child pornography, materials encouraging violence and illegal drug use
- participating in drawing up legislation aimed at eradicating dangerous content on the Internet

²⁸ Soldatova, G., Rasskazova, E., Zotova, E., Lebesheva, M., Geer, M. and Roggendorf, P. (2010-2011): *Russian Kids Online. Key findings of the EU Kids Online II survey in Russia*. Foundation for Internet Development. Lomonosov Moscow State University, Department of Psychology, 2010-2011, p. 33, 45-46.

http://detonline.com/assets/files/helpline/Russian_KidsOnline_Final_Report_2013.pdf

retrieved January 15th, 2014

²⁹ Safe Internet League annual report (2012): <http://www.ligainternet.ru/upload/docs/LSI-ANNUAL-REPORT-2012.pdf> p.8, retrieved September 14th, 2013

The League's members were the developers of a bill for the protection of children. The League has created a white list of sites tested by experts and recommended for children and also developed an automatic filter to detect illegal content. The Safe Internet League offers their filter to parents to protect their children from harmful information. Everyone is free to install their web-filter on a PC, tablet, or mobile phone. Filter deny the access to sites related to violence and pornography, drugs, suicide or to sites which contain vulgar language to the user as well as offers to take part in gambles or lottery.³⁰

The League works very closely with Department "K". In 2012, 319 instances of production and distribution of child pornography were uncovered by officers of the Russian Interior Ministry's "K" Department, with direct help from the cyber guard volunteers.³¹

2.3.2 Safer Internet Centre – Russia

The Safer Internet Centre in Russia is dedicated to Internet threats and effective methods to combat them. The centre was established in 2008. It organizes activities like the International Day of Safer Internet in Russia in the form of the Week of Safe Runet. The Week of Safe Internet is the most important Russian event dedicated to the problems of safe use of the Internet and mobile technologies. During the Week a group of activities takes place which has the aim to, firstly, form a safe environment for children and adults in the terms of the "information society" and the mass penetration of computer technology, and, secondly, to create a culture of responsible, ethical and safe use of "new technologies". These events take place in Moscow, and in many regions of Russia.

Safer Internet Centre in Russia is an authorized Russian member of the European network of Centres for Safer Internet (Insafe). The centre also is a member of the International Network of "hotlines" to combat illegal content INHOPE.

INHOPE

INHOPE is the International Association of Internet Hotlines. INHOPE coordinates a network of Internet Hotlines all over the world, supporting them in responding to reports of illegal content to make the Internet safer. INHOPE was founded in 1999 and has grown to a network of 43 Hotlines in 37 countries across the globe. These include 26 EU Member States, plus Australia, Bosnia and Herzegovina, Canada, Iceland, Japan, Russia, South Korea, South Africa, Taiwan, Turkey and the United

³⁰ **Zaripova, A. (2013):** *Лига безопасного интернета создала бесплатный фильтр для родителей.* 18.06.2013. <http://www.rg.ru/2013/06/18/liga-site-anons.htm> retrieved July 24th, 2013

³¹ **Safe Internet League annual report (2012):** <http://www.ligainternet.ru/upload/docs/LSI-ANNUAL-REPORT-2012.pdf> p. 5, retrieved September 14th, 2013

States of America. During 2012 new Hotlines from Spain and Hungary were welcomed into the INHOPE Network.³²

INHOPE members operate a public hotline to receive complaints about apparent illegal content, they then assess the content in accordance with their national laws and if they consider it to be illegal they trace the material to the hosting country. If the content is illegal in the hosting country then the national Hotline takes steps to have the material “taken down” in consultation with their law enforcement partners.³²

Insafe

Insafe is a European network of Awareness Centres (working in 27 EU member states, plus Iceland, Norway and Russia) promoting safe, responsible use of the Internet and mobile devices to young people. The network develops materials, organises campaigns and delivers information sessions for children, young people, parents, supervisors, teachers and social workers to enable children and young people to make positive use of online technologies, and develop their own strategies for staying safe online.³³

The network calls up a shared responsibility for the protection of the rights and needs of citizens, in particular children and youths, by government, educators, parents, media, industry and all other relevant actors. Insafe partners work closely together to share best practices, information and resources. The network interacts with industry, schools and families with the aim of empowering people to bridge the digital divide between home and school as well as between the generations.³³

Members of the Insafe network also provide helplines where parents and children can obtain advice and assistance on online safety issues that may be causing them concern.³³

Insafe supports the Safer Internet Day that is part of a global drive to promote a safer Internet for all users, especially young people. This event has been celebrated since 2004 in a growing number of countries.³³

Insafe organises the Safer Internet Forum. It brings together representatives of industry, law enforcement authorities, child welfare organizations and policy makers. The past editions of the Safer Internet Forum have welcomed guests not only from Europe, but also from countries such as Australia, Brazil or the Russian Federation.³³

Since 2010 Insafe and INHOPE are working together officially to deliver a safer and better internet.³³

³² **INHOPE Annual Report (2011):** <http://www.inhope.org/tns/resources/annual-reports.aspx>
p. 8, retrieved January 14th, 2013

³³ **INHOPE | Insafe annual report (2012):**
http://www.saferinternet.org/c/document_library/get_file?uuid=d1849d43-17da-489a-be61-5fc1fb757c2c&groupId=10137, p. 7-14, retrieved January 18th, 2014

2.3.3 Department “K”

Department “K” is a division of the Department of Interior of Russia. In the regions of the Russian Federation there are operating divisions of the Departments “K”.

The tasks of the department “K” are the following:

- fighting against infringement of copyright and related rights
- identification of illegal infiltration into a computer network
- activities against the distribution of malware
- detection of violations of the rules for the operation of computers, computer systems or networks
- combating the spread of pornography through the Internet and CDs
- combating illicit trafficking of electronic and technical tools
- fighting against international crimes in the sphere of information technologies
- International cooperation in the fight against crimes committed through the use of information technology.

2.4 Existing online resources

<http://www.saferunet.ru/>

The Russian Safer Internet Centre, the owner of the web site, deals with the problem of safe, comfortable and tolerant use of the Web. Here one can get detailed and accessible information about different types of Internet-threats, how to detect them and minimize damage they cause to your relatives, computer, bank account or health.

<http://www.friendlyrunet.ru/>

The Hotline on the base of the Fund “Friendly Runet” works since September 2008 and was created with the direct participation and works in close partnership with the department “K” of the Ministry of Internal Affairs of the Russian Federation. The Fund “Friendly Runet” is the contact Hotline of the international association INHOPE since 13th of May 2009. Since June 2011 the Fund “Friendly Runet” is a full member of “Safe Internet League”.

<http://www.i-deti.org/>

The web site is dedicated to legislation, laws, opinions and international experience in the field of safe use of the Internet for children. It also contains recommendations about resources for children with positive content that stimulates the development of the child and links to pages and sites dedicated to information about security on the net for adults, children and professionals.

<http://www.detionline.com/>

Russian free service of telephone and online help for children and adults on the safe use of the Internet and mobile communications. The websites informs about different projects in the area of Internet security and provides contacts of organisations which can help children and parents.

<http://nedopusti.ru>

A social project to protect children from abduction, illegal exploitation and abuse. One of the main objectives of the project is to use the possibilities of “high technology” to protect and safe children and to ensure their full development and self-development.

<http://etika.ru/>

Site is created specifically for users of Runet who want to work in an ethical, correct and safe environment and is ready to participate in the creation of such an environment.

2.5 The legal basis in Russia

2.5.1 The Federal Law Nr. 139 from 28th July 2012 “On Amendments to Federal Law On Protecting Children from Information Harmful to Their Health and Development”

This law updated some regulations of other federal laws, involving filtering internet sites with a blacklist system and to block illegal online resources. The amendments are related to illegal information on the Internet: child pornography, information that encourages children to suicide, drug propaganda etc. These amendments were developed by the League of Internet Security.³⁴

Amendments to the Federal Law “On Protecting Children from Information Harmful to Their Health and Development”.

The amendments incorporate many small refinements to the law, as well as the ways to regulate the labelling of content. This means that every page on the Internet with information which could harm children, should be marked with the special characters: 6 +, 12 +, 16 +, 18 + (older than 6 years, etc.). The law also has the amendment that access to the Internet in the "places available for children" should be restricted.³⁴

Amendments to The Code of the Russian Federation on Administrative Offences.

The Code of the Russian Federation on Administrative Offences makes amendments about responsibility of operators or the administration of the places accessible for children for not using administrative and organizational measures, technical, software and hardware protection of children from the harmful information.³⁴

³⁴ **The Federal Law Nr. 139 from 28th July 2012 “On Amendments to Federal Law On Protecting Children from Information Harmful to Their Health and Development”**
<http://base.garant.ru/70207766/> retrieved September 13th, 2013

Amendments to the Federal Law “About Telecommunications”.

In the Federal Law “About Communications” are made amendments, which regulate the restriction and renewal of access to information through the Internet by the Federal Law “About Information, Information Technologies and Protection of Information.”³⁵

Amendments to the Federal Law “About Information, Information Technologies and Protection of Information”.

At the federal law is amended following³⁵:

1. It provides definitions of the website, web page, domain name, network address, the owner of a website and the hosting provider.
2. The Act adds a new Article number 15 “Unified Register of Domain Names and (or) the universal pointers to pages of sites on the Internet and network addresses of sites on the Internet that contain information prohibited to the spread on the territory of the Russian Federation.” According to which:
 - 2.1. It creates an information system “Unified register of domain names and (or) the universal pointers pages of sites on the Internet and network addresses of sites on the Internet that contain information prohibited to spread on the territory of the Russian Federation by federal laws”
 - 2.2. The Registry Operator enlists the links to the websites or the domain names which contain:
 1. After decisions of federal authorities:
 - 1.a) materials with pornographic images of minors;
 - 1.b) of information about the places of purchase and methods of manufacture and use of drugs and psychotropic substances;
 - 1.c.) information about how to commit suicide, as well as appeals to commit suicide;
 - 1.d.) information about minors who have suffered in consequence of illegal acts.
 2. any other information which is forbidden to spread in Russia according to court decisions.
3. The decision to include domain names, links to Internet pages of sites and network addresses of sites in the registry can be appealed only through the court, and only within 3 months.
4. Since the introduction of the domain name or a link to the website of the Register hosting provider shall inform the owner within 24 hours about the need to remove the whole web page which contains forbidden information immediately.

³⁵ **The Federal Law № 139 from 28th July 2012** “On Amendments to Federal Law On Protecting Children from Information Harmful to Their Health and Development” <http://base.garant.ru/70207766/> retrieved September 13th, 2013

5. Within 24 hours after the receipt of notice the site owner must remove this web page entirely from the hosting provider. In the case of a rejection or omission of the site owner, the hosting provider is obliged to restrict access to such a site on the Internet.

6. Unless the hosting provider and owner of the site do not undertake these measures, the network address of the site will be included in the Register.

7. Within 24 hours from the moment of the registration of the site's network address in the Register, telecommunications operators, providing services to access the Internet are required to restrict access to the site. The fact that the same IP-address may locate several sites with different domain names, is ignored by the law.³⁶

With beginning of November 2012 a register of forbidden websites can be found at zapret-info.gov.ru

Criticism of the law

Until now, the Internet has become the latest relative uncensored platform for public debate and for the expression of political views in Russia. However, there are real fears that the law could be used to censor the Internet. Under the pretext of protecting children from illegal content in Russia, it will really be possible to prohibit any unwanted Internet resources.

Moreover, the law requires to block not only certain pages, but the websites entirely, such as, for example, the video portal YouTube or blogging service LiveJournal.

A couple of years ago, one user of the project Gansa.ru had posted pictures on its forum which belonged to forbidden content. The page with extremist content also fell into the "blacklist". Then the administrators of Gansa.ru removed it. Despite this, the access to the resource stayed blocked. As a result, this resource was forced to change the web-address. A similar incident exists for the video sharing platform YouTube and the Russian social network "VKontakte". Both are listed as "extremist" websites, however, law enforcement does not rush to block them entirely.

Until now, these were only isolated cases, but this practice may become the norm. The Russian internet users, who will not have access to legal content, will suffer from it in the first place.

The law allows blocking of Internet resources by hosting providers and telecommunications operators. But many web sites and services can be located on the same IP-address, which means that with the access restriction to some material, others resources which do not violate the law might be closed as well.

³⁶ **The Federal Law № 139 from 28th July 2012** "On Amendments to Federal Law On Protecting Children from Information Harmful to Their Health and Development" <http://base.garant.ru/70207766/> retrieved September 13th, 2013

2.5.2 Incitement of national or racial enmity

In Russian actions aimed to agitate to incitement of national or racial enmity are recognized as a crime. Article 29 of the Russian Constitution states that: "Propaganda or agitation which incite social, racial, national or religious hate or enmity is not acceptable. The propaganda of social, racial, national, religious or linguistic supremacy is prohibited."³⁷

According to part 1 of Article 282 "Incitement of national or racial enmity and abasement of human dignity" of the Criminal Code of the Russian Federation, as amended by Federal Law such activities are subjected to prosecution, which results in one or more of the following penalties: a fine of 100,000 to 300,000 rubles or in the amount of a salary or other income for the period from one year to two years, or deprivation of the right to occupy certain positions or engage in certain activities for a term up to three years, or with compulsory works for a term of up to one hundred hours, or corrective works for the term up to one year, or by imprisonment for up to two years. The offender can be any person who has attained 16 years of age.³⁸

One way to commit this crime is to disseminate information to the media, which increases the likelihood of acquaintance with the statements, inciting inter-ethnic strife, a large audience.

2.6 The situation in Russian schools

2.6.1 The subject "Computer science and Information and Communication Technologies"

Computer science is very young school subject in Russia. It is about 25 years old.

The total annual amount of hours for each subject is determined by the government, but a teacher is free to distribute this hours over the year, using a module approach to make his own lesson plan.

The subject "Computer science and ICT (Information and Communication Technologies)" is thought one hour a week in 8th class and two hours per week in 9th class. During two years in middle school this makes a total of 105 hours of training.³⁹

³⁷ **Constitution of Russia:** <http://constitution.kremlin.ru/> retrieved December 13th, 2013

³⁸ **Criminal Code of Russia**, Part 1, Article 282 "*Incitement of national or racial enmity and abasement of human dignity*" <http://www.ukru.ru/code/10/282/> retrieved December 13th, 2013

³⁹ **Federal Center for Educational Legislation:** <http://www.lexed.ru/standart/02/02/06.pdf> retrieved October 13th, 2013

	1. Information processes						2. Information technologies					
	Information and information processes	Presentation of information	Computer as universal data-processing device	Algorithms	Formalisation and modelling	Information processes and technologies in the society	Word processing	Graphics processing	Multimedia technologies	Processing of numerical information	Data storage	Communication technologies
Total amount of hours: 105 Reserve time: 11 hours (10, 5%) The number of hours for part 1: 46. The number of hours for part 2: 48.												
School hours of the suggested program.	4	6	4	20	8	4	14	4	8	6	4	12
Percent	4,2	6	4,2	21	9	4,2	15	4,2	9	6	4,2	13

Table 4: The subject "Computer science and ICT" eighth and ninth classes. Middle school⁴⁰

In high school specialized education is implemented. Each educational institution implements its profile or more specialized areas. In selected profiles the subject "Computer science and ICT" might be represented by two levels: the base (1 hour a week) or profile (4 hours a week or more). In high school it is planned to study computer science at two levels, depending on the selected profile. The number of hours and the contents are significantly different.⁴⁰

⁴⁰ **Federal Center for Educational Legislation:** МЕТОДИЧЕСКОЕ ПИСЬМО. О преподавании учебного предмета «Информатика и ИКТ» и информационных технологий в рамках других предметов в условиях введения федерального компонента государственного стандарта общего образования.
<http://www.lexed.ru/standart/02/02/06.pdf> retrieved October 13th, 2013

Total amount of hours: 70. Time reserve: 7 hours (10%). Actual amount of hours: 63	Information and information processes	Information models and systems	Computer as a information processes automation tool	Tools and technologies for creating and converting data objects	Tools and technologies of information exchange via computer networks (network technologies)	Basics of social computer science
School hours of the suggested program.	13	19	5	12	13	2
Pro cent	20,5%	30%	8%	19%	20,5%	3%

Table 5: The ratio of densities of various chapters content in computer science and ICT. Secondary (complete) general education - Baseline level⁴¹

⁴¹ **Federal Center for Educational Legislation:** МЕТОДИЧЕСКОЕ ПИСЬМО. О преподавании учебного предмета «Информатика и ИКТ» и информационных технологий в рамках других предметов в условиях введения федерального компонента государственного стандарта общего образования.
<http://www.lexed.ru/standart/02/02/06.pdf> retrieved October 13th, 2013

	Theoretical computer science			Information technologies					
Total amount of hours: 280 Time reserve: 30 hours (10%). Actual amount of hours: 250	Information and information processes	Information human activities	ICT tools	Technologies of word creation and processing	Technology of creation and processing of graphics and multimedia	Number crunching	Technologies of data search and storage	Telecommunication technologies	Technologies of management, planning and organisation of activities
School hours of the suggested program.	64	13	48	125					
Pro cent	26	5	19	50					

Table 6: Secondary (complete) general education. Profile level⁴²

Problems:

- The level of knowledge and skills of the students in computer literacy is diverging. Students gain knowledge and skills in computer science not only in the classroom. This causes the problem of teaching computer science on

⁴² **Federal Center for Educational Legislation:** МЕТОДИЧЕСКОЕ ПИСЬМО. О преподавании учебного предмета «Информатика и ИКТ» и информационных технологий в рамках других предметов в условиях введения федерального компонента государственного стандарта общего образования.
<http://www.lexed.ru/standart/02/02/06.pdf> retrieved October 13th, 2013

different levels, if the teacher wants to be able to adapt to the knowledge and skills of every student.

- Oversaturation of computer technology may have the opposite effect on students. They could have an elementary fatigue and "allergy" to the computer.
- Computer science at school is the youngest of all school subjects and perhaps the most problematic. One of the problems is the lack of elaboration of teaching methods.
- Governmental standards, unified programs and common terminology were absent for a long time.
- Imprecise and inexplicit definitions of computer science courses at schools and universities.
- High rates of computer science growth leads to the fact that the teachers constantly have to use additional materials like articles or Internet resources. They also have to update their material far more frequently than in other subjects.
- The number of lessons is insufficient for addressing additional topics.

2.6.2 E-learning in Russian schools

Since 2011, Russian schools started the implementation of e-learning resources. Between 2006-2010 more than 130,000 different electronic educational resources were developed. It were kits to textbooks, multimedia educational modules, interactive maps, virtual laboratories, electronic encyclopaedias and dictionaries, musical and artistic works in digital form. All these resources were uploaded to the website of the Federal system of informational educational resources and became available to every Russian school.

More than 90 percent of the teachers who work with electronic educational resources use a screen or an interactive whiteboard. Much less teachers organize group work in the classroom, using several computers. Not all schools have not enough computers to organize such kind of work or their Internet connection is too weak to support active work with online resources.

Schools can download the educational resources for free, but in order to use the resources it is necessary to install special software that includes video player, audio program and multimedia applications.

There are courses available for teachers in which they are taught how to use the electronic educational resources on lessons and which discuss the main e-learning tools for a concrete subject.

The main sites containing the electronic educational resources are:

- website of the Federal Centre of Informational Educational Resources <http://www.fcior.edu.ru>;
- single collection of digital educational resources <http://school-collection.edu.ru>
- federal portal "Russian education" <http://www.edu.ru>

- e-learning resources <http://eor-np.ru/>, which was created in the framework of the project "Development of electronic educational Internet resources for the new generation, including cultural and educational services, remote education and job training (e-learning), including resources for being used by people with disabilities."

3. The Teaching Framework

3.1 Blended Learning

In the current information age a new kind of teacher is emerging. New methodologies and new expertise must be acquired, mastered and continuously updated. New challenges are also awaiting the students. The use of e-learning courses can only be a first step, because without a well-planned integration into existing teaching environments the positive effects will be limited.

Computer-based training can be understood as interactive learning with the support of the PC. This means that the technology is directly related to the learning process and is not just a simple tool. It means that the technology is directly related to the learning process and is not just a simple tool.

The web-based training can be seen as classic multimedia learning program which is available through the Internet. Usually web-based training offers the knowledge (presentation of learning content) and exercises (tasks or questions) and their evaluation. Control questions will point out how good the content was understood by the pupils.⁴³

3.1.1 Introduction

The major issue is the integration of computer-based training with existing academic environment. The teacher should view the computer and the Internet as a natural learning and work equipment and should not be afraid to use free programs at school that are offered on the Internet.

The aim of using e-learning tools is to integrate the strengths of personally supervised classroom offerings and strengths of a readily available online information service. Media supporting scenarios generally offer a number of advantages and didactic potential like interactivity, flexibility and individualization of the learning processes and enhanced display options.

Today, the potential of multimedia, interactivity and adaptability are increasingly being used for the design of web-based training.⁴⁴ The focus is on the support of the existing learning process. Multimedia technologies are used to provide a richer, more flexible learning experience without making revolutionary changes to the current learning approach.

The technologies are used to provide new and more effective ways to teach certain elements of course content. They are used as a supportive capacity to facilitate the

⁴³ **Moritz, W. (2008):** *Blended Learning. Entwicklung, Gestaltung, Betreuung und Evaluation von E-Learningunterstütztem Unterricht*. 1 Auflage, 2008, p. 17.

⁴⁴ **Petko, D. (2010):** *Lernplattformen in Schulen. Ansätze für E-Learning und Blended Learning in Präsenzklassen*. VS Verlag, 1. Auflage, 2010, p. 9.

learning process. Therefore extra opportunities for interaction with materials relevant to a particular course are provided but the focus and the direction of the learning will continue to be directed by the traditional learning program.

In e-learning and blended learning it is not about the adaption of the teaching to the possibilities of technology, but didactics should be placed at the centre and then should be searched for technical possibilities for an implementation.⁴⁵

Human communication must remain at the centre of the learning process. Traditional seminars, workshops and other experiences can be usefully supplemented by computer-based learning. The introduction to the material and explication of the topic's basics are made by the teacher.⁴⁶

Learning includes independent online activities and normal teaching. The independent online activities could be used during normal school hours or in the form of homework. Online learning tasks can be done individually or in groups.⁴⁵

If the students have access to educational software after completion of the lesson, it could be a tool to practice and to strengthen their knowledge for them.⁴⁶

The aim of this thesis is to create a supportive learning environment with the integration of the e-learning program. The objective of the project is to design learning models, which can be implemented in current practice of school lessons. This includes weekly lectures (1 lesson per week), written tests and tasks. The didactic starting point of the project is to motivate the students to deal with the teaching material during the lessons independently. Furthermore, the reference to real life should be improved through examples in videos and articles.⁴⁷

3.1.2 Advantages

A special value of multimedia learning resources compared to conventional teaching tools are their simple distribution and reusability, especially when working with newer standards for learning objects.⁴⁵

The computer-based learning enables pupils to perceive the possibilities of an increase in quality, less effort and more fit introduced to the learning process by means of applying this new technology.

The main benefits of open educational multimedia modular systems include:

- The possibility for the teacher to construct the course and to create an educational trajectory individually for the students: thanks to the modular implementation of e-learning tools the teacher can choose the optimal combination for a lesson from his point of view;

⁴⁵ **Petko, D. (2010):** *Lernplattformen in Schulen. Ansätze für E-Learning und Blended Learning in Präsenzklassen.* VS Verlag, 1. Auflage, 2010, p. 9, 13, 10

⁴⁶ **Schweighofer, K. (1992):** *Computer Based Training. Interaktives Lernen mit dem Computer aus pädagogischer Sicht.* Universitätsverlag Rudolf Trauner, Linz, 1992, p. 69-71, 103, 105.

⁴⁷ **Koubek, A., Lo, S., Meisterhofer, E., Posch, R. (1998):** *Lernen mit Multimedia.* Graz, 1998, p. 6

- The manageability of a program. Later versions or changes of the contents could later be simply updated on the server and the teacher can have the assurance that all learners are constantly working with the latest version.⁴⁸
- Unlimited life cycle of the tool: each training module is autonomous and the system is an open, dynamically extensible educational resource that does not require essential processing as a whole when the technical content or external conditions change.
- The computer has the potential to support alternative learning environments. Computer Based Learning has the additional advantage to address various types of learners.

3.1.3 Possible problems

- Modules or software often become obsolete over time.
- The difficulty of integration of educational multimedia software into the educational practice of teachers.
- The lack of professional training and information for teachers when working with e-learning software and tools.⁴⁹
- Lack of learning adaptation, which means the background of learners is not considered.
- Missing fulfilment of training requirements.

3.2 Description of the E-Learning Tool

3.2.1 Introduction

The tool was created with support of Safeinternet.at and Mrs. Camilla Wøldike of Safer Internet Denmark who provided the graphics for this tool.

The e-learning tool is a collection of learning methods which enable, distribute and enhance the learning process. It creates opportunities for education in a flexible, efficient and cost effective manner.

Sources of the learning materials:

- [Saferinternet.at](http://Safeinternet.at) – Austrian information and coordination centre representing the EU Safer Internet Network (Insafe).
- IT-Safe.at – An IT security project for SME by the Austrian Chamber of Commerce

⁴⁸ **Moritz, W. (2008):** *Blended Learning. Entwicklung, Gestaltung, Betreuung und Evaluation von E-Learningunterstütztem Unterricht*. 1 Auflage, 2008, p. 17.

⁴⁹ **Koubek, A., Lo, S., Meisterhofer, E., Posch, R. (1998):** *Lernen mit Multimedia*. Graz, 1998, p. 10.

3.2.2 Usage Requirements

In a modern e-learning environment the most important cornerstone of a working infrastructure is the IT equipment, both, at the learner's and at the instructor's interface.

The necessary equipment: computer, minimum screen resolution: 1024x768, mouse, keyboard, Internet access.

The necessary software: operating system (Windows, Linux or Mac), Internet browser (Internet Explorer 5+ / Firefox 1+), Macromedia Flash Player 8+.

3.2.3 Use of the e-learning tool

The tool was created by myudutu.com. After registration it is possible to build, test and extract learning courses with myUdutu for free. The course can be spread and changed by the persons who use it. The interface of the online-tool myudutu.com is easy to understand and it is not necessary to have special technical knowledge to create or update the e-learning program, but HTML-knowledge could be useful. MyUdutu provides a very detailed manual in English. This fact can easily solve maintenance issues like correction of errors or updating the content. The degree of freedom of teachers to update and modify the e-learning course is very high.

The features provided by Udutu help the teachers to easily solve the problem of maintenance of the e-learning course, such as error correction or update of the course with new information.

In order to modify the course, it is necessary to upload the program archive (course86014.zip) to myudutu.com. Only users who have signed up for a paid membership can post the course online through Udutu. Using Udutu for free, it is possible to extract the archive with the course and upload it, for example, onto the webspace of the school, so that the pupils can have online access to the e-learning resource. The educational resource can also be used locally on a computer.

3.2.4 Structure of the e-learning course

The course covers basic information regarding safe and correct behaviour on the Internet for children. The program consists of 13 topics to explain the most common security problems. In general, each topic has the following structure: explanation of the problem and the most important definitions, how one can recognize the danger and protect himself, legal consequences and recommendations.

The e-learning tool has a modular architecture. Each module is a self-contained, fully functional and meaningful educational resource designed to address a specific learning task, so the teacher can choose separate topics for his lessons or repeat a topic.

The topics of the electronic educational resource cover the major problems on the Internet, with which students may be confronted in their daily lives:

1. 10 leads on how to surf safely

2. Do's and Dont's
3. Email, Spam and Phishing
4. Computer Security & Passwords
5. File-sharing networks
6. I am online
7. Harassment and cyber bullying
8. Online-Shopping
9. Auctions
10. Internet rip-off
11. Dating
12. Indicate and check sources
13. Who can help me?

After the presentation and explanation of new information there are tests and tasks to check how good the lecture has been understood and to reinforce the learned material and to see how well it has been learned.

Through these exercises, pupils have a variety in learning and can check how good they have understood the topic. At the same time it is checked whether the learner has achieved certain learning objectives.

Exercises are used to motivate for the learning of new knowledge, if the exercises were completed with success.

The program uses the following types of tasks: multiple choice questions, selecting fragments and finding a match.

The screens with the tasks have the following buttons: "Help", "Submit an answer", "Show the answer". When students clicks on "Help", a small window appears with the instructions for the task. Once students have marked all answers which they think are correct, they should click the "Submit an answer" in order to check the answers. It is also possible to view the correct answers by pressing the button "Show the answer".

If students have answered incorrectly or have not chosen all the correct statements, they can try to do the task again.

Multiple-Choice questions

Today, multiple-choice tests are frequently used in order to check the knowledge. A multiple-choice question consists of a question and a given list of statements. For each statement must be determined whether it is correct or wrong. The number of correct answers can be different. This type of questions is present in each section.

Selection of areas

Other type of exercises is to select the areas on the given image which contain dangerous information. This type of task is presented in the section "E-Mail, Spam and Phishing" and "I am online".

Matching

The learner should match right answers with situations given in the task. The matching tests are specialized for use when measuring the student's ability to identify

the relationship between a set of similar items, each of which has two components, such as words and their definitions, description of a situation and legal consequences, etc. The exercises are good to repeat the theoretically learned material. The matching question is used after the topic “Online shopping”.

Repetition of the learned material

After each chapter a repetition of what was read is offered. On the end of each topic there is a brief summary with the most important aspects which the students should remember. It is important that the short review of topics goes after tasks and tests because students can repeat the aspects where they have made mistakes.

The glossary

The e-learning tool includes the definitions of the terms which are important to understand the material. There are two types of glossary: one belongs to each topic and the other one contains all terms together in alphabetic order.

The terms, that are in the dictionary, are decorated in the text in the form of links. When the user click on them, he goes to the page of the dictionary. It is possible to come back to the section, using the button “Back”.

Additional materials

In the last section “Who can help me?” are given supporting materials and links with the names of institutions with websites or phone numbers which can help with problems during online-shopping, computer security, cyber bullying, etc.

3.2.5 User interaction

The program interface is intuitive and does not require any special training to work with the program. The menu bar is separated from the information zone and is equipped with basic features that are presented throughout the entire learning system.

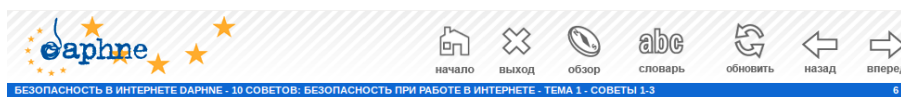


Figure 7: Navigation panel

The program has the following navigation buttons: Start, Exit, Overview, Glossary, Renew, Back and Forward. The menu bar has similarities with an Internet browser, for example buttons “Forward”, “Back”, “Update”, “Start”.

Each time the user can start the program from the beginning, exit it as well as switch to a different topic using the button “Overview”. The list with all topics is available on the click on the button “Overview” and the user can decide what he wants to read.

The glossary contains all necessary definitions which could create difficulties for students (for example: What is a blog?, Web 2.0, tagging, Creative Commons, Log file, IP-Address etc.)

With the buttons “Back” and “Forward” the user can navigate between the screens.

Furthermore, there is a navigation panel under the group of navigation buttons, which informs the user where he currently is. The navigation panel has information about the name of the program, the name of the section and the name of the topic (with the number of screens).

Using the button "Exit" the user can close the window of the e-learning tool.

3.2.6 Example of the use of the e-learning tool

The starting page of the e-learning tool. There are presented graphical characters who accompany children through the whole course:

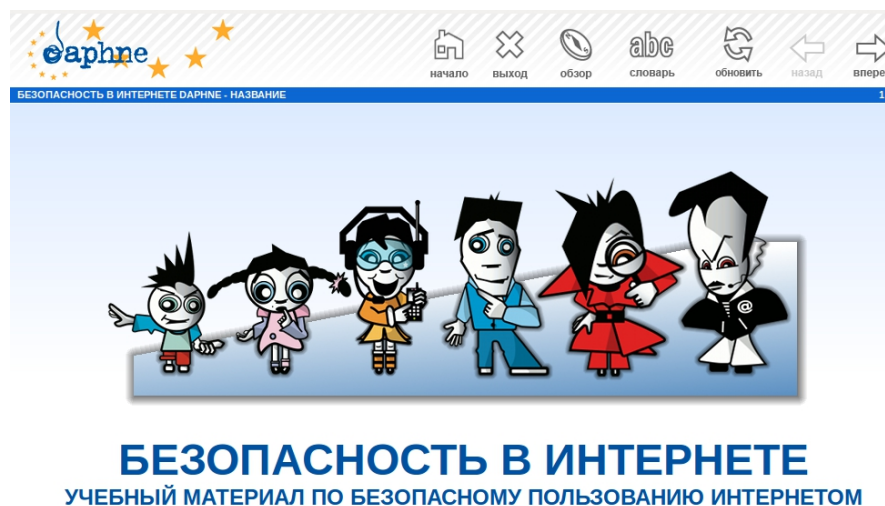


Figure 8: The starting page of the e-learning tool

The list of all topics. We choose the topic number six “I am online” (“Я в сети”):

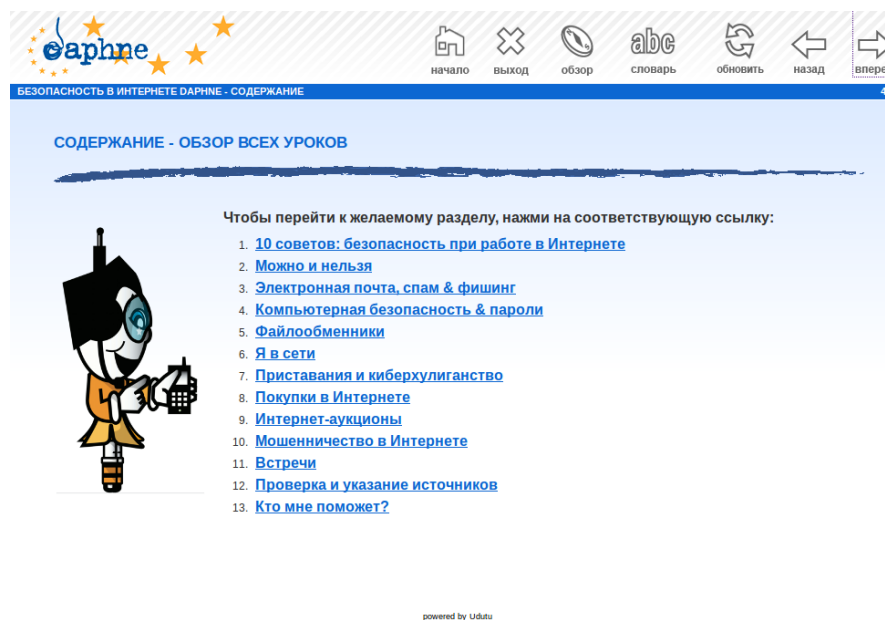


Figure 9: The list of all topics

The starting page of the topic “I am online”:

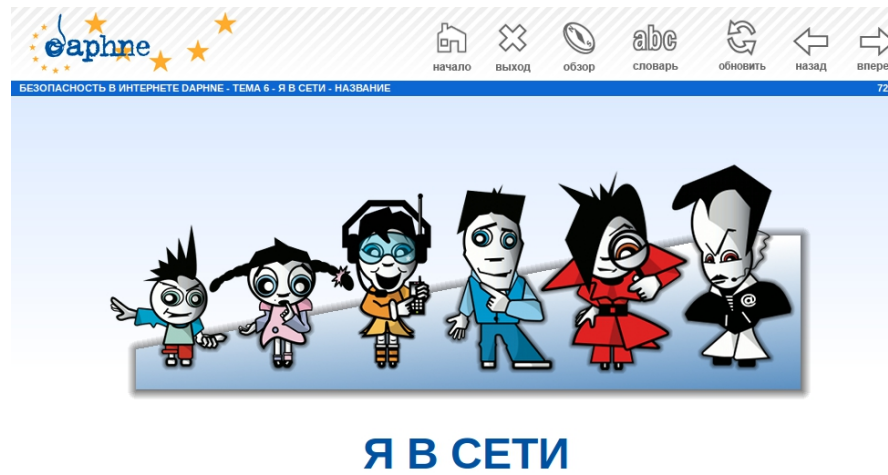


Figure 10: The starting page of the topic “I am online”

A page with content. The most important information is marked bold, and the terms which are explained in the glossary are marked as links (blue colour and underlined):



Figure 11: A page with content

After the reading of the content of the chapter the students have to prove how good they understood the information. They should do the multiple-choice test and mark whether a statement is true or not:

The screenshot shows a web interface for a multiple-choice test. At the top, there is a header with the 'eapne' logo and a navigation bar with icons for 'начало' (home), 'выход' (exit), 'обзор' (overview), 'словарь' (dictionary), 'обновить' (refresh), 'назад' (back), and 'вперед' (forward). Below the navigation bar, the title 'БЕЗОПАСНОСТЬ В ИНТЕРНЕТЕ DAPHNE - ТЕМА 6 - САМОКОНТРОЛЬ - РАЗМЕЩЕНИЕ ИНФОРМАЦИИ' is displayed, along with a page number '86 / 176'. The main content area contains a section titled 'Следующие утверждения верны...' (The following statements are true...). Below this title, there are eight multiple-choice questions, each with a checkbox and a statement. The questions are arranged in two columns. At the bottom of the page, there are three buttons: 'Помощь' (Help), 'Подтвердить ответ' (Confirm answer), and 'Показать ответ' (Show answer).

Следующие утверждения верны...

- ☐ Когда моя любимая музыкальная группа размещает на ее сайте фотографию с концерта, то я смело могу загрузить ее в свой блог.
- ☐ Я могу поставить ссылку на эту фотографию в моем профиле в социальной сети.
- ☐ Если я хочу в моем блоге предоставлять музыку для скачивания, то я должен получить необходимые права в Российском Авторском Обществе.
- ☐ "Право на собственное изображение" действует только ограниченно, если я предлагаю фотографии для скачивания под лицензией Creative Commons.
- ☐ Как правило, можно без опасений фотографировать людей в общественных местах, если фотографии не будут выставляться их в невыгодном свете.
- ☐ Если я хочу опубликовать фотографии людей, то чтобы предотвратить неприятности, лучше всего сначала спросить, согласны ли они с этим.

Помощь Подтвердить ответ Показать ответ

Figure 12: The multiple-choice test to the topic "I am online"

On the end of each chapter the students can repeat what they learned by reading the summary.

The screenshot shows a web interface for the 'eaphne' project. At the top, there is a navigation bar with icons for 'начало' (start), 'выход' (exit), 'обзор' (overview), 'словарь' (dictionary), 'обновить' (update), 'назад' (back), and 'вперед' (forward). Below the navigation bar, the page title is 'Я в сети - ОБЩЕНИЕ'. The main content area is titled 'Твой собственный блог или сайт' (Your own blog or site) and contains a list of rules for online communication. The rules are:

- Помни о том, что фотографии и графика так же, как и музыкальные произведения, видео и программы защищены авторскими правами. Если ты хочешь разместить на своем сайте чужой контент, ты можешь сделать это только с разрешения автора.
- При размещении фотографий, на которых изображены другие люди, нужно всегда соблюдать "право на собственное изображение". Фотографии, на которых изображены другие люди, не должны нарушать их "законные интересы", представлять их в невыгодном свете или оскорблять.
- Если ты хочешь выложить фотографии, то лучше спроси изображенных на них людей, согласны ли они с этим – так ты в любом случае избежишь неприятностей!
- Если ты найдешь неприятное фото с тобой в Интернете, то ты имеешь право на его удаление.

Below the list, there is a section titled 'Ссылки на чужой контент' (Links to other content) with a single rule:

- Если ты размещаешь на своем сайте ссылки на нелегальный контент, то ты ответственен за это, как только ты заметишь это, или тебе скажут об этом другие люди. То же самое действует для комментариев в твоём блоге или в гостевой книге. Сразу удаляй нежелательные ссылки или сообщения!

Figure 13: The summary of the topic "I am online"

Each chapter has a glossary with the most important terms definitions:

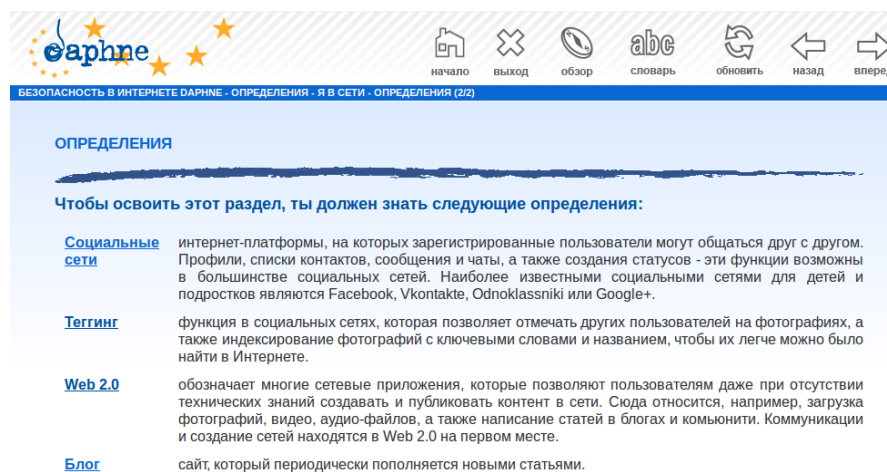


Figure 14: The glossary with the most important terms definitions to the topic "I am online"

3.2.7 Benefits of the e-learning tool

The advantages of the e-learning tool:

- increased cost-efficiency/reduced training cost through reduced need of face-to-face training.
- delivery of training where other approaches would not be feasible or cost-prohibitive.
- reusable, flexible and adaptive design.
- online teaching resources can be used by teachers either as a teaching material or as an additional references and self-learning modules to point children to.
- with materials being made available in several languages, it will also be useful for the integration of language and IT courses.
- it supports teachers in their daily work.
- it gives children basic knowledge about security on the Internet.
- it makes the subject "computer science" more interesting because the students do not work only with textbooks, but with a computer program.

- it is to be used from any computer with an Internet connection, not need to be installed on your own computer.
- students can check themselves with tasks and tests how good they have understood the material.
- lack of information about Internet security can be covered by a learning program in whole or partially
- with the e-learning tool a consistent level of knowledge could be achieved about safe behaviour and surfing the Internet
- the possibility for the teacher to construct his own training course: thanks to the modular construction of the program a teacher can choose the best from his personal point of view combination of topics
- unlimited life cycle of the tool: as each topic is autonomous, and the program is open to change, then it is a dynamically extensible educational resource that does not require substantial processing in general, when the content of individual materials changes.

3.2.8 Target group

The target group is children between the ages of 14-15 years old. In today's society, students spend much of their spare time playing multimedia, interactive and social online games and with entertainment technology in general. In fact, today's students are mostly from the Net Generation, and they arrive at university having been consumers of this technology in ways that previous generations barely understand.

At the age of 14-15, the Internet becomes a part of the social life of children as they are getting acquainted with new people and spending their time looking for information related to their studies or hobbies. At a higher level of computer literacy the use of the Internet opens many possibilities. It can be already difficult for parents to find out what their child is doing on the Internet. In this age children also tend to take risks and move beyond the permitted limits. Technical limitations and prohibitions are an inefficient way to increase security on the Internet. Children of 14-15 years old may want to keep their activities secret, especially if the parents are not interested and did not find out how their child uses the Internet.

At this age, children have heard a lot about what information is available on the Internet and it is normal that they want to see and read it for themselves. Often teenagers are registered in private chat rooms, forums and chat on any topic, pretending to be adults. The boys prefer anything that goes beyond what is permitted: a brutal humour, violence, gambling, erotic and porn sites. Girls like conversations, pretending to be an adult women, as a consequence of this they become the victims of sexual harassment. Also they often post provocative photos on their page in social networks or in a blog.

3.2.9 Learning objectives

The main goal of using the e-learning tool is to teach competent and responsible use of the Internet, to introduce the basic rules of safe Internet use.

- to teach children to spend time on the Internet actively using the useful features
- to increase knowledge of students about the basic dangers on the Internet
- to arise the interest of students about Internet security
- to motivate students to study further on the topic of Internet security
- to give basic knowledge about Internet security
- to teach students to recognize the dangers on the Internet and to avoid them or to deal with them
- to teach respectful communication on the Internet
- to teach respect for intellectual property and copyright
- to introduce the legal framework on the Internet
- to provide contacts for support in difficult situations
- explain the rules of safe use of the Internet by children.
- Raise awareness about the possibilities of solving unpleasant and dangerous situations on the Internet.
- habit formation of assessment of dangerous situations while using the Internet
- build a system of actions and ways of behaviour when confronted with unpleasant and dangerous situations on the Internet.

4. Organisation of teaching

The following chapter will give an introduction on how planning and execution of a lesson is done. These concepts will be used in the following to create a surrounding lecture concept to enable the pupils to work with the e-learning tool. The three major steps of teaching are organization, execution and evaluation of lessons.

Lesson planning is an important part of the teachers work and includes all considerations to prepare a lesson. When planning lessons, the following relevant questions must be answered and teaching-related decisions must be made: which social forms and methods suit better? what resources and materials should be selected?

The lesson execution has three important tasks:

1. to make student curious about the subject,
2. to submit the knowledge and
3. to save the results of learning.

After the completion of the lesson it is important to evaluate and reflect the choice of methods and materials. The evaluation serves to check the effectiveness of teaching and to provide ideas for improvement. The evaluation is a basis for the successful development of the teaching process.

4.1 Lesson planning

Good educational programs have a well-planned curriculum. Several models of curriculum planning have been proposed, but it is more important that the planning process is well organized, robust and transparent than that a particular model is followed.

The design of lesson phases requires, like all education, careful planning. At least five different aspects should be considered while planing an online learning phase: aims, content, tasks, tools, communication, and evaluation.

4.1.1 Aims and objectives

Lesson planning starts with a definition of the aims and objectives of the lessons and can be defined in terms of learning outcomes. The outcomes describes the expected knowledge, skills, and attitudes of a graduate of the program, but does not define the process by which they are achieved.⁵⁰ While formulating educational objectives, it is important to consider which learning progress has to be achieved exactly in a particular study area and time period.

⁵⁰ **Leinster, S. (2003):** *Education and practice. Curriculum planning.* The Lancet. Vol. 362. August 30, 2003.

Learning objectives have important functions:

- learning objectives are the basis for the development of an order of learning processes
- objectives delimit the content
- transparency of the learning goals can increase motivation and learning success
- learning objectives serve as criteria for the reflection of teaching
- learning objectives provide criteria for learning checks and final grades

The following aspects have to be considered:

- challenging and with effort achievable objectives
- differentiation of basis and extended goals
- importance of learning goals for students
- opportunity for students to set their own goals

The teacher usually has to determine at least one general goal and at least two specific goals for a lesson. The teacher matches the learning objectives with the conditions, needs and interests of the students.

4.1.2 Content

The next logical step is a definition of the content of the lessons. As knowledge increases, selection of essential content becomes more difficult.

After defining the teaching objectives, the teacher makes decisions about what content is to be presented to the pupils, and how this should result into the desired changes in their behaviour.

Each lesson should contain something that will set the students into surprise, astonishment and delight, something what they will remember. It could be an interesting fact, a surprising discovery, a beautiful experience, a creative approach to the already known.⁵¹

In order to choose a content for a lesson the teacher has to answer the following questions⁵²:

Are objectives measured to the age and developmental level?

Is there a scientific way related to the content?

⁵¹ **Leinster, S. (2003):** *Education and practice. Curriculum planning.* The Lancet. Vol. 362. August 30, 2003.

⁵² **Neuböck-Hubinger, B. (2013):** *Praxiskompass für den Unterricht: Unterricht beobachten - gestalten - planen ; Module zu den schulpraktischen Studien.* Linz, Trauner, 2 Auflage, 2013.

How is the content structured?

How is the content connected to the experience and previous knowledge of the learners?

What is probably new, difficult or already known to the learners?

How are the students motivated for a “new” information?

Other considerations⁵³:

In which sections of the lesson can the students be active?

Are the possibilities for activities measured to age and developmental level?

What should students know and be able to do at the end of the lesson?

How could actual skills be determined?

4.1.3 Social forms

By grouping the selected training material, the teacher should think about how and in which order the work will be organized with the selected materials, how a change of activities for the students can be done.

The most important thing when grouping of material is to find a form of organization for the lessons, which will cause an increased activity of the students, rather than a passive acceptance of the new material. Active methods that require the students' participation are more effective than passive methods, but must be accompanied by good feedback from the teacher.⁵⁴

To choose the learning activities whose purpose is:

- acquisition of new knowledge
- reproduction
- application of knowledge to new situations
- application of knowledge in unfamiliar situations
- creative approach to knowledge

The learning activities have three most important objectives:

- to promote students to reproduce the material
- to promote students to understand the material
- to reinforce the learning material

There are different forms of designing the lesson. The success depends strongly on the social form chosen by the teacher.

⁵³ **Neuböck-Hubinger, B. (2013):** *Praxiskompass für den Unterricht: Unterricht beobachten - gestalten - planen ; Module zu den schulpraktischen Studien*. Linz, Trauner, 2 Auflage, 2013.

⁵⁴ **Leinster, S. (2003):** *Education and practice. Curriculum planning*. The Lancet. Vol. 362. August 30, 2003.

Social forms regulate the relationship structure of teaching. This refers to the relationship between learners and teacher, but also to the relationship among the learners. Depending on the social form, there is a stronger student or teacher orientation.

Usually there are distinguished four social forms:

- class teaching
- group work
- partners work
- individual work

Class / frontal teaching

Class teaching is a central classroom activity. The class is taught together and simultaneously. Depending on the form, the intensity of the control differs by the teacher. So teaching conversations make it possible that a living interaction with learners is less controlled than the traditional teacher lecture.

Class teaching is well suited to represent objective relationships, a new field of knowledge, issues and problems from the perspective of the teacher or to check the performance level of students.

Advantages

- at the same time many students are reachable
- independent on media equipment
- better planning reliability for teachers
- especially suitable for difficult topics
- learning level can be considered
- interruptions can be avoided
- the culture of discussion can be practised
- class teaching is a relief for students
- class teaching uses the expertise and professionalism of the teacher in an optimal way

Disadvantages

- prevents interaction between students
- students learn almost exclusively receptive and can hardly develop independence⁵⁵
- social skills such as taking responsibility, teamwork and conflict management are rarely promoted
- the diversity of types of learners is rarely considered
- educates of passivity and conformity, peace, order and discipline
- very conservative

The golden rule for using this social form is: As little class teaching as possible, as much class teaching as needed. Group or project work is not possible without frontal presentations. The best condition for the success of group lessons is a well-made class teaching.⁵⁵

⁵⁵ **Nuhn, H. E.:** *Die Sozialformen des Unterrichts*.

http://www.uni-potsdam.de/fileadmin/projects/erziehungswissenschaft/documents/studium/Textboerse/pdf-Dateien/08_nuhn_sozialformen.pdf retrieved October 21st, 2013

Individual work

Individual work is useful when tasks serve to self-control, when the pupils should read, write, practice, draw and memorize. Most often the individual work serves to deepen, repeat and fix the knowledge jointly developed in the classroom. Sometimes the work on a topic in individual work can be continued as homework.⁵⁵

Individual work takes place in the responsibility of each individual learner. The teacher only provides help.

Advantages

- to develop students self-confidence and high degree of autonomy and self-responsibility
- quick and easy implementation
- (self)review of skills and comparability of the achievements
- concentration is trained
- learners are encouraged to find their own style and speed of learning
- learners practice to independently gather information and to realize their own ideas

Disadvantages

- teachers may not be able to help and support everyone equally with large class sizes
- social skills are not supported, no interaction or communication
- in highly differentiated learning groups students finish at different times, so additional tasks might need to be scheduled
- the implementation is difficult if the learner is not motivated

Partner work

Partner work is an independent and collaborative task performance of two students. The groups are usually built of learners sitting next to each other at the table or divided into pairs by the teacher. In best case, partner work should interrupt the frontal teaching. There are many topics and tasks for the use of partner work: repetitions, checking homework, collecting facts / examples / keywords, joint processing of exercises, commissioned for consensus building (the partners have to develop to a controversial point / a problem common position), joint work on action products (drawings, models, experiments audiotape interviews, etc.), games, collecting arguments, building dialogues / dispute talks, partner dictations.⁵⁶

⁵⁶ Nuhn, H. E.: *Die Sozialformen des Unterrichts*.

http://www.uni-potsdam.de/fileadmin/projects/erziehungswissenschaft/documents/studium/Textboerse/pdf-Dateien/08_nuhn_sozialformen.pdf retrieved October 21st, 2013

Advantages

- promotion of communication and interaction
- students learn to help each other
- preparation for group work
- few conflicts
- corresponds to situations in daily life and work⁵⁷
- quick and easy to organize
- high level of student activity and superiority of performance through cooperative learning⁵⁸

Disadvantages

- no result when there is no or too little cooperation between the students
- for some students the delay of individualist thinking and the high need to compromise is difficult⁵⁷
- some students cannot find a partner and are rarely integrated (outsider)
- possible dispute, disagreement, refusal of cooperation with each other

Group work

Groups of three or four people are optimal. Neighbourhood or table groups, random groups, sympathy groups, groups of criteria (for performance, sex, topic, etc.) could be a form of group formation. Essential elements of the instructions are: theme, goal, assignment, potential results, presentation of results, materials, time / duration, work location, group size and group composition. Didactic fields of application of group work could be debate, analysis, design and training.

Group work must be planned perfectly, this includes the work assignment, the implementation of group work (group management and material supply), the analysis phase and the evaluation criteria. During group work, the teacher stays in the background and his tasks are limited to monitoring, mentoring and assessment of the group work. He is responsible for providing work materials, functional premises and technical equipment.

⁵⁷ Hentzschel, J.(2009): *Sozialformen*.

http://tu-dresden.de/die_tu_dresden/fakultaeten/fakultaet_sprach_literatur_und_kulturwissenschaften/germanistik/ndl_didaktik/lehre/folder.2009-04-01.7577226048/material_literaturdidaktik/Sozialformen.doc retrieved October 21st, 2013

⁵⁸ Nuhn, H. E.: *Die Sozialformen des Unterrichts*.

http://www.uni-potsdam.de/fileadmin/projects/erziehungswissenschaft/documents/studium/Textboerse/pdf-Dateien/08_nuhn_sozialformen.pdf retrieved October 21st, 2013

Advantages

- highest level of interaction, student activity and communication
- several issues can be treated, since many groups
- students learn from and with other students
- complex tasks possible because several people
- readiness to creative thinking processes increases⁵⁹
- relief of the teacher
- increased efficiency of learning, as students deal themselves with the task⁶⁰
- reduction of the dependence from the teacher
- promotion of self-competence
- self-activity of the students

Disadvantages

- high time exposure
- dominance of some group members, weak students might get lost in the shuffle⁵⁹
- danger of uneven distribution of tasks
- risk that quality of the results decreases
- group work is ineffective if the students refuse to work and do not participate
- possible conflicts, anger, aggression
- no direct correction of errors and misunderstandings
- it takes a lot of time for the teacher (preparation, organization)
- difficult when evaluating and grading the students

Differences

Often teachers are trying to decide which of the three social forms is most suitable in the corresponding phase of the lesson. They should start with pretence that each method has its specific advantages and disadvantages. Thus it is always important to match the appropriate content with the objectives which should be met. The individual work permits concentrated, silent and careful work. Partner work enables the division of tasks, mutual help and cooperative work, communication and social learning. The group work has a special importance, because it can be used as a daily form of cooperative learning in conjunction with student presentations and frontal teaching phases.⁶¹

⁵⁹ Hentzschel, J.(2009): *Sozialformen*.

http://tu-dresden.de/die_tu_dresden/fakultaeten/fakultaet_sprach_literatur_und_kulturwissenschaften/germanistik/ndl_didaktik/lehre/folder.2009-04-01.7577226048/material_literaturdidaktik/Sozialformen.doc retrieved October 21st, 2013

⁶⁰ Nuhn, H. E.: *Die Sozialformen des Unterrichts*.

http://www.uni-potsdam.de/fileadmin/projects/erziehungswissenschaft/documents/studium/Textboerse/pdf-Dateien/08_nuhn_sozialformen.pdf retrieved October 21st, 2013

⁶¹ Mattes, W. (2002): *Methoden für den Unterricht. 75 kompakte Übersichten für Lehrende und Lernende* (Schöningh). Paderborn, 2002, p. 38f.

Individual work	Partner work	Group work
• in the phases of practising and repeating • to practice individual work techniques (text edit, precise drawing etc.) • to develop learning routine in solving tasks • for tasks that have simple information storage (vocabulary, learn poems by heart) as goal • to acquire homework skills	• to solve difficult tasks in which students can help each other • for tasks which can be processed collaboratively • for tasks which are too difficult for individual work and too little for group work • the internal differentiation (helper systems: strong student helps weak)	For tasks: • which are suitable for cooperative processing • which lead their own scope for organization / design • where communication is desired • where students can discuss produce, stage, research (learning posters, wall newspapers, role playing, surveys etc.) • about complex problems or assignments
Care, concentration, independent working⁶²	Mutual help, division of tasks, independent working⁶²	Problem solving, teamwork, independent working⁶²

4.1.4 Resources

The teacher should prepare equipment for the lesson, make a list of required materials, devices, etc. as well as create a design for the blackboard so that all new materials could be left there in the form of supportive notes.

Computer

Advantages:

- the work with the computer motivates students, because the PC is an alternative to poor frontal teaching
- the number of training assignments increases
- an optimal rate of the student's work can be achieved
- the learning activities include computer simulation of real processes

Disadvantages:

On the other hand the use of a computer without considering the peculiarities of teaching processes, non-compliance of the students' working pattern to the PC may have a negative impact on the health of the children and the educational process as a

⁶² **Mattes, W. (2002):** *Methoden für den Unterricht. 75 kompakte Übersichten für Lehrende und Lernende (Schöningh).* Paderborn, 2002, p. 38f.

whole, since the work on the computer is connected to big mental, visual and neuro-emotional stress.

Therefore it is necessary to consider the following disadvantages:

- the work with the program usually lacks emotions
- programmers can not take into account the characteristics of a particular group of students
- the development of speech, graphical and written culture of the students cannot be achieved
- materials are usually given in a highly compact and monotonous form
- control of knowledge is limited to several forms like tests or surveys
- a teacher needs computer skills

Blackboard

The work on the blackboard still has the teaching authority, even in our technological world dominated by interactive media. It also brings a meaningful sense of diversity into the technical media-consumption of education.

The board is suitable for the presentation of summaries, for a written development of facts, for explanations and comments (pro-contra arguments, new terms), collecting issues and proposals, for visualizing (processes of online auction) and to hold important information (homework, assignments, team work, etc.)

The benefits of using the board are obvious: each class is equipped with a board, the utensils are cheap, environmentally friendly and easily accessible.

The blackboard should be prepared for the lesson: chalk, water and sponge should be prepared and the board should always be completely clean before using it.

It is also necessary to think about space division. As an example: A three-part board can be used with the following scheme: left - new vocabulary, centre - new content, right-answers for current questions.

Digital projector

The digital projector drastically increases the level of visibility of the teachers work. It also gives the opportunity for students to present the results of their work to the class.

Every day the number of educational videos for children increases. The best way to show them is to project them on to a big screen. With this media is also very comfortable to show answers to given exercises.

Flip chart

There are three most important functions of the flip charts: the flip chart for demonstration, the flip chart for saving knowledge and the flip chart as a learning guide.

Advantages:

- when the teacher wants to repeat the learned material of the previous lesson, it is easy to go backwards through the former flip charts
- the flip chart sheets can be used as posters and placed in the classroom or in the hall and thus be made visible for a big “audience”.
- if flip charts are prepared at home they provide a good supporting point for the teacher and are reusable
- flip charts offer a great possibility to summarize large amounts of learned material
- students can pay attention very well because they do not have to take notes directly
- time saving because flip chart sheets are already prepared at home
- the turning of single sheets makes possible for the teacher to go through prepared sheets forward and backward.

Disadvantages:

- blackboard is still needed
- it might be difficult to read small written text
- the teacher has a lot of preparation
- sometimes it is a disadvantage for students because they do not have a transcript

4.1.5 Materials

The lesson planning also includes the question of what learning and teaching resources can help and contribute to the process of learning. Teaching and learning resources can be assigned to different learning levels, they can support learning processes on the acting, pictorial or symbolic level (working materials, audio and video materials, slides, chalkboard, worksheet, textbook, tape, tutorials, etc.)

Video materials

The video teaching materials generally have a strong impression force with clearly recognizable affective components. For teaching aims the use of films must be targeted and well planned.

Possible use of a film:

- on the beginning of the lesson: to address the issue as an impulse and motivation

- used in every phase of the lesson for illustration, revision and consolidation of the material
- for repetition and learning level control

The use of the video materials requires a good planning. The teacher should watch the film several times before using it in certain aspects of content, structure, and possible learning objectives. It is important to clear the question if the film is an appropriate medium or the situation can be worked out better with the use of models, natural objects, etc. The next step is to determinate the function of the film in the classroom activity (introduction to the subject, repetition of the material, etc.) The teacher does not have to show the entire film. It is enough to choose appropriate segments for the learning goals, and show them “in portions”.

Each video should be discussed after watching. It could be done in following forms:

- free report (also available for homework)
- the teacher draws a mind map together with the students
- critical opinions
- facilitation method (workshop)
- worksheets
- work out other solutions (“How else could the story go?”)

Articles, reviews, current statistics etc.

They help to make a connection to the reality, to show the importance of the topic. Reading and then discussing articles helps to develop an individual opinion and to support analytical thinking.

Web Quest

The Web-Quest method offers a practical approach to the question of how to use the Internet appropriately in the classroom.

Types of Web Quest:

- Short Term Web Quest: It's about information search and processing. The students are to receive and process a specified amount of new information.
- Longer term Web Quest: This is about the detailed processing of a topic, which is documented. The knowledge of students will be strengthened and deepened. They document their findings in a previously defined form.

If Internet searches are abandoned, it always comes to frustrating results, because the young people are "aimlessly surfing in the net". In order to prevent this, is

advisable to prepare worksheets which list the tasks to be processed, steps and specific Internet addresses.

Building a Web Quest process:

1. Introduce the topic and the work order: the specific task should be written. Let your pupils also know, in which form the presentation of the results should be. It is important to write down the available time frame.
2. The resources: these are hyper links to web pages, notes and books, magazines or lexicons
3. The process: In the phase of preparation for the task, the teacher acts like a coach.
4. The presentation: the presentation of results is prepared by the learners, and given to the classmates.

Learning tasks

Learning tasks are meant to encourage students to activities that lead to specific learning experiences. Learning tasks should encourage students to execute and practice those behaviours that are strived for by the learning goal. The precise formulation of learning tasks is an important part of the lesson plan. Learning tasks leads the child to active confrontation with the learning content, because self-activity is one of the most important basic conditions for effective learning.

Learning tasks differ with respect to:

- their complexity
- their difficulty
- their degree of openness
- their position within the learning process (for example, learning tasks to discover something new, learning tasks to reinforced learned information)

Homework

Homework plays a huge role in the development of independent learning skills of students. Systematic student's work at home leads to the fact that the learning process does not burden them, they get the information retrieval skills, learn to do the work efficiently and on time.

Homework serves different functions as well:

- one of the main functions is to align the knowledge and skills of the child in the case when he was sick for a long time and missed a lot or did not become familiar with some complex topic.
- the second function of homework is to stimulate students' cognitive interest and desire to know more about the subject or topic.
- the third function of the homework is to develop the independent behaviour of the student, his patience and responsibility for the learning task

Presentation

Presentation is:

- auxiliary tool for better perception of verbal information
- visual support for teacher's lectures or performances
- means of influencing of the visual perception channel while explaining the new material lesson.

In such a way, slide presentations provide a new opportunities for creative development for students and their teachers, allow to switch from the tedious traditional way of teaching and developing new ideas and mediums of expression.

Doing alternative homework, the student may create a presentation for 2-3 minutes himself, thereby illustrate his message, attract attention of the classmates to his performance. Creating presentations teaches children to acquire knowledge independently, to detach the necessary and useful information about the subject, teaches to deliver information to students, to feel confident about his knowledge and to draw his own conclusions.

The use of presentations is appropriate at any stage of the lesson:

- at the beginning of the lesson by asking questions about the studied topic, the teacher can create a problematic situation
- at the repetition of the studied material it is possible to check the students' knowledge quickly
- at the explanation phase of the new material the teacher can use images, video clips and sound
- at the revision phase the teacher can determine the level of digestion of the learned materials showing on the screen not only the task, but also the right answer

The use of multimedia technology greatly simplifies the organization of school lessons. The presentation could be used:

- for a solid presentation of themes and disclosure of highlights, on which the lesson will focus
- as support material to the teacher's lecture. For example, the slide can contain themed illustration, additional information, interesting facts, basic formulas, diagrams, pictures, video fragments etc.
- to reinforce the learned material. Slides can contain a list of questions, or even any tasks that will help students to combine all their learned knowledge
- to check the homework. This can be an interactive presentation like a test

- to extend knowledge. The presentation may contain much more information than the teacher's notes. This gives opportunity to present not only the basic stuff to the students, but also to give more deep knowledge or overview.
- as a media for emotional discharge
- to intensify the process of explaining the new material

The layout (background) of a presentation is extremely important because students pay the most attention to the design of the presentation. The presentation should be bright and it is recommended to use a different colours, illustrations, graphic elements and photographs for its appearance. To make a presentation interesting, the teacher can add an animation effect to its elements. This will make a presentation more "live" and will keep the attention of children.

Possible problems:

- many teachers do not know the ergonomic standards to create presentations
- teachers are not familiar with the technical capabilities of the software like Power Point and are not able to insert hyper links, animations or sound
- methodological errors of the teachers (for example, to insert a long text that teacher explains in the classroom and repeats the text in the textbook)

4.2 Execution

4.2.1 Ice-breaking

What ice-breaking should do:

- provide the learners with an orientation framework (extend, aspect, dimension, methods, procedure)

Students should know how the teacher intends to deal with the new teaching topic. He should inform the students about the educational objectives, aspects and dimensions of the new topic and he should show by which methods and procedures he wants them to work on topic.⁶³

- introduce key aspects of the new topic

The entry should lead to the centre of the factual, context and problem connection. It is not good, when the entry will be connected to something interesting, but to an irrelevant or secondary detail only because of a short time motivational effect. [...] A well-made entry leads to the centre point. It is like a key scene, from where the new learning area can be opened up.⁶³

⁶³ **Meyer, H. (1987):** *UnterrichtsMethoden*. Scriptor- Frankfurt am Main, II Praxisband, 1987, p. 129-134.

- link up to previous knowledge

The term “previous knowledge” should be interpreted as a total of settings, interests and attitudes of the students, which control their thoughts, feelings and actions in the classroom.⁶⁴

- establish a disciplined work mentality

The beginning often has as task to bring students into a disciplined and motivated work and to brush aside frustration and break debris.⁶⁴

- make learners curious

When dealing with the new topic, students should, whenever and wherever possible, try to find out for themselves which aspects the new topic are interesting for them. With this proactive approach, they can discover their own strengths and weaknesses, detect where new things are to be learned, where they have associations to familiar knowledge.⁶⁴

Examples:

- practitioners repetition
- discussion of homework (usually directly linked to the previous lesson, within the sequence of lessons, is well suitable for the continuation of the topic)
- informational lesson entry (is well suitable for new topics, its essential purpose is to motivate and clarify learning objectives of the lesson (or the sequence of lessons))
- query the previous knowledge
- current news, newspaper articles etc.
- provocation

4.2.2 Development

The development requires the student to work independently. Building up of expertise, social and language skills is always an active process.

In the development phase, the students should merge the asked learning task under more or less direct supervision and control of the teacher. They should acquire knowledge or develop skills and abilities that qualify them to do such or similar tasks in the future quickly without help of others.

Through the actions in the classroom learners should be encouraged to think, act and feel independently.

⁶⁴ **Meyer, H. (1987):** *UnterrichtsMethoden*. Scriptor- Frankfurt am Main, II Praxisband, 1987, p. 129-134.

Professional and social competences will be improved by self-acting work of the learners.

There are many different methods for developing:

- teacher-centric: frontal lecture, class discussion
- individual, partner or team work in various forms

4.2.3 Saving results

The saving of results serves to exercise, strengthening and deepening knowledge, skills and abilities and serves to provide critical evaluation.

The three criteria for a good result saving:

1. Result saving serves to record and document teaching results. Thereby, the liability of the teaching work is secured. The teacher documents what he considers for important and what for unnecessary.
2. Result saving is designed to practice and deepen knowledge, skills and abilities previously acquired by the students. Thereby, the factual, social and language skills of students are strengthened.
3. Result saving serves to critical evaluation and reasonable understanding of the completed teaching work. Thereby, a democratic control can be practised to some degree.

The sober understanding of what has been achieved is basically the most important task of result saving. It includes a praise as well as criticism and constructive suggestions for change as well as demolition decisions.

Forms of result saving:

- oral summary on the end of the lesson

This type of result saving is made much more frequently by the teacher than by students. A risk of this approach is, that the teacher packs all things which were not clear because of time or material reasons into this short summary.

- written summary on the blackboard

During the development phase, in many cases many teachers create a text panel. Students have to copy the text at the end of the lesson. This approach has the advantage that all students can take the text confidently back home. The disadvantage is that the teacher cannot control at all, if the written down content was actually understood.

- controlled class discussion

This form of result saving is practised very often, but it is at least as problematic as the summary done by the teacher. Although the teacher can get first idea, in how far the learned materials have been understood, but the danger and disadvantage are that

only a few students can be involved in the discussion, so it is not possible to get a general overview of the achieved performance level. Another problem is that weaker students make mistakes that will make result saving and reinforcement of worked out materials difficult for the other students.⁶⁵

- protocol in the form of the wall paper

This form is a protocol especially offered in situations where the students groups have worked with different work orders.

- homework

Other forms of result saving: productive writing, student's books/student's lexicon/class newspaper, wall newspaper, time line, film/video/radio play, role play.

- individual work
- queries

4.3 Evaluation

The ideal curriculum has not yet been designed, nor has the ideal planning process been described. A good curriculum will be able to respond to changes without major upheaval. Establishment of mechanisms for review and revision is an essential part of the planning process. Evaluation by staff and students must be incorporated into this process, but above all, the medical school authorities must give high priority to curriculum planning.⁶⁶

For the teacher, the evaluation of performance appraisal is a direct feedback on the success or failure of their own teaching. The evaluation serves to check the effectiveness of the teaching and provides indications for further improvement. The teacher goes back to the learning goals and does an evaluation consistent to them.

After completing a lesson it is of great importance to do an evaluation and reflection of the choice of subject, of the factual appropriateness, of the learning objectives and of the choice of method for the learning evaluation. Reflected and differentiated teaching evaluation forms the basis for the successful improvement of teaching. It is crucial to understand that the evaluation is a natural and daily action. This means that planning and implementation are followed by the reply to the question whether the objective of the work was accomplished and what improvements are needed.

⁶⁵ **Meyer, H. (1987):** *UnterrichtsMethoden*. Scriptor- Frankfurt am Main, II Praxisband, 1987, p. 172-180.

⁶⁶ **Leinster, S. (2003):** *Education and practice. Curriculum planning*. The Lancet. Vol. 362. August 30, 2003.

The teacher should establish a relation between his planning and the actual implementation and explain deviations from the plan. After a lesson he estimates in how far the professional, personal, interdisciplinary and social learning objectives were achieved.

The teacher should check if the content of the lesson was accurate and plausible, how far it was comprehensible for the students and whether representation and mediation were didactically appropriate. There are different forms of learning evaluation: individual oral feedback, short written tests, possibility of independent checking of results, written examination, discussion, a review of presentations, feedback from classmates, criteria-based monitoring of learning behaviour, etc.

The teacher derives his technical, didactic, methodological, organizational and educational development goals and necessities and formulates them into concrete implementation proposals for further planning and action.

5. Lesson plan

The lecture has a form of integrated (mixed) lesson, which includes lecture material, games and training sessions.

Entry (Module I)

The topic is discussed in the classroom for the first time:

1. Overview
2. Brainstorming (What do you know about ...?)

The topic is deepened or extended

1. Repetition by individual students
2. Repetition through quiz
3. Repetition through brainstorming

Development (Module II)

a) make reference to the reality

1. newspaper article
2. statistics
3. review

b) awareness of the issue

1. role play
2. group work
3. partner work

c) the e-learning tool

d) discuss and compare the results

1. discussion in small groups (The results of this discussion are presented afterwards.)
2. discussion with neighbours (The results of this discussion are presented afterwards.)
3. discussion in two class halves (The results of this discussion are presented afterwards.)
4. experts round (half of the class reads a chapter, the other reads another chapter, and then they inform each other about the content (pair work))

Result saving (Module III)

The topic is discussed in the classroom for the last time:

1. pass a test
2. doing quiz
3. doing crossword
4. writing an essay
5. creating a poster in group work

The teaching kit is a set of learning materials which includes:

- e-learning resource with the description
- lessons plan including exercises and supporting material (articles and videos)

Each lesson is so designed to be independent from the other lessons. Because of this, the teacher has the possibility to change the sequence of lessons.

Suggested order of the lessons:

1. Internet safety. What can I and what can I not do on the Internet? Computer security and passwords.
2. Spam and phishing. Fraud on the Internet.
3. I am online.
4. Cyber bullying, cyber grooming. Dating.
5. File sharing. Check and specify the sources.
6. Online shopping. Online auctions.

The topic “Internet safety. What can I and what can I not do on the Internet? Computer security and passwords” is an introduction topic. It is recommended to do it first, especially if students have no prior knowledge about Internet safety. It is important that the topic “Cyber bullying, cyber grooming. Dating.” follows after the topic “I am online”. The order of other lessons can be defined by the teacher himself.

We can observe the above described concept on example of the lesson “I am online”:

Topic: I am online

Goals:

- the students should learn to distinguish private data from public data
- the students should recognize the importance of protecting privacy on the Internet
- the students should learn how to avoid unwanted online content about themselves on the Internet
- the students should learn how to recognize the Internet addiction

Time: 40 minutes, 1 lesson

Equipment: computer, mouse, keyboard, printer, video projector, loudspeaker, screen, Internet access, blackboard, flip chart

Software: operation system (Windows, Linux or Mac), Internet browser (Mozilla Firefox, Internet Explorer), Office Suite (MS, Apple or OpenOffice)

Didactic materials:

- the e-learning tool
- printed task 1 "Private Data - Public data. Where's my limit?"
- printed task 2 "Protection in communities"
- presentation with homework

Take-home task: the students should improve their own online profiles in the social networks, do a test about Internet addiction on the website www.detionline.com. The teacher also offers to keep a media diary for one week with the aim to understand their behaviour with media tools and to correct it. In their media diary, the students enter how much time they spend in a day with different information media (Internet, computer, mobile phone etc.)

Time	Plan of the lesson	Social form	Software / didactic materials
2 min	Introduction to the topic: the teacher explain that on this lesson the students will learn the basics on protection of private data, especially in social networks. One of the most important aspects is to learn to distinguish between private and public data. Furthermore the students will get to know the term "Internet addiction" and its meaning.	Frontal lecture	
15 min	The students work out the topic „I am online“ of the e-learning tool	Individual work	e-learning tool, PC
9 min	Task 1 "Private Data - Public data. Where's my limit?" The teacher prepares a table with four columns on the blackboard or a flip chart. The students have the task to say which data belongs to which column. Common discussion of different opinions.	Discussion	Printed task or PPT, blackboard or flip chart

Time	Plan of the lesson	Social form	Software / didactic materials
8 min	Task 2 “Protection in communities”. The class is divided into small groups (3-5 persons). The students should discuss the social net they use (Vkontakte, Facebook, Odniklassniki etc.).	Group work	Printed task
4 min	Each group presents its results by reading them out.	Group work	
2 min	Explanation of homework	Frontal lecture	Blackboard and printed tasks

6. Evaluation and discussion of results

6.1 Evaluation approach

Teachers and students have to fill out the online questionnaires after the lessons. As evaluation We have chosen a written survey based on two questionnaires (for teachers and for students) because this type of investigation fits especially for surveys on homogeneous groups.

Teachers can evaluate didactic and curricular aspects of the teaching framework. Students can make statements about whether the teaching was student-centered, understandable, clearly structured and interesting. They experience different types of classes every day and have a good comparison.⁶⁷

It is important to explain the purpose and objectives of the survey to the teachers and students and to assure their anonymity so that an honest response behaviour is possible. It should also be pointed out that it is important for the result that the student fill out the forms on their own and do not talk to each other while filling the questionnaires.

For the evaluation of the project the following categories of issues are relevant:

- Time management
Efficient use of time for teaching and learning processes, lesson's speed
How good was the time distribution in the teaching framework?
- Communication and teaching skills
Comprehensible and interesting teaching of lesson content.
Which teaching methods do students like?
- Clarity of the goals of the lesson
Disclosure of teaching objectives and content as well as criteria of performance evaluation, checking if the objectives were achieved.
- Relevance
Clarify the importance of the teaching content for the reality.
- The comprehension of learning materials
The level of comprehensibility of the content (completeness, correctness, coverage and actuality, interest, difficulty)
Is the topic of "Internet security" interesting for students?
- Motivation
Does the content of the lesson motivate to further study of the topic?
Were students motivated to deal with the topic?
- Previous knowledge

⁶⁷ **Diel, E., Schmitt L. (2010):** *Fragebögen zur Unterrichtsqualität*. Hessisches Kultusministerium. Institut für Qualitätsentwicklung, 2010, p.11.

Which knowledge and experience do students already have concerning Internet security?

With which materials were the students working for the first time, what knowledge and skills were formed and reinforced in the course?

- Medial support
Adequacy and appeal of presentations, videos and articles
- E-learning tool
User friendliness, the adequacy of content, graphic, navigation, technical aspects
Is the tool with regard to the content suitable for daily lesson?
How do the learners perceive working with the tool?
How do the learners evaluate the contents of the tool?
How do the teachers imagine the work with the tool?
How do the students like to work with the tool?
How do the teachers like to work with the tool?
How interesting and relevant do the teachers find the tool and the lessons?
- The structure/methods of the teaching (team work, partner work, teacher's presentation, tasks)
Are the lessons interesting for the students?
- Student work
How suitable are the tasks for the students? (too easy, too difficult)
How interesting are the tasks?

To answer the questions, teachers and students are provided with the following response format: the estimation between 1 and 6, where 1 = "yes, I totally agree" and 6="No, I completely disagree". Some questions on both questionnaires are formulated with alternative responses as well as open questions are also asked.

6.2 Discussion of outcomes

Five schools participated in the project and at the schools almost all prepared lessons were hold. The working experience of the teachers were from 7 to 31 years. 196 students from the seventh (57 students), eighth (87 students) and ninth (52 students) class have taken part In the survey. The students are between the ages of 13 and 15 years old. 58% of the students are girls and 42% are boys.

For the evaluation of the project the following categories of issues are relevant:

- Time management

The results show that the lessons tempo was planned very well. 74% of the students think that the pace of the lessons was suitable. Only 7% said that the pace could be more slowly. 19% think that the lessons were too slow. According to these

opinions the tempo of the lessons could be faster. The students could receive more tasks. The teachers stated that they had enough time to complete all planned for lesson.

- Communication and teaching skills

The survey shows that the students liked especially to work with the e-learning tool and to do tasks in group. This means, that the lessons could contain more task for teams, also more discussions.

- Relevance

The students as well as the teachers agree that the topics presented in the e-learning tools are good. Many students had already read about Internet safety on the Internet, in two schools lesson about this topic had been organised before.

- The comprehension of learning materials

The topics were interesting for the students, especially those with which they deal in their daily life, for example: "I am online", "Online shopping", "Computer Security & Passwords", "Email, Spam and Phishing" etc. They have found the text of the e-learning tool and the task well understandable. The teachers also completely agreed that the materials are suitable for this age group.

- Motivation

More than the half of the students said that they want to learn more about the topic "Internet security" on their own. The teachers also plan to continue holding the lessons in the future, because the students were motivated during the lessons and took part actively. They had fun in participating, discussing and working with the program.

- Previous knowledge

56% of students have said that they have had some previous knowledge about Internet security. They have read the information on different websites and forums. Some students knew how buy products online. Like mentioned before, some schools already organized small units to the topic.

- Medial support

69% of the students think that the additional materials helped a lot to make the lessons interesting and to assist in understanding the material. From the teachers answers we can tell that they have the same opinion about the material. They judge it as well suited and diversified.

- E-learning tool

The students found the text of the e-learning tools interesting and suitable. They also liked the graphics (84% marked 1 or 2). They quickly understood how to operate the program. The teachers say that the e-learning tool fits to be used at schools.

- The structure / methods of the teaching (team work, partner work, teacher's presentation, tasks)

Teachers and students stated that the methods of the teaching were suitable, but the students did not really like to do tasks on their own and the teachers mentioned that the newspaper articles did not contribute much to the learning.

- Student work

Most of the students think that the requirements of the tasks done during the lessons were fair (82% marked 1 or 2). They find the difficulty of teaching just right (70%). About one fourth thinks that the lessons could be more difficult.

6.2.1 Discussion of outcomes from the teachers

The answers of the teachers show that the e-learning tool and the prepared lessons fit well for teaching at Russian schools for the children of the target group.

The teachers stated that the students were motivated and have actively taken part in the lessons.

The answers of the teachers and the students coincide. The teachers also estimated that the students have a very different level of previous knowledge. Some students had no previous knowledge, some of them knew the basics of Internet security.

The teachers called such topic like „I am online“, „Online shopping“, „Computer Security & Passwords“, „10 leads on how to surf safely“ as particularly interesting for the students. The teachers are satisfied with the choice of the topics. One teacher gave the advice to add the topic „Social nets“.

The two teachers said that the students had no difficulties with the content of the e-learning tool. Other teachers meant that the students had difficulties with the topics „Email, Spam and Phishing“, „I am online“ and „Internet rip-off“, although about one fifth of the students called these topics interesting.

The teachers consider the topic of Internet security as relevant and important in the modern age of the Internet. In two schools some topics about Internet security were already taught. They also plan to continue to hold this lessons further because the project demonstrated the importance of this topic for children in their daily lives. The topic is not very well covered in schoolbooks. Furthermore, there is no such topic in the school curriculum. The e-learning tool allows to extend the theoretical material from the schoolbooks, providing a comparison of the material to real situations which children have to face, learn how to solve problems and to avoid them when on the Internet.

The prepared materials were suitable for the lessons. Only the play back of the videos presented a problem. The videos from <http://www.youtube.com> are blocked by the internet filter in educational institutions in Russia. They cannot be viewed directly in the classroom, it is necessary to download them at home.

The teachers also give some advises how to improve the e-learning tool :

- to make the material presentation more diverse (mostly text and tasks)
- the images in the e-learning tool are repelling, they should be changed to be more “friendly”.
- children learn best when they are confronted with situations from real life, which means to give them more specific examples.

6.2.2 Discussion of outcomes from the students

1. I will spend more time on the topic “Internet security”

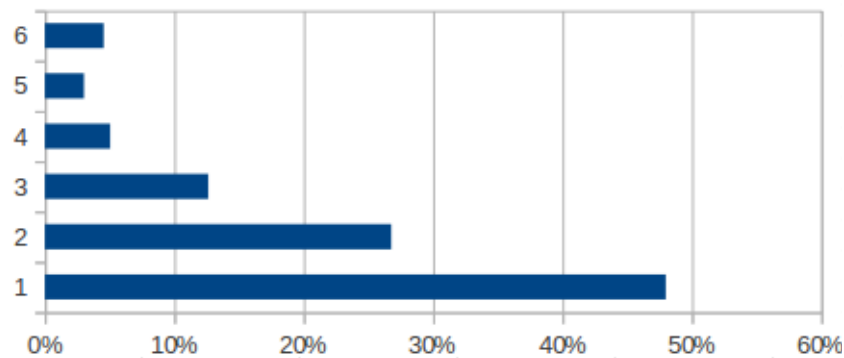


Figure 15: Answers to question 1

About 50% of the students are interested in the topic and say that they want to spend more time by themselves on the topic of internet security. This is a very significant result, since it shows that the half of the students knows the importance of internet security. To evaluate if the program has improved the awareness or if the students knew about the importance before, it would be useful to ask this question in advance to the lecture units.

2. I understand which objectives have to be achieved in the classroom

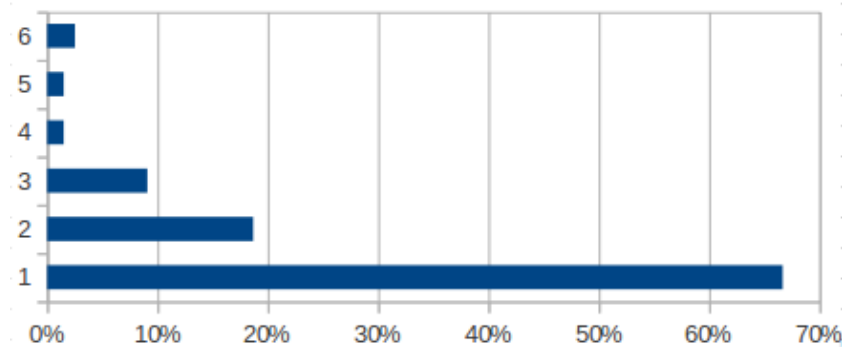


Figure 16: Answers to question 2

The students understand what is expected from them and why the topic is covered in their lecture.

3. I quickly understood how to operate the program

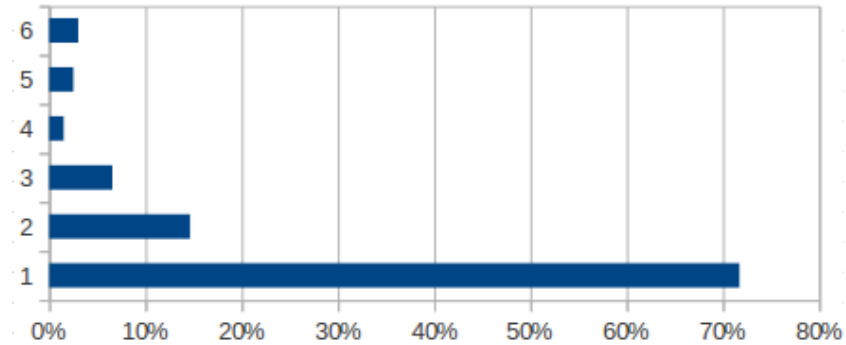


Figure 17: Answers to question 3

The results show that the e-learning tool has a user-friendly interface and that the children are able to work with it quickly. Like always there is a minority (about 15%) of students who still need a detailed introduction and assistance to the tool. Since this are typically about 3-4 student in a class of 25, it should be possible for the teacher to do. The teacher can also encourage quick learners to support others when they need help or have questions.

4. The content of the e-learning tool was interesting for me

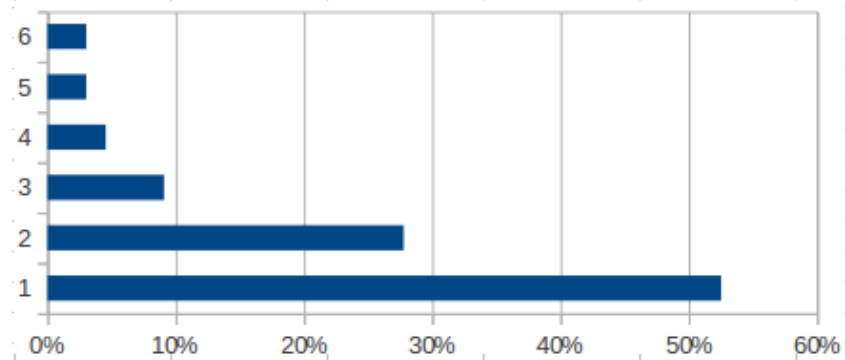


Figure 18: Answers to question 4

The answers show that most of the students liked the content of the material. This is already very good and stand in opposition to a lot of other topics in typical learning curriculum which are usually not very popular among students. For improving the satisfaction with the content, it might make sense to use more concrete cases for the presented problems and to update the content with up-to-date facts and examples.

5. The content of the program was understandable for me

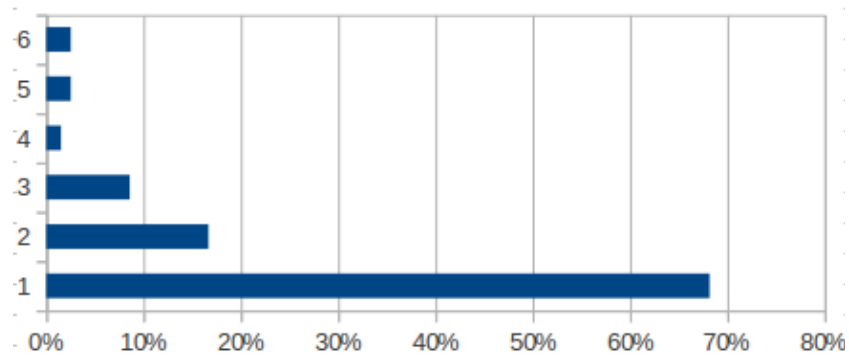


Figure 19: Answers to question 5

The program seems to fit very well to the students knowledge level. The texts which are easy to understand and very directly written seem to do the trick.

6. I liked the graphics of the program

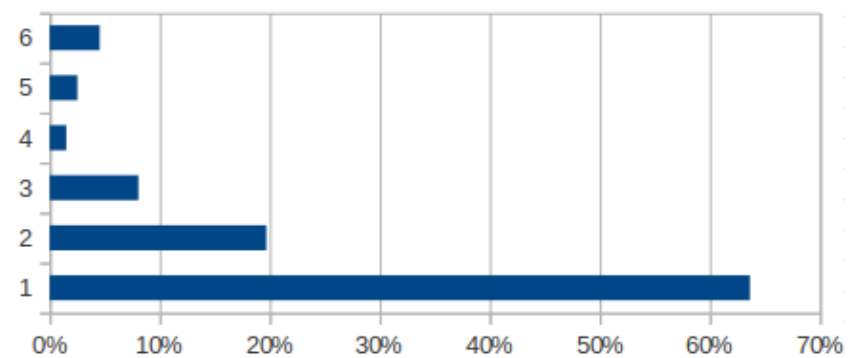


Figure 20: Answers to question 6

The comic style of the e-learning tool seems to be liked by most of the students, even though some teacher describe the graphics as “repelling” and “too aggressive”.

7. I think the requirements of the tasks done during the lessons were reasonable/fair

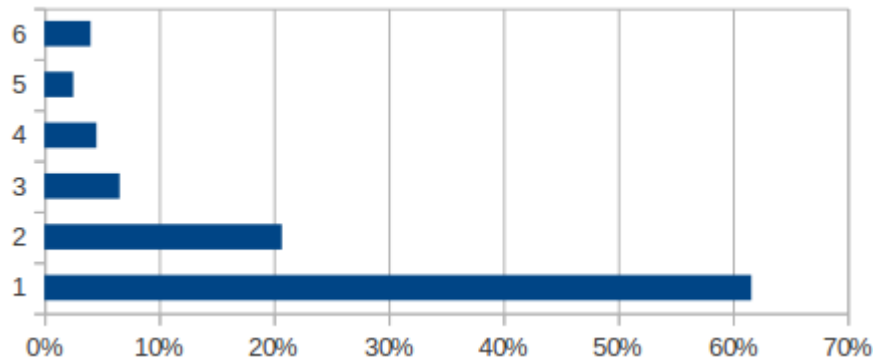


Figure 21: Answers to question 7

The difficulty of tasks seems to fit to the students level. The answers to question 13 answers this in more detail.

8. Which topics did you particularly like?

Among the children's favourite topics one could find "Computer Security & Passwords", "I am online", "Online Shopping", "10 leads on how to surf safely" and "Email, Spam and Phishing". The students could vote for more than one topic.

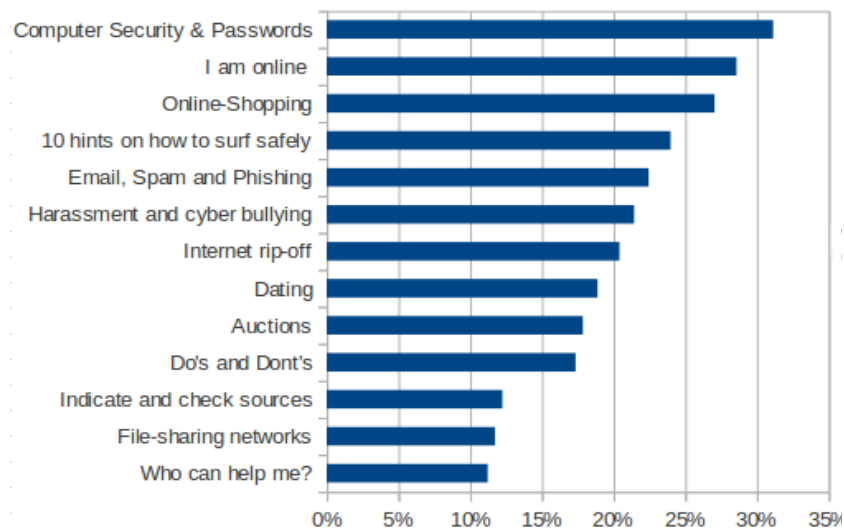


Figure 22: Answers to question 8

9. Have you previously dealt with the subject? Did you have previous knowledge?

56% of the students stated that they had some knowledge about Internet security. However, almost half of them (44%) had no previous knowledge. Furthermore, their knowledge was limited. The most important source of information is the Internet. Most of the students have read information on different websites and forums and also on the websites of anti virus program providers. Some students have already experience with online shopping.

Some students from the lyceums number 7 and number 165 have had the lessons about Internet security and copyrights as part of the course “Computer science and ICT”. Schoolbooks typically cover only a small part of topics or do not have these topics at all.

10. The course offered a mix of different forms of teaching (work with e-learning tool, team work, partner work, discussions, lectures, etc.) I think it ... succeeded very well / succeeded well / succeeded badly / failed at all

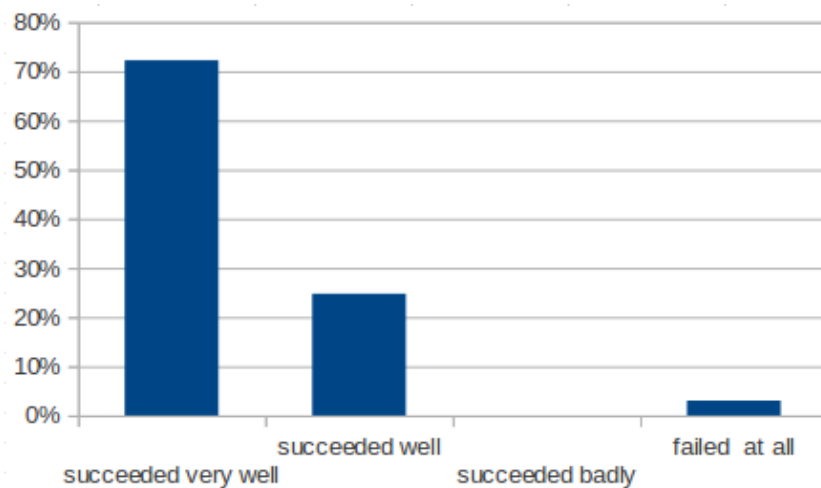


Figure 23: Answers to question 10

This result demonstrates that the lessons were planned with a good variation of teaching methods and it confirms also the results from question 14.

11. In what extent has the use of different media (e-learning program, worksheets, video, articles, etc.) helped to make the lessons interesting and assist you in understanding the material?

very / little / not at all

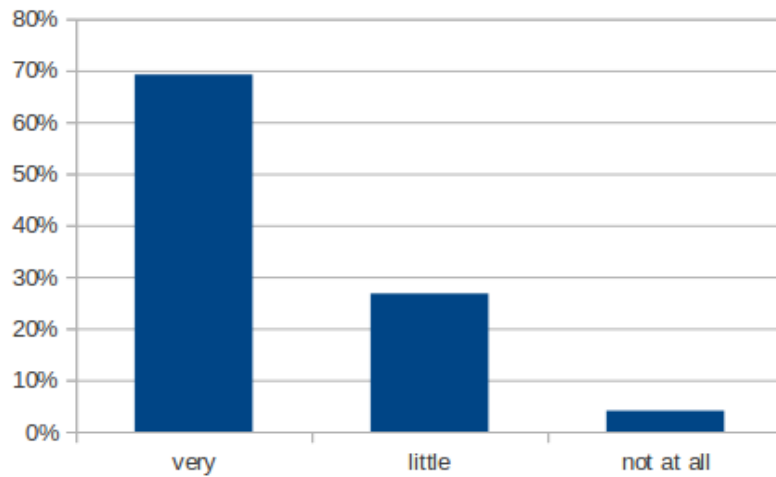


Figure 24: Answers to question 11

The materials were chosen very well. The answers of the teachers help to understand that the newspaper articles could not be used effectively. To improve this result we can offer less articles and more tasks.

12. The pace of the lessons was for me

too slow / rather too slow / just right / rather too fast / too fast

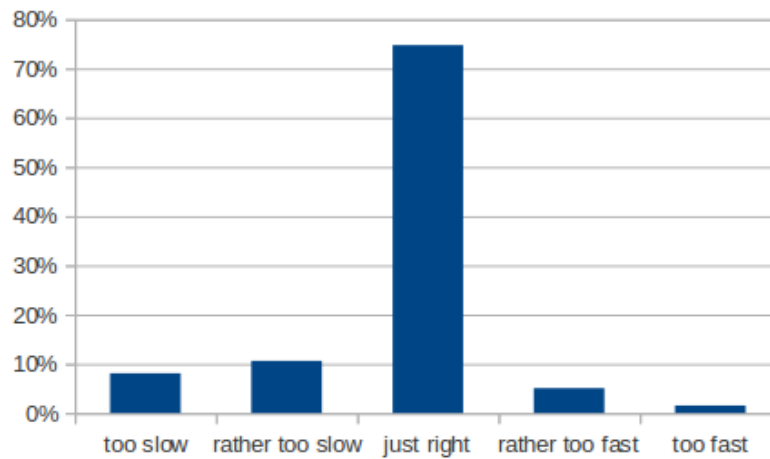


Figure 25: Answers to question 12

Most of the students said that the pace of the lessons was just right. But we can see that about one fifth of the students think the pace could have been faster. In consequence additional tasks could be offered for students who have finished their assignments earlier than others.

13. For me, the difficulty of teaching was ...
too easy / rather easy / just right / rather difficult / too difficult

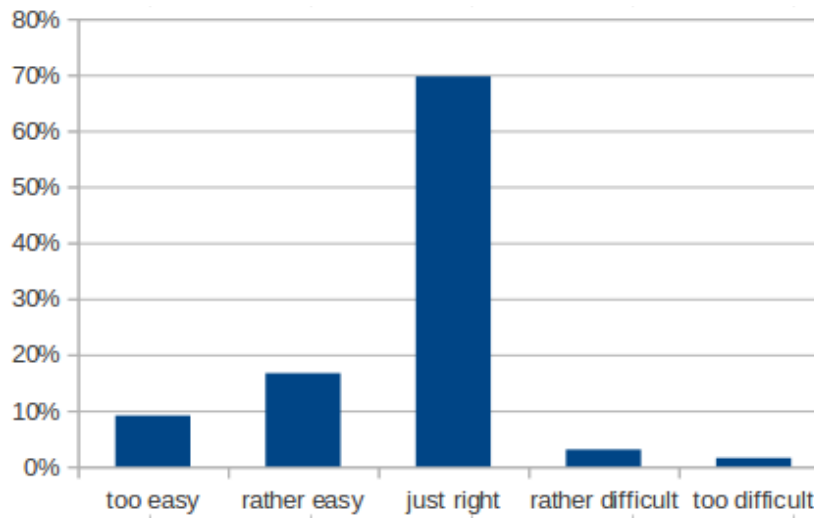


Figure 26: Answers to question 13

The answers show that the level of difficulty was chosen correctly. However, for about 25% of the students the lessons were too easy. It means, that the content can contain more challenge or that the lessons could be taught for younger students, for example, sixth and seventh classes.

14. Especially I liked it

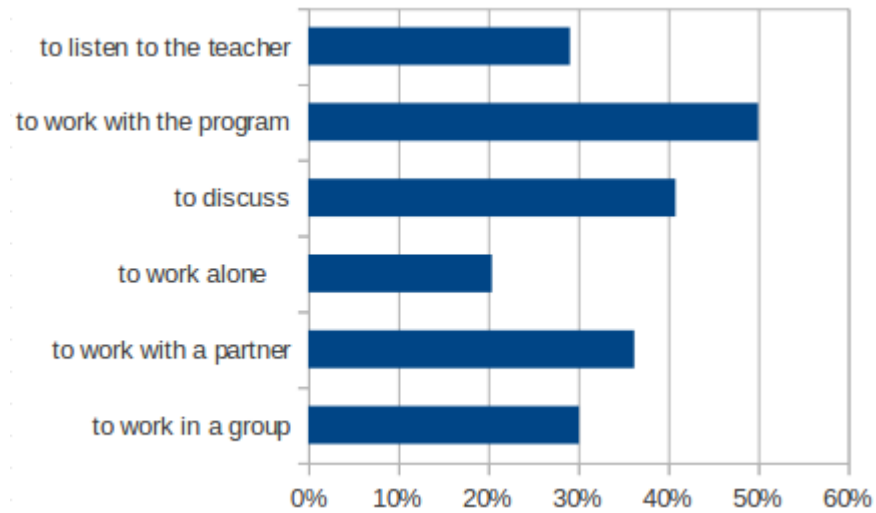


Figure 27: Answers to question 14

The answers to this question show that the chosen mixture of working techniques is very good. The favourite form of work is very different from student to student, so it makes sense to vary the form during the lessons. The students see it positive to work with the e-learning tool. In fact, most students do not like to work on their own. It might also make sense to let the students choose the form of teaching. The students could choose more than one answer.

7. Conclusion

Internet security is a very important topic, especially for children, because they start to use the Internet at very early age without being aware of the dangers they can be confronted with.

There are only a few organisations in Russia who are dedicated to the problems of the safe use of the Internet and the fight against dangerous content. These organisations intend to protect children from the dangers of the Internet and to provide help for the children as well as the parents. They offer psychological support and they mostly have websites with interesting information about the most important Internet threats. However, the conducted survey showed that half of the students did not have any knowledge about security on the net. The Russian laws also try to protect children from harmful information. Although many people consider these laws as “Internet censorship”, it should protect children from child pornography.

According to the report of the organisation „Russian Children Online“ on average about 70% of children spend time online every day or almost every day. The Internet offers diverse types of activities. All these online activities can increase the chance that children eventually will encounter online risk of some sort.

Based on the description of security issues for children on the net in the first chapter, we see that Internet security is a relevant topic for Russian students.

Computer science is a very young school subject in Russia. The totally curriculum is determined by the government. However, a teacher is free to distribute some hours over the year to make his own lesson plan. The subject "Computer science and ICT" is usually taught in 8th and 9th classes, but in some schools it is taught for younger students. The school curriculum does not include this topic, nevertheless some schoolbooks contain it, but only on a basic level.

Although e-learning resources have been used only for a couple of years, they provide a big opportunity to students with basic level of knowledge about the safe use of the Internet. One problem is that not all schools have the resources to use them. For example, a school could not have enough computers for the students to use or there is no projector.

It is impossible to improve the computer literacy without the participation of schools. And the above mentioned facts show a demand for an additional information source next to school teaching. Therefore an e-learning tool and lessons planning was prepared. During this master thesis the e-learning tool was translated and adapted to Russian laws. It also was provided with materials and tasks which are related to the typical internet uses in Russia. The topics were grouped together, so were made 7 lessons (each unit for 40 minutes). In order to plan interesting and diverse lessons, different resources were involved: board, flip chart, videos, articles. After each unit the students received take-home tasks or homework. All social forms were used of teaching in order to see which fits especially well.

The educational set which was developed within this master thesis, were tested in five different Russian schools. The participating schools were found with the help of professor Eduard Babkin (Faculty of Business Informatics and Applied Mathematics, Higher School of Economics, Nizhny Novgorod).

In general, the received feedback from the teachers as well as the students about the e-learning tool and the planned lessons was very positive. The central conclusion of the evaluation is that the participants think that the topic is very important and interesting and want to deal with it in the future. Furthermore, many students stated that the speed and difficulty of the lessons could be increased. These results can be interpreted such that the lessons could be taught in earlier classes or made more challenging.

The results of the survey support the previously gained impression that the e-learning tool and the planned lessons are well suited to be taught in Russians schools.

Therefore future work on this subject supposes two stages:

- extend the tool with concrete examples,
- to make the material presentation more diverse and
- to teach younger students (age 10-12).

Thanks to this master thesis, the students from 6 different schools (about 200 students) received a course about Internet security. It is probable that the teachers will continue to teach this topic with the help of the resources developed within this master thesis.

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Appendix 1: Questionnaire for the students

<https://docs.google.com/forms/d/1ZXBbitMBDhXJhL0exI2VTwCswlTEcFE947rqcSFyLhs/viewform>

In this questionnaire please look back briefly to the lessons and reflect on the texts, the lesson methods and approaches. The survey is anonymous. Please do not write a name on the questionnaire. Please, do not discuss the questions with other students, your own opinion is important for us.

Please enter number of school and your class

I am _____ years old.

I am Boy Girl

What topics were taught?

Please answer the following questions and give your judgement by checking the appropriate rating in the sense of affirmation or denial, between 1 = "yes, very much, I totally agree" and 6 = "no, not at all, I completely disagree".

1. I will spend more time on the topic "Internet security"
2. I understand which objectives have to be achieved in the classroom
3. I quickly understood how to operate the program
4. The content of the e-learning tool was interesting for me
5. The content of the program was understandable for me
6. I liked the graphics of the program
7. I think the requirements of the tasks done during the lessons were reasonable/fair

8. Which topics did you particularly like?

9. Have you previously dealt with the subject? Did you have previous knowledge? If yes, please explain

10. The offered a mix of different forms of teaching (work with e-learning tool, team work, partner work, discussions, lectures, etc.) I think ...

succeeded very well / succeeded well / succeeded badly / failed at all

11. In what extent has the use of different media (e-learning program, worksheets, video, articles, etc.) helped to make the lessons interesting and assist you in understanding the material?

very / little / not at all

12. The pace of the lessons was for me

too slow / rather too slow / just right / rather too fast / too fast

13. For me, the difficulty of teaching was

too easy / rather easy / just right / rather difficult to difficult

14. Especially I liked it

to work in a group

to work with a partner

to work alone

to discuss

to work with the program

to listen to the teacher

Appendix 2: Survey for the students

	Amount	Percent
Boys	83	42%
Girls	113	58%
Total number of Participants	196	

	Amount	Percent
seventh class	57	29%
eighth class	87	44%
ninth class	52	27%

Questions	Values						
	1	2	3	4	5	6	MV
1. I will spend more time on the topic “Internet security”	95 48%	51 26%	25 13%	10 5%	6 3%	9 5%	2,02
2. I understand which objectives have to be achieved in the classroom	132 67%	35 18%	18 9%	3 2%	3 2%	5 3%	1,6
3. I quickly understood how to operate the program	140 71%	29 15%	13 7%	3 2%	5 3%	6 3%	1,58
4. The content of the e-learning tool was interesting for me	104 53%	53 27%	18 9%	9 5%	6 3%	6 3%	1,87
5. The content of the program was understandable for me	135 69%	31 16%	17 9%	3 2%	5 3%	5 3%	1,61
6. I liked the graphics of the program	126 64%	39 20%	14 7%	3 2%	5 3%	9 5%	1,72
7. I think the requirements of the tasks done during the lessons were reasonable/fair	122 62%	39 20%	13 7%	9 5%	5 3%	8 4%	1,78

8. Which topics did you particularly like?

Topic	Amount	Percent
1. 10 hints on how to surf safely	47	24%
2. Do's and Dont's	34	17%
3. Email, Spam and Phishing	44	22%
4. Computer Security & Passwords	61	31%
5. File-sharing networks	23	12%
6. I am online	56	29%
7. Harassment and cyber bullying	42	21%
8. Online-Shopping	53	27%
9. Auctions	35	18%
10. Internet rip-off	40	20%
11. Dating	37	19%
12. Indicate and check sources	24	12%
13. Who can help me?	22	11%

9. Have you previously dealt with the subject? Did you have previous knowledge? If yes, please explain

	Amount	Percent
yes	110	56%
no	86	44%

10. The course offered a mix of different forms of teaching (work with e-learning tool, team work, partner work, discussions, lectures, etc.) I think it ...

succeeded very well	succeeded good	succeeded bad	failed at all
143 73%	47 24%	0 0%	6 3%

11. In what extent has the use of different media (e-learning program, worksheets, video, articles, etc.) helped to make the lessons interesting and assist you in understanding the material?

very	little	not at all
135 69%	53 27%	8 4%

12. The pace of the lessons was for me

too slow	rather too slow	just right	rather too fast	too fast
16 8%	21 11%	146 74%	10 5%	3 2%

13. For me, the difficulty of teaching was ...

too easy	rather easy	just right	rather difficult	too difficult
18 9%	31 16%	138 70%	6 3%	3 2%

14. Especially I liked it

	Amount	Percent
to work in a group	59	30%
to work with a partner	71	36%
to work alone	40	20%
to discuss	80	41%
to work with the program	98	50%
to listen to the teacher	57	29%

Appendix 3: Questionnaire for the teachers

https://docs.google.com/forms/d/1Uhep0DEMSja6VO_SSIuL5SnNIRz5RclJUrmT1fv7QM0/viewform

In this questionnaire I ask you to look back briefly to the lessons and reflect on the texts, the lesson methods and approaches. The survey is anonymous. We ask you do not write a name on the questionnaire.

Please answer the following questions and give your judgement by checking the appropriate rating in the sense of affirmation or denial, between 1 = "yes, I'm totally agree" and 6 = "no, I'm completely disagree".

I have _____ years working experience.

Please enter number of school and your class.

What topics were taught?

1. The texts of the program and supported materials (articles, videos) were understandable.
2. The materials were interesting for the students
3. I had enough time to complete all planned for the lesson
4. The students were motivated and focused
5. The used methods were suitable for students 14-15 years old
6. It was easy to plan lessons with the given materials (videos, articles, lessons' plan)
7. The students had previous knowledge of the topics
8. In my opinion the program is well suited for teaching at school
9. The students could easily work alone with the program
10. I had to correct the lesson planning
11. The difficulty of the materials was well suited for students 14-15 years old
12. The teaching framework is varied enough
13. The lessons were good structured.
14. The goals of lessons were achieved
15. The students have actively participated in the lesson.
16. Additional materials helped to understand the topic.
17. What resources have contributed most of all to the understanding of the content?

Video
Articles
Tasks
Discussion

	Team work	Partner work	Individual work	Work with the e-learning tool
18. Which methods have the students especially liked?				
19. With which methods have the students had difficulties?				
20. Which social forms were particularly effective for the pupils?				

21. What would you change in the program? / How would you improve the program?

22. What would you change in the lesson model?

23. Which topics were of particular interest for the students?

24. With what content the students had difficulties?

25. What topics would you add to the program?

26. Did somebody in your school already organize something concerning with the topic Internet security?

27. Do you plan to work with the topic Internet security in the future? If yes, please explain

28. Your comment

Appendix 4: Survey for the teachers

Questions	1	2	3	4	5	6
1. The texts of the program and supported materials (articles, videos) were understandable.	3	1		1		
2. The student found the material interesting	1	2	1		1	
3. I had enough time to complete all planned for the lesson			3	1		
4. The students were motivated and focused	1	3			1	
5. The used methods were suitable for students 14-15 years old		3	1	1		
6. It was easy to plan lessons with the given materials (videos, articles, lessons' plan)	2	1	1		1	
7. The students had previous knowledge of the topics		2	2	1		
8. In my opinion the program is well suited for teaching at school		3		1	1	
9. The students could easily work alone with the program	1	2	1		1	
10. I had to correct the lesson planning		1			3	1
11. The difficulty of the materials was well suited for students 14-15 years old		4			1	
12. The teaching framework is varied enough	1	2				2
13. The lessons were good structured.	2	1			2	
14. The goals of lessons were achieved	1	2	1			1
15. The students have actively participated in the lesson.	2	1	1		1	
16. Additional materials helped to understand the topic.	3		1		1	

17. What resources have contributed most of all to the understanding of the content?

Video	5
Articles	3
Tasks	4
Discussion	4

	Team work	Discussion	Individual work	Work with the e- learning tool
18. Which methods have the students especially liked?	3	4	1	4
19. With which methods have the students had difficulties?	2	0	3	0
20. Which social forms were particularly effective for the pupils?	4	5	0	2

In the questions 17-20 the teachers could choose more than one answer.

Appendix 5: The lessons

Lesson 1

Topic: Internet security. What can I and what I cannot do online? Computer security and passwords.

Goals:

- to introduce the tool and the schedule for the next lessons
- to awaken the interest for the subject
- to make students aware about the dangers on the Internet
- to give an overview about the safer internet use
- to introduce the basic concepts about internet security (how to protect yourself from malware, how to choose a good password, how to use the public computers etc.)

Time: 40 min, 1 lesson

Equipment: computer, mouse, keyboard, printer, video projector, loudspeaker, screen, Internet access, blackboard, flip chart

Software: operation system (Windows, Linux or Mac), Internet browser (Mozilla Firefox, Internet Explorer), Office Suite (MS, Apple or OpenOffice)

Didactic materials:

- the e-learning tool
- <http://www.youtube.com/watch?v=3Ap1rKr0RCE#t=26> ("Entertainment and security on the Internet", "Развлечения и безопасность в Интернете", 2.01 minutes)
- <http://www.youtube.com/watch?v=QvOlgob5njQ> ("How to choose a password", "Выбираем пароль", 1.34 minutes)
- <http://www.nakanune.ru/news/2013/07/24/22317363> ("Hacking accounts in social networks", "Взлом аккаунтов в сетях")

Take-home task: students have to come up with passwords with a high level of security (for example three different, one for e-mail accounts, one for social networks and one for banking), remember or save them, change their old passwords

Time	Plan of the lesson	Social form	Software / didactic materials
5 min	Overview of the three first topics, presentation of the learning tools	Teachers presentation	Video projector, screen, e-learning tool
10 min	The students work out the topics of the e-learning tool “10 hints on how to surf safely” and “Do's and Don'ts”	Individual work	e-learning tool, PC
3 min	The video “Entertainment and security on the Internet”		Video projector, loudspeaker, screen
10 min	The students work out the topic „Computer Security & Passwords“ of the learning tool	Individual work	e-learning tool, PC
2 min	Show the video “How to choose a password”		Video projector, loudspeaker, screen
8 min	The teacher creates a tag cloud about Internet security together with the students . He ask the students to name keywords concerning the topic.	Discussion	Blackboard or flip chart
2 min	Explanation of homework	Frontal lecture	

Lesson 2

Topic: Spam and Phishing. Internet fraud.

Goals:

- to explain what “spam”, “phishing” and “Internet fraud” is
- the students should learn how to protect themselves successfully against spam
- to teach students how they can recognize a phishing mail
- to teach students how to recognize websites with fraudulent content
- the students should understand their rights as consumers with unwanted and phishing e-mails and fraudulent websites

Time: 40 min, 1 lesson

Equipment: computer, mouse, keyboard, printer, video projector, loudspeaker, screen, Internet access, blackboard, flip chart

Software: operation system (Windows, Linux or Mac), Internet browser (Mozilla Firefox, Internet Explorer), Office Suite (MS, Apple or OpenOffice)

Didactic materials:

- the e-learning tool
- printed examples of phishing mails
- presentation with phishing features
- The article <http://www.youtube.com/watch?v=AMCsvZXCd9w#t=35> („Beware of fraud on the Internet“, “Остерегайся мошенничества в Интернете”, 2.53 minutes)
- The article <http://info.nic.ru/node/4693> (“Twice as many victims”, “Вдвое больше пострадавших”)

Take-home task: the students have to find out which security settings are provide by their mail client and to change them in order to protect themselves from spam and unwanted emails.

Time	Plan of the lesson	Social form	Software / didactic materials
1 min	Short introduction to the topic	Frontal lecture	
4 min	The students read the article “Twice as many victims”	Individual work	Printed article
8 min	The students work out the topic „Mail, Spam & Phishing“ of the e-learning tool		PC, e-learning tool
7 min	The teacher shows some examples of phishing emails. The students should discuss with a table neighbour the main characteristics of phishing e-mails.	Partner work	Printed examples (2 pages)
3 min	The teacher leads the discussion by answering the questions: How to recognize phishing? How should you react? (One sentence per group. The teacher selects some students to answer.)	Discussion	

Time	Plan of the lesson	Social form	Software / didactic materials
3 min	The teacher shows the presentation with the main characteristics of phishing emails and with advices and explains it briefly.	Frontal lecture	PPT, screen, video projector
8 min	The students work out the topic „Internet fraud“ of the learning tool	Individual work	PC, e-learning tool
4 min	The video „Beware of fraud on the Internet“		Loud-speaker, screen, video projector
2 min	Explanation of homework	Frontal lecture	

Lesson 3

Topic: File sharing platforms. Sources.

Goals:

- to introduce the basics of copyright and of creative commons
- to bring up respect for other people's intellectual property
- the students should understand what they may download and upload and which dangers it could bear
- the students should learn how to distinguish between serious and false information on the Internet
- the students should learn how to use the materials of others in their own works

Time: 40 min, 1 lesson

Equipment: computer, mouse, keyboard, printer, video projector, loudspeaker, screen, Internet access, blackboard, flip chart

Software: operation system (Windows, Linux or Mac), Internet browser (Mozilla Firefox, Internet Explorer), Office Suite (MS, Apple or OpenOffice)

Didactic materials:

- the e-learning tool
- The video <http://www.youtube.com/watch?v=5YhdS7rrxt8#t=25> („How to detect lies and stay true on the Internet“, “Как обнаружить ложь и остаться правдивым в Интернете”, 2.22 minutes)

- The article <http://www.rg.ru/2013/08/01/prava.html> (“С 1 августа в интернете начнут закрывать сайты с пиратскими фильмами и телесериалами”)

Homework: to write an essay (min ½ A4, max one A4 page) about the following topics (choose one):

- My opinion about file sharing platforms
- Why is it important to check sources on the Internet?
- Find legal resources with photos, music etc. and describe them briefly.
- Which alternatives are there to file sharing platforms? Describe each of them briefly.

Time	Plan of the lesson	Social form	Software / didactic materials
2 min	Introduction to the topic	Frontal lecture	
5 min	The students read the article about copyrights on the Internet.	Individual work	Printed article
5 min	Discussion of the article. Why is it necessary to protect the copyrights on the Internet?	Discussion	
7 min	The students work out the topic „Filesharing“ of the e-learning tool	Individual work	PC, e-learning tool
7 min	The students work out the topic „Indicate and check sources“ of the e-learning tool	Individual work	PC, e-learning tool
3 min	The video „How to detect lies and stay true on the Internet“		Video projector, loudspeaker, screen
7 min	The students have to answer the following questions working in small groups of 4 or 5: Why is it important to quote information sources? To what should I pay attention when quoting? What consequences may arise if I do not specify the sources?	Teamwork	
4 min	Each group presents its results.	Discussion	

Lesson 4

Topic: I am online

Goals:

- the students should learn to distinguish private data from public data
- the students should recognize the importance of protecting privacy on the Internet
- the students should learn how to avoid unwanted online content about themselves on the Internet
- the students should learn how to recognize the Internet addiction

Time: 40 min, 1 lesson

Equipment: computer, mouse, keyboard, printer, video projector, loudspeaker, screen, Internet access, blackboard, flip chart

Software: operation system (Windows, Linux or Mac), Internet browser (Mozilla Firefox, Internet Explorer), Office Suite (MS, Apple or OpenOffice)

Didactic materials:

- the e-learning tool
- the printed task 1 "Private Data - Public data. Where's my limit?"
- the printed task 2 "Protection in communities"
- the presentation with homework

Take-home task: the students should improve their own online profiles in the social networks, do a test about Internet addiction on the website www.detionline.com. The teacher also offers to keep a media diary for one week with the aim to understand their behaviour with media tools and to correct it. In their media diary, the students enter how much time they spend in a day with different information media (Internet, computer, mobile phone etc.)

Time	Plan of the lesson	Social form	Software / didactic materials
2 min	Introduction to the topic: the teacher explain that on this lesson the students will learn the basics on protection of private data, especially in social networks. One of the most important aspects is to learn to distinguish between private and public data. Furthermore the students will get to know the term “Internet addiction” and its meaning.	Frontal lecture	
15 min	The students work out the topic „I am online“ of the e-learning tool	Individual work	e-learning tool, PC
9 min	Task 1 "Private Data - Public data. Where's my limit?" The teacher prepares a table with four columns on the blackboard or a flip chart. The students have the task to say which data belongs to which column. Common discussion of different opinions.	Discussion	Printed task or PPT, blackboard or flip chart
8 min	Task 2 “Protection in communities”. The class is divided into small groups (3-5 persons). The students should discuss the social net they use (Vkontakte, Facebook, Odniklassniki etc.).	Group work	Printed task
4 min	Each group presents its results by reading them out.	Group work	
2 min	Explanation of homework	Frontal lecture	Blackboard and printed tasks

Lesson 5 and 6

Topic: Cyber bullying, cyber grooming. Dating.

Goals:

- to define cyber bullying and cyber grooming
- to suggest ways in which young people can stay safe online
- to identify the consequences of cyber bullying and cyber grooming
- to suggest ways young people can behave positively in cyberspace

Time: 2 lessons (80 minutes)

Equipment: computer, mouse, keyboard, printer, video projector, loudspeaker, screen, Internet access, blackboard, flip chart

Software: operation system (Windows, Linux or Mac), Internet browser (Mozilla Firefox, Internet Explorer), Office Suite (MS, Apple or OpenOffice)

Didactic materials:

- the e-learning tool
- the video
http://www.youtube.com/watch?feature=player_embedded&v=z33JK6mPzOc (“The story of one dating”. “История одного знакомства”, 1.21 minutes)
- the video <https://www.youtube.com/watch?v=dIEbUpuHz7g> (Amanda Todd, 8.53 minutes)
- the printed articles:
<http://internetua.com/internet-ugrozi--trolling-i-kiberbulling> (“Internet threats: trolling and cyberbullying”. “Интернет-угрозы: троллинг и кибербуллинг”.)
<http://digit.ru/internet/20101215/380866201.html> (“Russian children suffering from aggression and pornography on the Internet.” “Российские дети страдают от агрессии и порнографии в интернете”.)
<http://www.rg.ru/2012/11/28/deti.html> (“Humiliation online”. “Унижение онлайн”.)

Homework: the students receive a printed homework, which describes the situations related to the topic “Cyber crime”. They have to give their opinion on every situation.

Time	Plan of the lesson	Social form	Software / didactic materials
2 min	Introduction to the topic	Frontal lecture	
5 min	Current article about cyber bullying	Individual work	Printed article
3 min	Task „Ice-breaker“. The teacher divides the class up in to small groups (3 – 4 person) and give them three minutes to come up with as many words or short sentences as possible related to the topic „Cyber bullying“.	Group work	
2 min	Discussion of the task. The teacher writes down the main ideas.	Discussion	Blackboard, flip chart
15 min	The students work out the topic of the e-learning tool „Cyber mobbing“	Individual work	e-learning tool, PC
8 min	The students discuss in small groups of 3 or 4 “How it is possible to protect from cyber bullying?”	Group work	
2 min	Discussion of the task. The teacher asks all groups to read out their recommendations and pick out key parts from each group to make one overall list of advices.	Discussion	Blackboard or flip chart
2 min	Explanation of homework	Frontal lecture	Printed task

Second part of the lesson

Time	Plan of the lesson	Social form	Software / didactic materials
2 min	Oral summary of the previous lesson. The teacher asks some students what they remember from the material of the previous lesson.	Discussion	
8 min	Discussion of the home task	Discussion	

Time	Plan of the lesson	Social form	Software / didactic materials
10 min	Show the video about Amanda Todd		Video projector, screen, loudspeaker
7 min	Brainstorm with the class and use a blackboard or flip chart to record ideas. Question: How should behave Amanda Todd? How was it possible to help her? How to keep yourself safe in cyberspace?	Discussion	Blackboard or flip chart
6 min	The students work out the topic „Dating“ of the e-learning tool	Individual work	PC, e-learning tool
2 min	Show the video „The Story of one dating“		Video projector, screen, loudspeaker
5 min	The teacher asks some students to answer the question "To what should I pay attention when dating online?" The teacher writes down the key phrases on the board or flip chart.	Discussion	Blackboard or flip chart

Lesson 7

Topic: „Online shopping. Online auction“

Goals:

- the students should learn the basics of consumer protection on the Internet
- the students should learn the legal basics of e-commerce and online auctions
- the students should learn how to obtain information about problems and possible difficulties when shopping online
- to explain different payment possibilities

Time: 40 min, 1 lesson

Equipment: computer, mouse, keyboard, printer, video projector, loudspeaker, screen, Internet access, blackboard, flip chart

Software: operation system (Windows, Linux or Mac), Internet browser (Mozilla Firefox, Internet Explorer), Office Suite (MS, Apple or OpenOffice)

Didactic materials:

- the e-learning tool
- The article
http://www.cnews.ru/news/2013/07/24/rossiya_voshla_v_pyaterku_samyh_aktivnyh_rynkov_po_internetpokupkam_v_mire_536476 („Россия вошла в пятерку самых активных рынков по интернет-покупкам в мире“)
- Task 1 “Standard form contract”

Time	Plan of the lesson	Social form	Software / didactic materials
3 min	Introduction to topic	Frontal lecture	
15 min	The students work out the topic „Online shopping“ of the e-learning tool	Individual work	PC, e-learning tool
3 min	The students read the article “Russia entered the top five most active markets for online shopping in the world”	Individual work	Printed article
2 min	The teachers ask the students if they or their friends have an experience with online shopping and ask to tell about it (what have they bought, on which websites, if they have had some problems).	Discussion	
7 min	The students work out the topic of the e-learning tool “Auctions”	Individual work	PC, e-learning tool
8 min	The teacher divides the students into four groups. Each group becomes a standard form contract of some online shop and a list of questions they need to find an answer.	Group work	Task 1
4 min	Each group reads out its results. Comparison of results, conclusion.	Presentation of results	

Appendix 6: Participating schools

School name: **municipal state funded educational institution secondary general education school №103**

Website: <http://shkola103.ru/>

City: Nizhny Novgorod

School type: municipal state funded educational institution

Participants: two 9.classes, 21 students

Topics: 3-10, 12

School name: **municipal state funded educational institution secondary general education school №62**

Website: <http://www.schoolnn62.narod.ru/>

City: Nizhny Novgorod

School type: secondary general education school

Participants: 8.class, 24 students

Topics: all

School name: **municipal state funded educational institution lyceum № 165**

Website: <http://liceum165nn.ru/>

City: Nizhny Novgorod

School type: lyceum

Participants: three 7. class, one 8. class, one 9.class, 58 students

Topics: all

School name: **municipal state funded educational institution lyceum № 7**

Website: <https://sites.google.com/site/lyceum7kstovo/>

City: Кстово, Nizhny Novgorod

School type: lyceum

Participants: four 8.classes, 55 students

Topics: all

School name: **municipal state funded educational institution lyceum №180**

Website: <http://www.lyceum180.com/>

City: Nizhny Novgorod

School type: lyceum

Participants: one 8. class, two 7.classes, 14 students

Topics: 1-7, 10-13

School name: **municipal state funded educational institution secondary general education school №24**

Website: <http://www.s-d-nn.ru/>

City: Nizhny Novgorod

School type: secondary general education school

Participants: two 9. class, 25 students

Topics: all

The difference between a lyceum and a secondary general education school

The secondary general education school is opened for all students. In order to become a lyceum students, the child must pass the entrance test. The school gives knowledge to fundamental subject. Lyceum, in addition to the general education curriculum, prepare their students in specific disciplines, in accordance with where the students want to study. Often a lyceum have agreements with one or more institutes and prepare students for them individually. The level of education at the lyceums is much higher as at school. The main emphasis in the teaching program is made on core disciplines.

Appendix 7: Curriculum Vitae



EDUCATION:

- 10.2011 - **Business informatics, Master**, University of Vienna
03.2014 Major: Business Process Management, Modelling and Meta-modelling, Software and Knowledge Engineering
Master thesis: „Child protection on the Internet. A teaching framework for Russian schools.“
- 02.2013 - Semester abroad
06.2013 University of Deusto, Spain, Bilbao
Major: professional ethics, Grid-systems
- 09.2004 - **Application of informatics in economics, Bachelor**
06.2009 State Technical University, Russia, Saratov
Major: Information systems in economics, Project Management
Bachelor thesis: „Development of presentation CD for the radio museum of the State Technical University of Saratov“
- 10.2004 - **German language, Bachelor**
07.2009 State Technical University, Russia, Saratov
- 07.2008 Scholarship of German Academic Exchange Service (DAAD),
Summer course „Management and economics“, University of Bremen

WORK EXPERIENCE:

- 04.2012 - **Web designer, speedy space OG, Vienna (part time)**
02.2013 - realization of an online presence with conception, design, technical implementation and maintenance
- discussion of requirements and modifications with customers
- preparation and sending of newsletters with CleverReach

- 04.2010 - **Trainee in after sales department, EvoBus GmbH (Daimler Group), Wiener Neudorf**
10.2011
- independent execution of sub-tasks in the customer service area
 - support in different projects in South-East Europe and Central Asia
 - support of marketing events
 - preparation of quarterly and annual results presentations for the after sales manager
 - translation of various documentation and interpretation of communications
- 01.2010- **Sales representative, Belfort, Russia, Saratov**
04.2010
- proposal preparation on customer request and for tender applications
 - coordination of orders from clients including goods payment, delivery control and preparing documents
 - interface position between accounting, procurement and delivery departments
- 10.2009- **Team management, Acrit, Russia, Saratov**
01.2010
- requirement analysis for website building
 - customer service
 - led team of three staff: division of responsibilities and tasks
- 03.2009- **Search Engine Optimisation Specialist, VoxWeb Intereactive, Russia, Saratov**
10.2009
- promotion for websites of different topics
 - development and implementation of marketing strategies
 - consulting at design and building of websites and web services
 - active participation in the development of products and solutions
- 08.2008- **Referent in the technical department, Bosch, Russia, Engels (part time)**
11.2008
- planed meetings and visits with manager
 - translated texts in different domains and manuals
 - interpretation of phone conversations and factory tours



COMPUTER SKILLS:

Advanced: MS Office, OpenOffice, HTML, CSS, CMS (Wordpress, Drupal, Joomla)
 Good: Modelling (UML, BPMN, Petri Nets, ERP, ADONIS), programming languages (C++, Java), Eclipse, ADOxx
 Basic: image editing (Photoshop, GIMP), SQL, VisualBasic, XML, MetaEdit, JavaScript



LANGUAGES:

Russian (mother tongue)
German (business fluent)

English (fluent)
Spanish (fluent)



SOZIAL ENGAGEMENT:

- 09.2005 - AIESEC (student organisation)
- 06.2007
 - Organisation of conferences
 - CRM-Management
 - Organisation of exchange programs

List of Abbreviations

INHOPE	International Association of Internet Hotlines
IT	Information Technologies
PC	Personal Computer
ICT	Information and Communication Technologies
IFPI	International Federation of the Phonographic Industry
EU	European Union
SMS	Short Message Service
CD-ROM	Compact Disc Read-Only Memory
HTML	Hypertext Markup Language
UK	United Kingdom
RIAA	Recording Industry Association of America
NASA	National Aeronautics and Space Administration
MMORPG	Massively Multiplayer Online Role-Playing Game

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