Young Children (0-8) and Digital Technology

A qualitative exploratory study - National report - BULGARIA

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Executive summary

This report is based on a study, conducted in the framework of the JRC’s project ECIT (Empowering Citizens’ Rights in Emerging ICT). It presents the findings of a study, which has explored the experiences of young children (0-8 years old) and their families with the digital technologies. The study involved 10 families from Sofia of different social-economic, educational and ethnic profiles.

The study had two major goals. The first was to try to fill a considerable gap in the existing scholarship, which has so far largely neglected how the youngest children cope in the digital world they have been born into and how they use the internet and digital devices. The main focus of the research work was on the way children and their parents use and perceive digital technologies. The study further explored the role of new technologies in the family life and the issue of parental mediation (do parents manage children’s use of online technologies in a more constructive or more restrictive way).

The second goal was to propose policy recommendations for policy makers, industries, parents and carers, and educational institutions.

Key findings

1. Online technologies are an inseparable part of the lives of all children from our sample families. Even the families with the lowest income have at least one television set and a computer. Most families have two or three TVs, two computers, two tablets as well as smartphones and children start using them as early as 3 or 4. As a rule, those who have older siblings, become active users at a very early age, and they learn by looking at and imitating their brothers and sisters.

2. Tablets and smart phones are the favourite devices of children. For those children, who do not have access to a tablet or smart phone, the favourite device is a laptop or a PC. While television is watched daily by all children, none has named it as a favourite device. Game consoles do not appear to be popular with children in this age group, while DVD and MP3 players seem obsolete, as children prefer to watch videos online and listen to the music stored on smart phones.

3. Children are quick to learn basic operational skills. About a half of the children from the study can be considered independent users, but a display of more advanced online competencies is rare. Children see internet as a given. They do not know what online space represents and how it functions. For them, games, films, music simply exist and are there for them to watch and play. Some children are not passive consumers, but are able to produce content as well (making audio and video clips, photographs, drawings using programmes like Paint).

4. Almost all children use the devices solely for entertainment. This is especially true for children from low-income families, though in this families parents also report the most significant benefits. All children love to play games – mostly on smart phones, tablets and PC/laptops, and less often on game consoles. They most often play by themselves, but playing games with siblings or parents (usually fathers) is also quite common. Equally popular pastime is watching films, animation, TV serials and video clips. They also watch commercials and visit online shops.

5. Several children use technologies for communication (Viber, Skype, Facebook). Six children have a Facebook profile, which has been set up by their parents or older siblings with parents’ permission. Parents say that without it, their child would be socially isolated, as most of their peers are on Facebook.

6. Children clearly distinguish between those devices, which they consider their own, and those, which belong to parents or are used by all family members. In the latter case, they seem more concerned with the family rules regulating the use of these devices and follow them much more strictly.
7. The majority of parents have a positive opinion about the online technologies, as they encourage children's curiosity and desire for learning. However, few underscored the educational value of devices and most stress the importance of developing traditional literacy such as handwriting and reading. Technologies also help parents, who sometimes use the devices as “babysitters.” On the other hand, they are concerned that if they are used too often and for too long, technologies represent a health risk.

8. Parents are also concern about the “stranger danger”, but they see it as a distant risk. Few share concerns related to exposure to violent content that can potentially scare the child. Few parents also worry about the commercial and consumerist aspects of online world, and about misleading information children might come across, despite evidence that children are keen on watching advertisements or browse online shops. Exposure to inappropriate or harmful for children content is not perceived as a significant risk at this age, because according to the parents children rarely explore unknown territories online and only use the sites and apps they are familiar with and which have been checked and installed by their parents. However, it became clear that children intentionally access apps such as Facebook, Messenger and Instagram without their parents being aware of that and they often come across inappropriate music by chance on YouTube.

9. All parents declared that they need more information about how to mediate better their children’s use, how to effectively create balance between online and offline activities and how to better protect their children from harm online. Many were interested in the long-term implications of digital devices use. They share that information on that issue is scarce and difficult to obtain and they show readiness to follow recommendations if such are available.

10. No family enforces strict, well-defined rules for children’s use of technologies. Most rely on active, but permissive parental mediation, doing their best to provide the children with an appropriate example and model to follow. Nevertheless, there are several rules, which are observed in the majority of families - limitation of the screen time to one to two hours per day; children are not allowed to take devices outside of the home if parents are not with them; devices are not to be used during means or when having guests. Only one family has installed parental control software on the devices children use.

11. Most of the children have strong emotional attachment to their devices. It seems to be related to the way parents communicate the value of these devices, mainly underscoring their price. Some parents mention that they don’t attribute importance to technology on purpose, so that they are not perceived as valuable belonging by the child. In these families children showed the least attachment to the devices.

Recommendations
Recommendations to Policy-makers

- The existing policies such as national strategies and plans for safeguarding children and promoting and protecting their rights must take into account the reality that children start using digital technologies very early. This should be addressed in a proper way by championing early digital literacy, encouraging high quality positive online content, preventing potential online crimes against children and prosecuting them efficiently when they occur.

- Regular and systematic assessment of children’s use of digital technologies, risks, opportunities and skills should be carried out in order to inform the policy making to implement measures that are up-to-date and adequate to the needs of the children at different ages and from different backgrounds.

- Services and campaigns should be supported that inform parents and professionals on the children's use of technologies, the importance of digital literacy and approaches to increase the benefit of digital devices while decreasing the potential harm.
Recommendations to Industries

- Media companies and especially TV channels must adopt and follow standards for high quality child content in order to limit exposure of young children to improper language or behaviour that they further imitate.
- Family and children oriented websites and apps can provide online safety advices for parents including information for options to report content or find advice.
- As the age of the users is decreasing, privacy and security settings, any added-value services or options to report must be communicated clearly to the users in a way that is appropriate for their age as many young children use technologies independently.

Recommendations to Parents and carers

- Given the early adoption of mobile devices and their independent use, often outside of the home, parents should encourage the early digital literacy of their children focusing on critical thinking and problem solving skills.
- Furthermore, parents should be aware that use does not equal benefit and if the child is to benefit from the use of technologies, creative activities should be introduced and actively encouraged.
- Parents should address risks such as exposure to inappropriate content such as movies and games with violence, as well as commercial content as this is something that children often come across online.
- Parents should regularly update their knowledge and skills with regard to the available apps and websites that foster children's development or improve the safety of the devices as technologies change rapidly.

Recommendations to Schools

- Most children enter school as independent, yet vulnerable users of digital technologies. It is therefore an urgent task of the educational system to update the curriculum and address the needs of children to be digitally literate.
- Schools should safeguard the infrastructure and have clear safety rules of device use as most children bring their devices to kindergarten or school and use the Wi-Fi internet available there.
- Few schools have modern computer labs, but most children, even the ones from the most vulnerable communities, have their own devices and they bring them to school, which is an untapped resource that can be used to engage children in educational activities while encouraging early digital literacy and closing the digital divide.

Proposal for implementations

- Regular larger scale national quantitative and qualitative studies should be carried out producing comparable data across Europe to allow following trends, generating predictions and providing background for timely implementation of effective policies and practices both at a national and European level.
- A national policy addressing the positive and safe use of digital technologies should be devised and implemented. It should engage all key stakeholders such as parents, educational institutions,
social services, NGOs, industry representatives and decision makers in order to develop and implement evidence-based measures to protect and empower children in the digital age.

• Digital literacy should become part of the school curriculum from pre-school. Teachers should be trained to work with parents and children on issues concerning digital literacy and be able to facilitate the use of digital devices in the classroom in a way supporting children’s learning.

• Educational institutions should adopt policies and practices that encourage the digital literacy of the children and safeguard them from online as well as offline harm. Preferably this should be done in partnership with the children and their parents to increase ownership and adherence to the rules. There are tools such as the E-safety label, developed by European Schoolnet, which can facilitate the process.

• Parents should be informed about the potential harm associated with different aspects of online use and measures to mitigate it. They should also be able to access up-to-date information concerning how to develop their children’s digital literacy, where they can look for help or report any inappropriate content, for example through the national safer internet centres.

• A code of ethical conduct can be developed with and signed by all major providers of children-targeted content including standards for positive online content. Comprehensive guidelines have been developed by the POSCON.
1. Introduction

This report is based on a study, conducted in the framework of the JRC’s project ECIT (Empowering Citizens’ Rights in Emerging ICT).

According to several recent studies, many children today become active participants in the digital world practically with their birth. **By the time they turn eight, the majority of children from all national, social and ethnic backgrounds have already used Internet to play, learn, watch and listen to different video and audio content, and to interact and communicate with other users.** (Common Sense Media, 2013; Institute for the Protection and Security of the Citizens, 2015).

**This early exposure to the digital world,** many times not properly supervised by adults, **carries with it risks and dangers.** Online, children can be exposed to a huge variety of inappropriate content, which can lead to a number of harmful phenomena, such as early sexualisation and sexual abuse, commercialism, decreased sensitivity to extreme violence, deepening of gender-stereotyping and discriminative attitudes and behaviour.

Most of the existing studies on children’s Internet use have focused on children aged 9-16. While it has been established that Internet has become an inseparable part of the daily routine of children in the age group 0-8, few studies have tried to determine how the youngest children cope with Internet and digital technologies, especially in the light of the fact that their technical, critical and social skills have not been properly developed yet.

**The current study has explored the experiences of young children and their families with the digital technologies.** More precisely, its goal was to examine the online engagement of children and their families, and the potential benefits and risks of the young children's use of ICT at home. The findings from the study were used for elaboration of policy recommendations, directed at policy makers, industries, parents and carers, and educational institutions.

The study involved 10 families from Sofia. Seven of the families are from the lower end of the social-economic scale, one family is with medium income, and two enjoy higher than average standard of living. In three families, the interviewed child is a single child, two families are with two children, and five families have three children. The ethnicity of eight families is Bulgarian, while the remaining two are Roma.

During the fieldwork, the researchers visited the families in their homes. After presenting the background and purpose of the project, the researchers engaged the family in the ice-breaking exercise through which they learned about the child’s daily routine. After the icebreaker, one researcher conducted a semi-structured interview with the parents (one or both), while the other researcher talked with the child (in most cases in presence of other siblings) and observed his/her use of the digital devices.

The study focused on two core and two additional research questions. The main focus was on **the way child/children and parents use digital technologies** and **what are the perceptions and attitudes of family members** towards them. Additional two questions explored **the family context** (role of new technologies in the family life) and the issue of **parent mediation** (do parents manage children’s use of online technologies in a more constructive or more restrictive way).
2. Family Portrait Gallery

Family BG 01
Sofia, Bulgaria

Family members

- Kostadin, 40, medium digital user, BG01f40
- Hristina, 40, medium digital user, BG01m40
- Maria, 6, BG01g6, medium digital user, preschool

The family lives in an old apartment block in the outskirts of Sofia. The apartment is relatively small, but there is a touch of creativity to optimize the space and make it more welcoming. Hristina, 40 (BG01m40) has a background in social work and you can see she has a warm, supportive parenting style. Maria, 6 (BG01g6) is going to preschool and she will be a first grader in September. In summertime, she spends a lot of time outside riding a kick scooter or in the playground with one of her two grandmothers that live close and take care of her during working time of the mother.

Maria, 6 (BG01g6) is very talkative and easygoing child. She was very eager to take part in the interview, but she showed assertiveness and was very clear about the questions she was and she was not willing to answer. She is very keen on drawing and handcraft and she had prepared in advance a paper craft for the researchers.

The family owns a TV set, a personal computer and a tablet. The parents also own smart phones. Maria, 6 (BG01g6) started using the personal computer together with her parents when she was 3-4 years old. They started watching animation and music videos on YouTube. Later the child started asking parents to download movies.

Maria, 6 (BG01g6) mainly uses the tablet and this is her favourite device because it is cool and easy to use. She has a number of games installed by her father such as Winx, Barbie, Sonic Dash, Monster City. She mostly plays alone, but sometimes she plays together with her father on Sonic Dash. The games are mainly related to the movies she likes to watch.

Maria, 6 (BG01g6) perceives the tablet as her own but she shares it with her father and some of the apps installed are clearly his – an app for buying and selling cars, an app for sports results and others.

Sometimes she also uses her father’s smart phone to play or to take photos.

Maria, 6 (BG01g6) also uses the personal computer to listen to music or play CDs with pre-recorded movies downloaded from internet. However, she is not an independent user and usually she asks her mother or her father to turn it on and find the content she is interested in.

“Technologies are confusing because you don’t know to what extent what you do is normal, to what extent it is helpful and when you are crossing a line.”

Hristina, 40 (BG01m40)

Mostly she uses the devices under supervision, though the family is not following strict rules regarding the type and the timing of the use. They do not allow Maria, 6 (BG01g6) to take the device outside or to play with it when they have guests. Hristina, 40 (BG01m40) says it is difficult to restrict the child as the parents are using their smart phones in front of her.
Hristina, 40 (BG01m40) is using websites to look for ideas for shared creative activities and craftwork, but she does not perceive technologies to have educational value at this age of the child. She believes that in preschool, the child should learn to handwrite and she is not encouraging purposefully the use of technology for academic purposes.

Major concerns related to technologies are potential damage to the eyes, weariness and increased irritability. For instance, Maria, 6 (BG01g6) is clearly more irritable after using the tablet. The child used to have nightmares for some time, so the parents were concerned about the movies she was seeing, but they could not identify a particular reason. Hristina, 40 (BG01m40) feels that her daughter may be exposed to harmful content or may share inappropriate photos online in the future. However, at this point this is not an issue, so the family is not addressing it. She further shared that technology is both helpful and challenging for the parenthood because it keeps the child busy while parents finish some work or come up with ideas about shared activities, but it also isolates the family members from each other.

Family BG 02
Sofia, Bulgaria

Family members
Milena, 36, high digital user, BG02m36
Ivan, 7, high digital user, BG02b7, preschool

The family lives in an old apartment block in the outskirts of Sofia. However, the apartment is renovated and it is well furnished. Ivan is in the preschool and is about to be first grader in September. Milena, 36 (BG02m36) and the father of Ivan, 7 (BG02b7) are separated, but the boy is very close to the mother’s boyfriend and regards him as one of his best friends. Although the reported income of the family is below average, they own a number of digital devices such as flat screen TV set in the living room and another one in the child’s room, a computer, a laptop, a tablet and a PlayStation. Both own smart phones. All members of the family are high users of digital devices. Most of the devices are gifts to Ivan, 7 (BG02b7) by his extended family: his aunt and his father.

Ivan, 7 (BG02b7) is allowed to use every device but prefers the tablet and the game console. He started using the smart phones of the adults around him 3 years ago and then he got his own tablet. He uses it to play games, watch movies and music videos on YouTube. He also downloads and watches movies on the laptop as well as plays browser games on websites like www.friv.com. He also has a smart phone, but it is not connected to internet and he is not allowed to take it out. It is used to make calls, for instance, Ivan, 7 (BG02b7) talks with his father often.

In the summer, teachers allow children to take their own devices to preschool. They also watch TV significant amount of time. Teachers do not limit the use of the devices except during the afternoon nap,
when they take the children’s devices and play themselves. Ivan, 7 (BG02b7) also takes his tablet out in front of the apartment block. However, Milena, 36 (BG02m36) is relieved, because they live on the first floor and Ivan and his friends tend to stick nearby because of the Wi-Fi signal.

The preferred device of Ivan, 7 (BG02b7) is his PlayStation and he may spend several hours daily playing his favourite game SoulCalibur or other weapon-based games. Mostly he plays alone and with his mother’s partner. Sometimes he plays with his mother. They also go to movies together or listen to music such as rap on YouTube. Ivan, 7 (BG02b7) considers PlayStation to be his favourite toy, but he would miss most the tablet, if it was lost or broken, because it was a gift from his aunt and it is more expensive than he could afford to pay with his savings.

Ivan, 7 (BG02b7) seems to be independent user of his smart phone, tablet, laptop and PlayStation and he is able to download games, browse, download and watch movies and videos. He is also familiar with most of the popular applications and can name them. Ivan also has a Facebook profile set by his mother, but he does not seem to use it. However, sometimes he sends emoticons to his mother’s friends from her account when it is open on the laptop or the computer.

Milena, 36 (BG02m36) seemed proud that Ivan likes movies for grownups and he does not seem to be disturbed by the violence or language. However, she showed a pretty negative attitude towards the movies for children on Cartoon Network where you can hear phrases such as “You mother is stupid” and other inappropriate content. According to her, digital devices help parents free some time for themselves, but make children act like “zombies” and they can potentially meet dangerous strangers. However, they can be beneficial developing children’s digital skills and encouraging them to learn English, for example, in order to be able to play the games. For now Milena, 36 (BG02m36) feels that playing outside is potentially more dangerous, so she focuses on teaching Ivan how to protect himself from harmful interactions in the real life. Regarding online risks, she is mostly concerned about financial issues as she fears Ivan, 7 (BG02b7) will take her credit card and start buying by himself paid games and apps, because they are of better quality.
Family BG 03
Sofia, Bulgaria

Family members

Pavel, 40, medium digital user, BG03f40
Sonya, 33, medium digital user, BG03m33
Stefan, 10, BG03b10, high digital user, third grade [sibling child]
Mario, 7, medium digital user, BG03b7, first grade
Krasimira, 1, BG03g1, low digital user, infant [sibling child]

The family lives in an old block of apartments in the outskirts of Sofia. Sonya, 33 (BG03m33) is currently on a maternity leave, so she is spending most of the time at home. The two brothers seem to play together a lot, Stefan, 10 (BG03b10) is supportive and helps Mario, 7, (BG03b7) with the questions. Mother’s parents have a house nearby, so children go and visit them often, having the opportunity to play outdoors. They watch a lot of television there, not so much at home, because the mother feels she pays too much attention to the TV if it is on, so she avoids it. The family owns 2 TV sets, DVD player where they play pre-recorded disks with movies downloaded from internet, an old computer, and a laptop. Mario, 7, (BG03b7) also has a mobile phone that cannot work with a sim card, but where he plays the Snake game, takes photos and videos of his toys, and listens to music. The older brother owns a working phone, so sometimes Mario, 7, (BG03b7) uses it to shoot videos and then modifies them using filters and other effects. Brothers used to play on an old gaming console of their uncle, but they started modelling some aggressive behaviour, and the mother took it away. They also play on their older cousin’s smart phone and tablet games like Fruit Ninja. Stefan, 10 (BG03b10) used to have a tablet but it broke down and it was too expensive to fix it. All family members share the laptop. For that reason, boys are warned to open new browsers when someone else has already been using it. Parents do not own smart phones because they feel they should also buy such phones for the boys. Mother said she is easily hooked up to such things, so she prefers not to have something to play with all the time.

It is often the case that brothers watch a movie at the cinema and then download it to watch it again at home. They also integrate scenes of the movies in their make-believe games. They take videos and pictures of their games, download them to the laptop, and share them through Bluetooth with their cousin. Brothers are very keen on playing with Lego, so they visit online shops and YouTube videos to get inspirations. Mario, 7 (BG03b7) likes music very much and listens his favourite artists such as Michael Jackson on YouTube. He cannot read but navigates using the thumbnails of the videos. Sometimes, together with his brother, they do karaoke or make the Moonwalk.
draw in real life and digitally in Paint. Mario, 7 (BG03b7) mainly uses internet and the laptop alone or with his brother. Sometimes he uses it with his father to search for sports news or fishing information, but his older brother is more skillful, so he looks for him when an issue emerges. Usually the issues are related to how a game is played. The boys also use Skype to talk with classmates, family and acquaintances.

Sonya, 33 (BG03m33) shows a warm, supportive attitude towards the boys, willing to discuss and negotiate their activities. For instance, she is sensitive as to whether boys use internet for school or for play, allowing them more time in the former case. Also, she listens to the children’s desires and lets them make their own decisions. For instance, Mario, 7 (BG03b7) decided to collect money instead of gifts for his birthday to buy a tablet. Parents allowed it, but later he just changed his mind.

Parents discuss issues about digital devices mostly with Stefan, 10 (BG03b10), for instance that the laptop is not only for play, but also for looking for information. But Mario, 7 (BG03b7) is listening and following the guidance. Parents try to limit multitasking allowing either watching television or using the computer. Sonya, 33 (BG03m33) is also concerned about strangers online once boys start using social media. However, presently she believes that moderate use is beneficial for children and that teaching children good values and giving positive example as a parent is the best way to protect them from excessive or harmful use. Stefan, 10 (BG03b10) had an incident with significantly higher phone bill, because he turned on mobile internet by mistake, but mother did not seem to be worried because it was not on purpose.

Family BG 04
Sofia, Bulgaria

Family members
Stela, 40, medium digital user, BG04m40
Nayden, 48, medium digital user, BG04f48
Elena, 7, high digital user, BG04g7, preschool
Daniel, 7, BG04b7, high digital user, preschool
Stanislav, 3, BG04b3, medium digital user, kindergarten [sibling child]

The family lives in a two-bedroom apartment in a relatively new apartment building. The twins and the younger sibling share bedroom and they follow relatively identical routine. Parents both run their own businesses. Stela, 40 (BG04m40) is organizing events for children. Grandparents live nearby, so they help with the children care and the household duties. Parents share that they struggle to keep up with the energy of 3 small children, so they need to plan their time carefully, and always find time for outdoor activities such as riding bicycles in the park and playing with other children.

You are standing by, watching them, and you feel like a fool, because they use them [the devices], they are fully capable, and you are not allowing, can you do that? It is very hypocritical.” Nayden, 48 (BG04f48)
Parents use internet both at work and at home. They own smart phones and a laptop. There are three TV sets with cable television – one smart TV in the living room, one in the children’s room and one in the bedroom. Elena, 7 (BG04g7) and Daniel, 7 (BG04b7) both owns tablets, but one of them is broken. Stanislav, 3 (BG04b3) does not have his own device, but uses his mother’s smart phone. Elena, 7 (BG04g7) likes to use her wearable spying watch to record and store videos and pictures. The parents accidentally purchased it, taking it for a toy, and only later realising its capabilities. Children rarely play on their father’s phone and on the laptop, because they tend to break devices and parents are concerned about the costs. Tablets are protected with special software to limit access only to certain child friendly applications. Father’s phone also has such an app installed. Parents try to limit the time children are using the devices, but it is not always feasible as children sneak around and take them. They also do not allow them to take them to the kindergarten, but sometimes other children do it, and they learn about new games and apps.

Children like to listen to music and to watch videos on YouTube. They have a good intuition about technology learning how to install and de-install applications before their parents. They were also first to find out how to forward and backward TV programs. They still cannot read but even the smallest child successfully navigates around YouTube using previous searches and suggested content. Also, children search and install apps on their mother’s phone because the app store there is not restricted. They are able to search for pictures in Instagram and look through their mother’s Facebook profile. Elena, 7 (BG04g7) also likes to watch advertisements on YouTube, also how-to videos about craftwork and toys.

Children love devices very much and they are a reason for constant fights, as they have to share them. When they cross the line, the devices are taken away from them. Nayden, 48 (BG04f48) believes that games and animations overstimulate children and make them hyperactive and aggressive. Some cartoons seem also to frighten them, and children have nightmares after that. Parents are mostly concerned about the content of the children’s channels, because they feel the language is inappropriate and they give children harmful models. Although the twins are older, the three children usually play the same games and watch the same cartoons. Parents feel that children are able to understand only the information that is suitable for their age.

At the same time, parents realize that technologies are fundamental part of modern living and they feel children should not be denied opportunity to use them, because they would feel isolated. However, the use should be restricted to music, songs, studying foreign languages, but they are aware that such restrictions are not realistic. For now, it is relatively easy to control the content they access, because they cannot read. However, Stela, 40 (BG04m40) is concerned that once they are able to do so, they will be out of control. Still, Nayden, 48 (BG04f48) feels that it is harmful to forbid something to children, because they will be even more eager to have it, so it is better to give it to the children and be there for them if something happened.

Family BG 05
Sofia, Bulgaria
Family members
Raina, 39 high digital user, BG05m39
Lia, 7, medium digital user, BG05g7, first grade

The family lives in a small one-bedroom apartment in an old building in the centre of Sofia. Raina, 39 (BG05m39) is separated with the father of Lia, 7 (BG05g7). The mother is a freelancer doing projects related to the movie industry. Raina, 39 (BG05m39) uses laptop and a smart phone both for her creative assignments and for the promotion of her work. She also uses internet to connect with friends.

Raina, 39 (BG05m39) is a creative individual passionate about cinema and she tries to teach that to her daughter. Lia, 7 (BG05g7) is currently a first grader. She owns a smart phone with internet connection as a gift from her father for the start of the school year. She also shares a laptop with her mother. She sees her father mostly during the weekends and sometimes during the working week. She uses his iPhone to play and also his tablet. They play together on the PlayStation, because her father likes it very much.

Raina, 39 (BG05m39) believes that children should be encouraged to develop self-regulation, so she does not restrict her daughter’s use of digital devices. The main rule is that the mother has a priority using the shared laptop, so Lia, 7 (BG05g7) mostly uses it while her mother is cooking. She is able to download and play movies on the laptop on her own, but she also does it together with her mother. She still cannot read very well, but she manages to search in Google or to navigate in YouTube by recognizing the first letter of the words. Sometimes they borrow a projector and organize movie nights, mostly with Disney cartoons, and they invite Lia’s friends over popcorn. Lia, 7 (BG05g7) also draws on the laptop using Paint. She likes to make her own recordings acting as a reporter or to shoot pictures and sends them to her father via email. Together with the mother, they use Google to research places they are going to visit or YouTube to learn new skills like new hair-does or bracelet designs. They also browse through commercial websites and shop clothes together. Lia, 7 (BG05g7) uses her smart phone mainly to play. She takes it to school but there she uses it only to check the time.

Lia, 7 (BG05g7) has her own Facebook profile set by her mother, who was annoyed that her daughter was using her profile to play the FarmVille and shared game requests with her friends all the time. Raina, 39 (BG05m39) thinks that playing that game helped her daughter learn more about agriculture, enabled her to name the fruits and vegetables in English, made her more patient and able to manage complex tasks. Also, Facebook helps Lia, 7 (BG05g7) stay in touch with friends that she met when travelling around with her mother. Raina, 39 (BG05m39) is convinced that technology is important part of today’s life and children should use it actively, because otherwise they are isolated and unprepared. In order to ensure the safety of the child, mother and father know the password for her account, approve friend’s requests and are part of her friend’s list, so that they can supervise what is shared. Lia’s father also installed some kind of parental control software on the smart phone, so that he can check on her.

Raina, 39 (BG05m39) believes that technology is good for the child when the devices are used mindfully and with good self-control. The main problem seems to be that some children get addicted or that they get...
misled by people in chats. She was also concerned about some movies and serials for children like the ones on Cartoon Network. She is against Lia, 7 (BG05g7) watching them because of the inappropriate names of the characters and their violent behaviour. Nevertheless, Raina, 39 (BG05m39) feels that the child does not understand some of the inappropriate content, because it is beyond her maturity and experience. **Mother perceives technology mainly as a positive thing because digital content is encouraging creativity and imagination in children.** For example, Lia, 7 (BG05g7) often imitates the behaviour of her favourite characters online. Also, it connects people as Lia, 7 (BG05g7) is sharing pictures and other interesting information with her father, her classmates and her friends from other cities.

**Family BG 06**

**Sofia, Bulgaria**

**Family members**

Katya, 39, high digital user, BG06m39  
Evgeni, 40, high digital user, BG06f40  
Radoslava, 13, high digital user, BG06g13 [sibling child]  
Mila, 8, medium digital user, BG06g8, second grade  
Todor, 5, low digital user, BG06b5 [sibling child]

Family lives in a two-bedroom apartment in an old building, but the apartment is spacious and well furnished. Mother and father are freelancers and they are working from home. Both are in the field of digital technologies, so they use them daily. Evgeni, 40 (BG06f40) is a computer animation specialist, while Katya, 40 (BG06m39) recently started to code. They own a TV set, a computer, a laptop, and a tablet. **The girls have their own smart phones, using Wi-Fi connection** at home and in school. Both parents have smart phones. The family also owns a Kinect game.

**Girls mostly use the laptop in their room to watch and download serials and music.** Downloading and watching movies is also a family activity, one of the few given that the parents are very busy. Sometimes they use it also for schoolwork. Mila, 8, (BG06g8) uses her smart phone (the old mobile of her mother), mainly to play games, although now she does it less often than before. Her sister has a newer, more powerful smart phone, so Mila, 8, (BG06g8) sometimes uses hers. Both like to shoot and edit pictures. Sometimes they share them on their Facebook accounts, which were made by their parents. They are not interested in using the tablet. They used to watch movies on it when travelling, but now they prefer their mobiles. Girls are not interested in the Kinect game, their brother tried it but he is too small to appreciate it. Todor, 5 (BG06b5) has been recently taught to paint on his mother’s laptop with a mouse, but needs better hand coordination to really enjoy. Mila, 8, (BG06g8) likes to play music from YouTube or other video sharing platforms and dance to it. She also goes to a website with creative ideas for the free time and makes

If Leonardo invented new ways to paint and created extraordinary works of art, the computer is the modern tool of art. It is still the human factor that matters, but the tools are different.” Evgeni, 40 (BG06f40)
paper craft. Mila, 8, (BG06g8) can use independently her smart phone, but for other devices she needs help from her sister or her parents.

Parents believe that technologies are necessary tools nowadays and children need to use them, because otherwise they will be isolated. For them internet is very helpful for developing hobbies and interests. It also provides free access to the entire human knowledge. Internet is also a good resource for parents, so that they are able to answer the questions raised by the children. However, it can also lead to disinformation. Parents seem to be concerned a lot about the commercial aspect of online services. For instance, Evgeni, 40 (BG06f40) encourages children to be critical towards advertisements and feels that they should be aware about the purpose of ads from a very young age. He teaches them to evaluate information and make decisions, because he believes that nowadays life is too complex to enforce simple rules and ready-to-use solutions. Evgeni, 40 (BG06f40) is also concerned about the interests of the businesses behind the services that they offer, the access to private information and how they deal with it.

Both parents agree that the best way to protect children from harm is to teach by example and inform. However, they do not feel that the use of technologies should be addressed specifically, because in this way it seems that there is something very important about it. They feel that girls should perceive it as yet another tool to pursue their interests. Because they spend a lot of time at home, they try to communicate their values through conversation in front of the children or with them rather than direct instruction or guidance. They believe that using restrictions or forbidding is the worst approach to protection because in this way the child will be very tempted to do it in secret, increasing immensely the possibility for harm. For that reason they set up Facebook account for Mila, 8 (BG06g8) despite the age limits. But it is also not feasible to restrict the use of one child and not the other, given that they are so close and share many interests. So, the best solution to prevent excessive use, which makes children aggressive and anxious, is to allow but also give alternatives, so that they can have a variety of activities to choose from.

Family BG 07
Sofia, Bulgaria

Family members
Aneta, 42, medium digital user, BG07m42
Momchil, 11, high digital user, BG07b11 [sibling child]
Krum, 9, high digital user, BG07b9 [sibling child]
Nadia, 6, BG07g6, high digital user, preschool

Family lives in an apartment building, located in the outskirts of Sofia. Mother and father have been separated for two years. Father sees children two-three times a month. The apartment is relatively large and there are two bedrooms for the children (the girl has her own and the two boys share a room). Father is a computer
engineer and Momchil, 11 (BG07b11) is very motivated to follow his example. He is even attending an IT training course.

Family owns two laptops, two smart phones and two TV sets. Older laptop is used by two boys, who rarely allow Nadia, 6 (BG07g6) to use it as well. She can only watch films together with them. Newer laptop belongs to Aneta, 42 (BG07m42), who uses it for work. For this reason, she does not allow children to touch it, apart from watching a film or YouTube videos on it under her supervision.

Similarly, the older smart phone is used by children, especially Nadia, 6 (BG07g6), for playing games. The newer phone belongs to the mother, but is also used by children for games. They are allowed to install games on it on condition that for each installed game, one older game is deleted. Nadia, 6 (BG07g6) can install and delete games without assistance – a skill she learned from her brothers. Both boys used to have their own smart phones, but they have broken them. For now, mother is not able to buy them new ones. Nadia, 6 (BG07g6) most often plays on the smart phone in the morning before school, while the boys are having breakfast.

Nadia, 6 (BG07g6) has been using digital devices since she was 3. She learned by watching and imitating her brothers, occasionally causing minor incidents (deleting or moving icons and folders). Aneta, 42 (BG07m42) also showed her how to play films and video clips, and how to use Viber. Nadia, 6 (BG07g6) often takes mother’s smart phone and calls those people in the contact list she recognises (contacts are with profile pictures).

One TV is in the kitchen and the other is in Nadia’s, 6 (BG07g6) room. She watches TV mostly in the evening, before falling asleep. Her favourite programmes are Cartoon Network, Baby TV and Super 7. Boys rarely watch TV and do not have it in their rooms.

When father is with children, he helps them out with all more complicated aspects of ICT use. Mother uses computer on daily basis for her work and also helps children with simpler issues, although Momchil’s, 11, (BG07b11) ICT skills already surpass hers.

Nadia, 6 (BG07g6) uses devices independently. She plays games, watches films and clips, can make calls and send messages (usually consisting of emoticons) via Viber, and can make audio and video clips, save them and send them to people from the phone’s contact list. Unlike Nadia, 6 (BG07g6), brothers use laptop also for learning (apart from entertainment).

Aneta, 42 (BG07m42) believes that time spent with ICT devices is useful, as it teaches the children skills they will inevitably need later in life. On the other hand, excessive use can be a problem as children lose the track of time and can become antisocial. She tries to direct them towards games with educational value. The family rules are not very strict, which mother says is her mistake. She tries to teach them to
complete their school obligations before using ICT, but is not always successful. In the evening, their screen
time is limited to about one hour. When the children misbehave, they are sanctioned not to play games
and watch TV for certain time. None of the devices have parental control software installed, but mother
occasionally checks what children have been doing and accessing.

Family BG 08
Sofia, Bulgaria

Family members
Anton, 35, high digital user, BG08f35
Gergana, 35, high digital user, BG08m35
Kremena, 13, high digital user, BG08g13 [sibling child]
Desislava, 7, high digital user, BG08g7, first grade
Emil, 5, medium digital user, BG08b5 [sibling child]

Family lives in a relatively large apartment in an apartment building, located in a residential neighbourhood
in Sofia. Parents have their own bedroom, while the three children have two rooms for themselves. Family
has three TV sets, two laptops, two tablets and three smart phones. They also have a game console, but none
of the children is interested in it.

All TVs, including the one in the
living room, are dominated by
children who usually determine what
is on. Desislava, 7 (BG08g7) and
Emil, 5 (BG08b5) most often watch
Cartoon Network and Disney
Channel, although they do not like the
same films. Parents are very critical
of Cartoon Network and try to keep
the children away from it with
limited success. Watching TV is
restricted to one hour per day. It can be
slightly more on weekends, if the
family does not go out for a walk or
trip.

“I don’t reward them with
technology. If I reward them with 2
hours more, they will somehow feel
obliged to spend them using tech. If I
decide to let them use the devices
longer, I don’t tell them.” Anton, 35
(BG8f35)

Desislava, 7 (BG08g7) uses her parents’ smart phones, but does not have one of her own – parents think she
is too young to have and need one. She often takes mother’s smart phone without even telling her and plays
games on it. When she cannot get access to the laptop (for example her mother is using it) to watch films,
she watches them on smart phone. She uses the voice command to find the film or video she wants. Desislava,
7 (BG08g7) loves music and most often uses smart phone to listen to her favourite songs.

She has a tablet, which she uses mainly for playing games, but she gets bored with it quite fast and rarely
uses it for more than 30 minutes. Most often, she plays with the tablet on long car journeys or when her
parents want to keep her busy with something outside the home (visiting friends, at a restaurant).
Whenever she has a problem, she asks parents for help.
She says that after coming home from school, she watches TV and plays on the computer, but her parents add that her computer time is very restricted.

Desislava, 7 (BG08g7) uses laptop mainly to watch her favourite films and videos on YouTube. She can type the title she wants to watch only if the language is set to Cyrillic – she cannot switch between languages on her own and asks parents or older sister for help. Apart from playing games and watching films, she sometimes uses laptop to play educational games – mostly for learning letters and maths. She knows which icons to click to get to the games. She also knows how to use Google. Most often, she only writers the first letter and then uses the memorised keywords from previous searches.

The three children rarely do something together on digital devices. Kremena, 13 (BG08g13) has completely different interests than her younger siblings, but even Desislava, 7 (BG08g7) and Emil, 5 (BG08b5) rarely agree on what to do or watch.

TV channels, which are inappropriate for children, have been blocked on all TV sets, but there is no parental control software installed on the laptops and tablets. Father says that he was thinking to do it, but has not found the time yet.

Both parents are high digital users and use ICT daily for work, information, communication and entertainment. They have taught the children how to use different devices and help them in case of problems or questions. They perceive the ICT as inevitable part of the life today, so it is obligatory for the children to be able to work with them.

Strict control and restriction of screen time are applied for the younger two children and they never use devices without parental supervision. Parents worry that excessive screen time will hurt children’s eyes and lead to other health problems. Excessive use can also cause addiction. Both parents check the history on the devices to monitor children’s online activity. They had no problems with the smaller children, but Kremena, 13 (BG08g13) has been visiting inappropriate sites (pornography).

Family BG 09

Sofia, Bulgaria

Family members

Teodor, 28, high digital user, BG09f28
Silvia, 25, low digital user, BG09m25
Spas, 7, high digital user, BG09b7, second grade
Lilia, 3, medium digital user, BG09g3

The family lives in a small bungalow with two rooms in a village-like neighbourhood on the edge of Sofia. Both children sleeps in the living room, where the TV set is located. Teodor, 28, (BG09f28) is officially unemployed, but makes some money by providing Internet and computer related services in the neighbourhood – installing software, downloading games, films, music and programmes, fixing different problems. Silvia, 25 (BG09m25) works part-time as a cleaner. Both parents have only primary education.
Family owns one TV set, one desktop computer, one laptop and one tablet. They used to have PlayStation and a smartphone, but had to sell them due to financial difficulties.

The laptop belong to the father and he is the only one to use it, except on rare occasions when Spas, 7 (BG09b7) is allowed to play games under father’s supervision.

The desktop computer is shared. Spas, 7 (BG09b7) has been using it for games and watching animated movies since he was 4. Lilia, 3 (BG09g3) also knows how to turn it on and where to click to watch a film.

Tablet belongs to Spas, 7 (BG09b7). He uses it mostly for playing games and for accessing his Facebook profile, although he prefers computer to tablet. He gives it to his sister only occasionally to play the Talking Cat game. All the games and apps on the tablet have been installed by the father, but Spas, 7 (BG09b7) has told him what he wanted to have.

Spas, 7 (BG09b7) made his Facebook profile on his own (he mostly uses it to play different games with his friends). He also made his mother’s Facebook profile, but she cannot use it without his help. Spas, 7 (BG09b7) also makes Facebook profiles for other children his age in exchange for a small fee (50 cents). Father periodically checks Spas’s, 7 (BG09b7) Facebook to see what is posted and written there.

When he is not playing outside, Spas, 7 (BG09b7) spends most of the time playing games on the computer or tablet. He loves listening music and watching children films on the computer. He also watches football games and documentaries with his father – especially films about space. His father downloads the films.

Both children watch about 4 hours of TV per day. Their favourite programme is Cartoon Network. They watch National Geographic and Discovery with parents, as well as different TV serials (especially Indian and Turkish).

Teodor, 28, (BG09f28) is highly confident digital user. He describes ICT mostly positive, while Silvia, 25 (BG09m25) is on the opposite end – she finds the digital devices to be very confusing and believes she is unable to learn how to use them on her own. She is happy that Spas, 7 (BG09b7) likes to stay indoors and play on computer, because in this way she does not worry where he is and what he does. Parents believe that the children are too young to come across inappropriate content or conduct.

Silvia, 25 (BG09m25), who is a low user with very low skills, takes great pride in Spas’s, 7 (BG09b7) ICT savviness. He uses devices independently and rarely asks for assistance. During a 5-month period, when father was away (lived and worked in Germany), he was in charge of all ICT activity in the family, including the communication with father over Skype.

The only restriction on use is that Spas, 7 (BG09b7) must complete his school obligations before accessing digital technology. The father has shown both children how to do certain things (access and play a game, start a film) and prefers to leave them to use the ICT on their own, although he frequently plays games that...
they both like with Spas, 7 (BG09b7). He secretly checks the online history to monitor boy’s activity, while Silvia, 25 (BG09m25) is often around and observes what he is doing or watching, although she rarely interferes. Long screen hours are preferred to long hours outside home, in order to protect Spas, 7 (BG09b7) from potentially negative interactions and influences, which parents believe are inevitable part of living in a socially and economically deprived neighbourhood.

“It is very useful [to use computers] because they get familiar with some things and learn about them. Letters, for example...He also knows how to calculate and even argues with me. And usually he is right.”
Leda, 25 (BG10m25)

Family BG 10
Sofia, Bulgaria

Family members
Asen, 30, high digital user, BG10f30
Leda, 25, medium digital user, BG10m25
Kamen, 8, high digital user, BG10b8, second grade
Filip, 5, medium digital user, BG10b5

The family lives in a small bungalow with two rooms in a village-like neighbourhood on the outskirts of Sofia. Both parents have primary education. Asen, 30 (BG10f30) is a manual labourer, while Leda, 25, (BG10m25) is unemployed.

The family has a desktop computer and one TV set. Parents have ordinary mobile phones (no internet connection).

Kamen, 8 (BG10b8) has started using the computer at the age of 5. According to his parents, he uses it only to play games, listen to the music and watch films father has downloaded, and does not surf the web. Kamen, 8 (BG10b8) tells father, which films he wants to watch, and father downloads them and stores them on the desktop, where the boy accesses them. His favourite films are violent low-quality action movies.

The family has only one digital device, which is used by all family members. Parents often play games or watch films, especially when children play outside. When the weather does not permit them to go out, boys take over the computer, but they often argue, as they are interested in different games and films. The family does not have any regulation regarding the screen time, but children are somehow limited by sharing a device with their parents.

If a pop up window appears, or if he accidentally opens an unwanted site, Kamen, 8 (BG10b8) knows how to close it. He is almost never left alone at the computer – one of the parents (usually mother) is always with him and supervises what he is doing. He never goes online via a browser, but uses desktop shortcuts to access a particular site with games, YouTube or a popular Bulgarian video sharing website.
Kamen’s, 8 (BG10b8) favourite games are Bubble Bobble and other arcade games, and games in which he shoots at different objects. On TV, he watches Indian TV serials, Disney Channel and Discovery. Very often, he plays games on the computer of his best friend (a 7-year-old boy) who lives in a neighbouring house. Together they play FIFA and different games on www.friv.com.

Like Kamen, 8 (BG10b8), parents use computer predominantly for entertainment. They play games and watch movies. Father is the one downloading the films from internet. He saves films on the desktop, so that they are easily accessible for the children.

Both parents agree that it is positive and useful if the children play games, watch movies and listen to the music on digital devices. A negative and bad use of ICT would represent “looking at different sites and Facebook” (Leda, 25, BG10m25). These views reflect their own low confidence with ICT, as they use it strictly for entertainment purposes and consider any other use as suspicious and risky. They do not use email and have no social media profiles.

Kamen, 8 (BG10b8) can turn on the computer and find games he wants to play. He can also play a film his father has downloaded and saved on the desktop, but he does not surf the web and cannot download files on his own. All family members use the computer solely for entertainment (games, films, music) and do not consider it as something to be used for work or education.

Computer is often used as a babysitter – it keeps the children inside, which reassures the parents, as they do not have to worry about where the children are and what they do. Parents are fully content with the fact that ICT are used in the family solely for entertainment, but they do acknowledge that children might need also other activities in order to develop and learn.

There are almost no limitations regarding their screen time. Actually, both parents encourage long hours of screen time as a way to keep Kamen, 8 (BG10b8) indoors, where he is safe and under supervision.

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3. Findings

3.1 How do children under the age of 8 engage with new (online) technologies?

Online technologies are an inseparable part of the lives of all children from our sample families. Even the families with the lowest income have at least one television set and a computer. Most families have two or three TVs, two computers and two tablets (in families with two or three children). In seven families, both parents have smart phones, and in several cases, the children (especially older ones) also have them.

Most of the children we interviewed have been using the online technologies at least since the age of six, but quite a few have started as early as 3 or 4. As a rule, those who have older siblings, become active users at a very early age, and they learn by looking at and imitating their brothers and sisters. The first device they start working with is usually PC or laptop, or smart phone belonging to one of the parents. Only after they already demonstrate some basic knowledge and skill in handling digital devices, they are given a tablet or a game console, which is usually considered their ownership. It is common situation that children and parents learn together how to use a particular device such as a tablet.
Children use a variety of devices. They all watch television and use PC or laptop daily. Five use tablets, which they view as their private possession. Seven children frequently use smart phones, but only in three cases, they have their own smart phone – other children take their parents’ devices whenever an opportunity arises. Some of the children used to have their own tablet or smart phone, but they have been damaged beyond repair (usually because of careless handling). The parents either cannot afford to buy them new devices for the time being, or refrain from doing so because they think that the children would break the new one as well.

Five of the families have game consoles, but in only two, they are used actively by the children. In two families, children do not use the console, because they do not consider it interesting, while in one family, it was taken away by the mother, because the children started to imitate aggressive behaviour from the games. One more family used to own a PlayStation, which was regularly used by a child and a father, but they had to sell it, as they needed the money.

Only one family reported having a DVD player, on which children watch discs with movies parents downloaded from the internet. In all other families, children watch films and other content online or on TV.

MP3 players seem to be obsolete. None of the children has it, and they listen to music mostly on smart phones and laptops. Some also watch music programmes on TV.

Table 1: Devices in the families (devices used by a child under 8 are marked with colour)

<table>
<thead>
<tr>
<th>Type of device</th>
<th>BG01</th>
<th>BG02</th>
<th>BG03</th>
<th>BG04</th>
<th>BG05</th>
<th>BG06</th>
<th>BG07</th>
<th>BG08</th>
<th>BG09</th>
<th>BG10</th>
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<tbody>
<tr>
<td>Television</td>
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<tr>
<td>Personal computer</td>
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<td>Laptop</td>
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<td>Tablet</td>
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<tr>
<td>Smart phone</td>
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<td>Mobile phone</td>
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<td>MP3 player</td>
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<td>DVD player</td>
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<tr>
<td>Game console</td>
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</tbody>
</table>

Table 2: Devices owned by a child under eight

<table>
<thead>
<tr>
<th>Type of device</th>
<th>BG01</th>
<th>BG02</th>
<th>BG03</th>
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<td>Television</td>
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<td>Personal computer</td>
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<td>Laptop</td>
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<td>Smart phone</td>
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<td>Mobile phone</td>
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<td>DVD player</td>
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<td>Game console</td>
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Tablets and smart phones are the favourite devices of children. Part of the explanation is the fact that these items are most often considered to be owned by the children, while PCs, laptops and TVs, which are also frequently used, belong to the entire family and are used by all members. Tablets and smart phones are therefore personalised and the settings are arranged in a way to fit best the preferences and needs of the child. The favourite apps, games, films are readily available and easy to use. Some children also note that tablet is an expensive item and as such, they value it more than other devices or toys they have. “Tablet is much more expensive than the PlayStation. I can collect money and buy a PlayStation, but tablet costs five times more.” (BG02b7)
For those children, who do not own or have limited access to a tablet or smart phone (belonging to parents or older siblings), the favourite device is a laptop or a PC. In those families that have both (PC and laptop), a laptop is preferred because it is usually newer and with much better technical capabilities (“It is more interesting and powerful.” (BG06g8).

While television is watched daily by all children, none has named it as a favourite device. This is not surprising, considering that watching TV is predominantly a passive activity children cannot interact or interfere with. This traditional approach to television has changed with the appearance of smart TVs, but for the time being, only a minority of Bulgarian households own them. In those families, which have a smart TV, children are usually more tech savvy than their parents and are the first to learn how to record, play or replay a certain programme. This, however, is not enough to move the TV up the popularity ladder.

**Almost all children use the devices solely for entertainment.** This is especially true for children from low-income families, though in this families parents also report the most significant benefits. All children love to play games – mostly on smart phones, tablets and PC/laptops, and less often on game consoles. The favourite games include Ice Queen and Sonic Dash (BG01g6), SoulCalibur and robot fighting games (BG02b7), Avatar, Agario and Temple Run (BG03b7), Minecraft (BG04g7, BG04b7, BG09b7), different versions of My Talking Cat (BG06g8), Grand Theft Auto and different fighting games played together with older brothers (BG07g6), FIFA (BG09b7, BG10b8), and different arcade and shooting games (BG10b8).

Children most often play by themselves, but playing games with siblings or parents (usually fathers) is also quite common. “We are both gamers. We play football together – we play FIFA.” (BG09f28). It seems that multiplayer games is something that children start appreciating after a certain age. As an older sibling shared with disappointment: “I asked my brother to play against each other again and again but he is not interested” (BG03b10).

**Equally popular pastime is watching films, animation, TV serials and video clips.** Computers and laptops are the preferred device, with smart phones the popular alternative if for some reason, computer is unavailable (used by a parent or an older sibling). While TV is watched daily, devices with internet connection are more popular, because children can chose what they want to watch. For the same reason, the child in the only family, which reported having a DVD player, prefers DVDs with favourite films to the TV programme.

The favourite TV channel of most children is Cartoon Network, followed by other children channels (Disney Channel, Super 8) and documentary channels like Discovery and National Geographic. The later are often watched in the company of one or both parents. All parents are strongly against the Cartoon Network, saying that its programme is filled with violence and inappropriate language. Some have thought about blocking it, while others try to prevent the children to watch it, but without resorting to outright prohibition.

They also watch commercials and visit online shops. Sometimes it is related to their hobby such as the case of the online shop of LEGO, but sometimes it is just random advertisements from across the world. Parents report that children are heavily influenced but all kids of advertising and they are under enormous pressure to provide the advertised product. For instance, in a number of families there were toys on display from the latest campaign of a chain of supermarkets.

**Almost all children like to listen to the music and watch music videos** on YouTube and Vbox7 (the most popular Bulgarian video-sharing site). The favourite devices for playing music are smart phones and laptops.

Technologies are seldom used for purposes other than entertainment. **Several children use them for communication.** Some use Viber, while those without access to a smart phone use Skype, especially for talking to relatives who live in other cities. When his father went abroad to work for several months, BG09b7 used Skype to talk to him. As his mother does not know how to work with Skype, the boy was responsible for making and answering the calls.
Three children like to take their parents’ phones and call or send messages consisting predominantly of emoticons to those people in the contact list they know. “When she decides to send emoticons, she never warns me – she just chooses a victim and starts to spam. But she does it only with a limited number of people. Or she uses ready-made texts and words proposed by the app. These are the kind of messages she is sending.” (BG07m42)

Six children have a Facebook profile, although this is a clear violation of the Facebook requirement that all users have to be at least 13 years old. In most cases, Facebook accounts of children aged 7-8 have been set up by their parents or older siblings with parents’ permission. One boy (BG09b7) has created his own Facebook profile after learning how to do it from older friends. Given the fact that in five out of the six cases, parents have made the children’s’ Facebook profile, it is not surprising that they do not see anything wrong with violating the rules. Most justify their action by saying that most of the child’s friends have profiles, and that without it, their child would be socially isolated. All such parents underline that they are Facebook friends of their children, they know their profile passwords, they approve friend requests the children receive, and they monitor what they do in Facebook. “We teach her that we are friends and that we share everything, there is no other way to understand each other. Some of the kids in her class have a second, secret Facebook profile, that is why we talk about this a lot.” (BG08m35)

As they still cannot read and write well, most kids use Facebook predominantly to post pictures they make with the tablet or smart phone, or to play games with their friends.

At this age, the children are mainly consumers of the content, but to a limited extent, they are producers as well. Shooting pictures and video clips is among the favourite pastimes of all children. They take pictures of practically everything around them – themselves, their families, friends, toys. Sometimes they make videos of themselves playing with siblings or friends, or as if performing on a concert or theatre stage. One girl has a spying wristwatch toy, which is able to record sounds and videos. She likes to take it to kindergarten. “How they sing, how they argue, how they misbehave – she recorded everything. She puts it on her hand and walks around and records – how they sleep, how they are put in their beds.” (BG04f48).

Half of the children from our sample can be classified as basic users and the other half as independent users. Those who are more confident and say they can use all (or most of) the devices independently have become users at the age of 4 to 6 and have learned from an older sibling or parent(s). The younger siblings of children we have interviewed were practically born into the digital environment and have been using the digital devices even before they turned three. In some cases, their abilities to work with digital technologies are practically equal to their sisters and brothers, who are two, three or four years older.

Table 3: Digital skills of the children
All children, who own a tablet, are able to turn it on and off, play games, start an audio or video file stored on the tablet, and take pictures.

Some children, who have more advanced digital skills, edit, post and share the content they make. “I like to install apps for editing and improving the pictures.” (BG06g8)

Parents of those children, who are in preschool, shared that children are still too young to use the online technologies for learning. At this age, they should first learn how to handwrite, rather than type. Some say that technologies have no educational value for children at this young age (BG01m40), while others add that the children are not able to understand the information, which is not suitable for their age, so they simply ignore it or take it as a given (BG04f48). A father of the second grader said that kids should learn only in school, while at home, they should play and rest. “No. Why use it for education? He is learning in the school, I do not bother him with these things at home.” (BG09f28)

3.2 How are new (online) technologies perceived by the different family members?

Children love the devices because they are “cool and my favourite games are installed on it.” (BG01g6) They clearly distinguish between those devices, which they consider their own, and those, which belong to parents or are used by all family members. In the latter case, they seem more concerned with the family rules regulating the use of these devices and follow them much more strictly. For example, when BG03b7 and his older brother use the family laptop, they always open a new browser window, not to disrupt something another family member has been working on. BG07g6 is allowed to install games on her mother’s smart phone and play them, but a condition, which she strictly follows, is that every time she installs a game, she must delete one of the old ones to release space in the memory.

The majority of parents have a positive opinion about the online technologies, but they are aware of numerous risks and dangers related to inappropriate use of the digital devices. The technologies have become a vital part of living in the modern world and if children are denied the opportunity to use them actively and learn, they will fall behind and feel isolated.

Technologies encourage children’s curiosity and desire for learning. They start to read and write (type) earlier, improve their motor skills, develop imagination, learn English words (to be able to play games). BG05m39 said that her daughter learned much about agriculture and mastered English words for fruits and vegetables by playing FarmVille on Facebook. The game also developed her ability to solve complex tasks and made her more patient.

Technologies also help parents, who sometimes use devices as “babysitters.” While children play a game or watch a film, parents are able to finish certain work or have some rest. Internet is also an endless source of information, and parents often consult it when looking for ideas about shared activities, holiday plans, schoolwork or numerous other issues.
Many parents are concerned that technologies, especially if they are used too often and for too long, represent a health risk. They can damage eyes, cause weariness, make children nervous and irritated. A variety of games they play or films they watch stress and frighten the children, and few have problems with recurring nightmares after seeing something that had disturbed them. Several parents shared that overuse of technologies isolates the family members from each other (BG01m40).

Another concern that was raised is the increasing commercialism and consumerism that dominates numerous online services. Some parents try to teach their children to be very critical towards the advertisements they see on the TV and especially in the internet, as many of them are misleading. BG06f40 tries to teach his children to evaluate all information and make decision only after thinking about it and checking other sources as well.

Exposure to inappropriate or harmful for children content is not perceived as a significant risk at this age, because children rarely explore “unknown territories online.” According to parents, children only use the sites and apps they are familiar with and which have been checked and installed by their parents. Many children are not yet able to read and write well enough to surf freely the internet, which is for the time being also a safety barrier against coming across undesired internet content. The parents are aware that in a very near future, this will drastically change and most say that when the time comes, they will have an open and detailed conversation with the children about the online risks and how to avoid them. However, it became clear that children easily access apps such as Facebook, Messenger and Instagram without their parents being aware of that and they often come across inappropriate music by chance on YouTube.

Some parents have already had discussions about online safety with their older children and they believe that the younger child also learnt from that. The major concerns are contacts with ill-meaning strangers and exposure to violent and pornographic content. One mother worries that in the future, her son might be tempted to take and use her credit card to purchase paid games and apps for his tablet (BG02m36).

Peer pressure and harm such as bulling was never mentioned and no parent took measures to discuss netiquette or other social aspects of internet use.

All parents are very dissatisfied with the quality of TV channels for children, with Cartoon Network taking the brunt of their criticism, mostly for inappropriate language and violence.

3.3 How do parents manage their younger children’s use of (online) technologies?

None of the parents believes that digital technologies are harmful for children and that they should be kept away from them. As some parents said (BG04f48, BG06f40), if something is forbidden for the children, they will be tempted to access it even more and eventually, they will find a way to do it behind their parents’ backs. A better way is therefore to give children what they want and to talk openly with them about all potential advantages and risks.

Certain restrictions are in place in some of the families regarding free access to internet and children are only allowed to use applications and content approved and installed by a parent.

No family has in place a set of strict, well-defined rules for children’s use of technologies. Most rely on active, but permissive parental mediation, doing their best to provide the children with an appropriate example and model to follow. Honest and open discussion is seen as the best way to protect them from potentially harmful and inappropriate use. One mother (BG05m39) said that in her opinion, children should be taught to develop self-regulation, rather than be commanded by parents. Several other families share this view, and it seems that quite a few children are taking this approach very seriously. BG08g7, for example, sets the alarm clock to remind her when her time is up.

Nevertheless, there are several rules, which are observed in the majority of families. The most common one is the limitation of the screen time to one to two hours per day (this might be extended on
weekends or when the weather is bad and children cannot play outside the home). Often, the use of technologies depends on certain conditions, for example finishing homework and other schoolwork. Some parents allow longer screen time, if the children use the devices and internet for school and learning (BG03m33).

Another commonly applied rule is that **devices must not be taken outside of the home**, as playing with them outdoors in the company of many children would significantly increase the likelihood of devices being damaged or lost. Of course, not all parents apply this rule. For example, BG02m36 allows her son to take the tablet with him, when he plays outside the apartment block. In this way, she feels assured that the boy will stay close to the building all of the time in order to pick up the Wi-Fi signal.

Some families restrict the use of devices on certain occasions, like family meals or when having guests. This rule in principle applies to all family members, but several parents admitted that they do not always respect it, setting an inappropriate example for the children.

Only one family (BG04) has reported that **parent control software was installed on the devices children use** (tablet, laptop, smart phone). One father (parents have separated, so he does not live with mother and daughter) has installed a special software on daughter’s (BG05g7) smart phone, which enables him to remotely control her communications and online activity.

When children do not behave or do something the parents believe should be punished, they are forbidden to watch TV and use the devices. While restriction of use is a frequent sanction, awarding extra screen time is not seen as an appropriate educational method and is rarely applied.

Many families rely on the assistance of grandparents, who take care of the children after school until the time parents finish their work. While parents are understandably grateful for this support, many remark that grandparents are too permissive regarding the screen time restrictions and when children are with them, they watch too much TV or spend a lot of time playing games on their devices.

In more than half of the cases, children from our sample have received one or more devices as a gift from the extended family members (grandparents, aunts, separated fathers).

### 3.4 What role do these new (online) technologies play in the children’s and parents’ lives?

Online technologies play a very important role in the lives of children and parents from our sample. With very few exceptions, the parents use devices and Internet daily in connection with their work, and practically all use digital technologies at home for entertainment and communication. All children are very active users of technologies, but the range of their digital skills varies considerably.

Children at this age take the digital world for granted. They know that the games they like to play, music they like to listen to or films they like to watch are “there” and they know what they need to do in order to reach them (turn on their device, click on the proper icon). They also distinguish between the online content and the content stored on the device. The main difference between the two, in their opinion, is that to reach the former, you need a Wi-Fi signal, while the latter is always available.

Most of the children have strong emotional attachment to their devices. It seems to be related to the way parents communicate the value of these devices, mainly underscoring their price. Some parents mention that they don’t attribute importance to technology on purpose, so that they are not perceived as valuable belonging by the child. In these families children showed the least attachment to the devices. Nevertheless, while devices and gadgets are important and often most popular “toys,” they are not indispensable. Several of the interviewed children had a tablet or smart phone in the past, but the devices have been damaged or broken, and after the initial period marked by deep sadness, the children accepted the new situation and quickly found other interests.
Digital entertainment is a supplement, not a substitution of “classical” child play. Children continue to play outdoors, to play with different toys, to enjoy drawing and handcraft (paper, plasticine), ride bicycles. If provided with active and attractive alternatives, they can easily forget about the digital devices for prolonged periods of time. However, when a device appears in sight, it can easily attract their full attention. For example, some parents mentioned that children can play wonderfully with their peers in the park or on the playground until the moment, when a child appears with a tablet or a smart phone. Then all children stop playing and form a circle around the kid with the device, observe him/her playing a game and give comments and suggestions.

It was also evident that children transfer knowledge and skills from the online worlds. Many imitate their favourite characters. Sometimes this is perceived by parents as a benefit when children enrich their game repertoire or develop their talents. However, children also tend to imitate aggressive behaviours or repeat offences they heard in a movie.

Like with many other aspects of lives of the youngest children, curiosity is a major factor in their perception of digital technologies. Before they receive a device of their own, tablets, smart phones and laptops are a cause for a wide range of emotions, ranging from excitement to jealousy. Some children, who did not have an access to a device, were magnetically attracted to tablets and smart phones in the hands of other children. When they received a device of their own and their curiosity was satisfied, a digital gadget became just another one of their toys.

Technologies are perceived by parents mainly as something positive – they are provoking children's creativity and develop their imagination. They expand their social circle and help them keep in touch with important people outside their homes (separated parents, relatives, and friends). Even those parents, who have a negative opinion about internet and are concerned with different online risks for their children say that digital technologies are a vital part of the world today and that no person can participate in the society without them. Internet is today essential for learning and education, and later on, children will not be able to find employment without being proficient users of online technologies.

Despite their concerns, most parents have not talked with their children about online risks and dangers, because they consider that they are still too young for such discussions and that for the time being, their online activities are very limited and they do not “step” into the dangerous places online.

Parents note that the technologies have a potential to disrupt the family ties and communication, if they are used without limits and control. When they are used with measure and in a positive way, they can have a reverse effect and connect family members, as they find common interests and activities in the digital space.

Technologies are also a very handy and useful tool for the parents. Internet is a virtually endless source of information and parents consult it on a number of issues – education, health care, entertainment, leisure, shopping. Many parents frequently use devices as “babysitters” – when they cannot pay attention to children, they switch on a TV or laptop, or put a tablet or phone into children’s hands to keep them busy. Most parents are aware about shortcomings of this approach and are quick to add that this does not happen regularly.

All parents declared that they need more information about how to mediate better their children’s use, how to effectively create balance between online and offline activities and how to better protect their children from harm online. Many were interested in the long-term implications of digital device use and asked to receive the report when it is ready. They share that information on that issue is scarce and difficult to obtain and they show readiness to follow recommendations if such are available.

3.5 Surprising findings

One of the more surprising findings was the fact that six out of ten interviewed children aged 6-7 have a Facebook profile. The parents, who have in most cases created the Facebook profiles of their children, explained that a majority of children’s peers (preschool or first grade) have Facebook accounts and
therefore, their children would not fit in and would feel isolated without a Facebook page of their own. All parents underlined that they were aware of the potential risks and they took care to keep the children safe by regularly monitoring their Facebook activity. The interviews revealed that their monitoring was less thorough than some parents like to claim. When asked how many Facebook friends his 7-year-old son has, one father replied that about 60. The boy, however, proudly reported to having over 100 friends.

Having said that most accounts were set up by parents, one exception needs to be noted – the family BG10. The parents were strongly against Facebook, describing it as utterly inappropriate for young children. When talking about their son’s online activities, they stressed that their son used the computer only for good purposes – to play games, listen to the music and watch animated films and not to browse various sites and Facebook (BG10m25). It turned out that their son also had a Facebook profile, created by his friend (a 7-year-old).

Another surprising finding was that despite the pervasiveness of online technologies in the lives of the children and the common ownership of devices, their use in not addressed by the educators. Children are either allowed to use it unrestrictive in school and kindergarten, or there are forbidden with doubtful success. Despite the wide reach that educational institutions have and the WiFi access in most educational institutions, digital literacy is not in the agenda, neither discussions are held with parents that address children’s positive and safe use of technologies.

Yet another surprising finding was that parents do not intentionally encourage positive and creative use of technologies. Most of them believe that simply using the devices makes children experts and no tutoring is necessary. Maybe this stems from the fact that parents themselves do not use technology creatively. In families where parents have an IT background, tutoring takes place and children are encouraged to code or use Photoshop. Only one family reported using educational apps purposefully, but they were pre-installed on the device and children quickly got bored.

Parents show no understanding of the socio-emotional implications of the use of online technologies. Apart from the threat of paedophiles and other ill-intended strangers, parents do not consider online interactions as risky and none of them mentions peers as a potential harm in situations such as bullying. This is probably due to the limited early use of devices as communication tools. However, this is still surprising given that in many families there is an older sibling and for teens online bullying is the most common harm online.
5. Method

5.1 Procedure

The fieldwork procedure was based on the guidelines and ethical norms defined in the agreements with JRC and the project coordinator. The procedure also followed the internal rules and policies of the implementing organisations (Applied Research and Communications Fund and Association Parents), especially the codes for working with children and minors.

The observation protocol for the interviews and all three consent forms (consent from parents to be interviewed, consent from children to be interviewed and parents’ permission for interviewing a child) were translated into Bulgarian. Minor editing was done to the text to accommodate the specific Bulgarian situation and legislation.

The Bulgarian team consisted of three experienced interviewers. During each visit, only two of them attended. Additional research assistant was involved in transcription of the interviews. All interviews with children were conducted by the same interviewer (a psychologist), while interviews with parents were shared between two researchers (a psychologist and a social anthropologist).

All families participating in the research were visited in their homes by two researchers. The visits lasted from one and a half hour to a bit over two hours. The study visits included qualitative semi-structured interviews with one or both parents, and interview with a child, which included different games and playful activities to attract child’s attention and keep him/her focused on the research topic. Sometimes only the child from the target group (6-7 years old) was present during the interview, while on other occasions, older or younger siblings were also present and to a different extent participated in the conversation.

All the visits followed the same structure. At the beginning, the researchers introduced themselves and their organisation, after which they presented the purpose of the study. They assured the families that the information they provide would be used strictly for the purposes of the study and that they would remain anonymous, as their names and all other personal data would be encrypted. They were reminded that they could refuse to answer any question and interrupt or break the interview at any point. The consent forms were explained and handed over to parents and children for signature. The ice-breaking activity with all family members followed, and after it was completed, two “groups” were formed. One researcher went to the children’s room with the child/children, while the other researcher stayed with the parent(s). After one hour to hour and a half, the interviews were completed and all participants gathered again for the concluding part.

5.1.1. The sampling procedure

The study involved 10 families from Sofia. Seven of the families are from the lower end of the social-economic scale, one family is with medium income, and two enjoy higher than average standard of living. In three families, the interviewed child is a single child, two families are with two children, and five families have three children. The ethnicity of eight families is Bulgarian, while the remaining two are Roma.

In accordance with the JRC recruitment plan, the interviewed children were 6 or 7 years old and were active users of digital technologies.

All families were compensated for their participation in the interviews. Parents received a voucher for a supermarket chain, and the children received a bag with presents (informational and educational materials of the Bulgarian Safer Internet Centre, toys, USB).
The families were recruited through schools and NGOs, with which the Bulgarian Safer Internet Centre has cooperated over the years. In general, finding families willing to participate in the study would not represent a problem. However, the strict and quite narrowly defined requirements of the project made recruitment a challenging task. Furthermore, several families which fitted the profile could not allocate the time that would suit all family members, while a few others were not comfortable with allowing the researchers into their homes and would only agree to an interview conducted elsewhere (for example office of the research team).

### 5.1.2. The sample

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<th>e</th>
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(*) Data, provided by the family  
(**) Data provided by the researcher
5.1.3. Implementation of the protocol of observations

All parents were contacted over a phone prior to the interview and explained the purpose of the study. After they expressed their interest and consent, they provided the basic information about themselves, their children and their use of digital technologies. In this way, the researchers checked whether the family fitted the requirements of the study and if the answer was positive, a suitable date and time were agreed for the visit.

Given the fact that all families were informed beforehand about the topic and duration of the visit and expressed their interest, the researchers were expected and in all cases warmly welcomed into the family homes.

All interviews followed the same outline. In the beginning, the researchers introduced themselves and their organisation, after which they presented the purpose of the study. The families were explained that they were under no obligation to answer question they were not comfortable with or did not like, that they had the right to ask questions themselves and to stop the conversation at any time. They were given assurances that everything they shared with the interviewers would be used strictly for the purposes of the study and that they would remain anonymous, as their names and all other personal data would be encrypted.

The interviewers asked the family members if they could record the conversation and explained why the recording was needed for the study. Only one parent refused and in that case, the researcher took detailed notes of the interview. In all other cases, recording devices were switched on at this point and the interviews were recorded in their entirety.

Next, the consent forms were explained and handed over to parents, who read them. A particular care was taken, often with the help of the parents, to explain the meaning of the consent form to the child. After this was done, the parents and the child signed the forms.

The main part of the study visit began with an ice-breaking activity with participation of all family members. By placing relevant cards with illustrations representing different activities on the timetable, the child (with the help of the parents or siblings) revealed to the researchers what he/she is doing on a typical day. Most children were able to read the clock without problems, but some said that they do not have any clocks or watches with hands in their home, as all are digital. The parents were very active in the exercise and often instructed the children which activity to link to a certain time of the day. On few occasions, certain things that were revealed during the exercise took them by surprise. For example, BG04f48 was unpleasantly surprised to learn that children watch TV in preschool.

After the ice-breaker, two “groups” were formed. One researcher stayed with the parents (one or both) and conducted a semi-structured interview with them. The other researcher went with the child (in most cases in presence of other siblings) to his/her room for their interview and to observe how the child uses the digital devices. In some cases, siblings actively participated most of the time, in other cases they were leaving the room and coming back (without considerably interrupting the interview), and yet in third case, they lost interest and left without returning. The presence of older siblings was often valuable, as they guided the younger child and provided important additional information, especially about their own contribution to the digital education of their younger sibling. In contrast, the presence of a very young brother or sister tended to be more interruptive, although it was again important to see how in turn a 3-4 years old child imitates and learns the digital skills from the older brother or sister. Not surprisingly, the larger the number of present children was, the longer the interview took and the harder it was to manage it.

The interviews with both parents were also longer than interviews with only one. In most interviews with participation of both parents, fathers asserted themselves as the leading respondents, and mothers supplemented them. Usually, mothers were more talkative about issues related to school, education
and daily routine of children, while fathers dominated the talk about technologies and digital skills of the children. None of the interview topics or questions was problematic or made interviewees feel uncomfortable, and they were happy to discuss them. Illegal download of copy-right protected content such as films, music, programmes and games is perceived as something normal and all interviewees admitted doing it without any hesitation at all. Likewise, the fact that they have created Facebook profiles for their 7-year-old children in clear violation of the existing regulation did not bother the parents a bit. Quite the contrary, father of BG09b7, who has made his Facebook profile on his own, took great pride in his son for “tricking the system.” (BG09f28)

The interviews were completed in one hour to hour and a half, after which all participants gathered again for the concluding part, consisting of several wrapping-up questions. The visits finished with the part, which caused much excitement and joy among children: handing out the gifts. The interviewers thanked the families. Most parents expressed interest in the findings of the study and they were promised to be sent a copy of the report.

5.1.4. Recording

The researchers used audio-recorders to document the interviews. A smart phone was used to take a picture of everything children “produced” as a result of the ice-breaking game, card game and other interactive tools used during the interview. Child’s room and the digital devices he/she uses were also photographed. During the interviews, researchers took additional notes in their notebooks, highlighting specific behavioural patterns, describing the home of the family, its set-up and especially presence of items used by children (toys, books, devices). Taking notes was especially important during interviews with children. The researcher wrote down all observations regarding child’s actions during the games and when using different devices. The researcher also assessed child’s skills and made relevant notes. Special attention was given to children’s emotional responses and nonverbal reactions during the interview.

All families agreed to the recording of the interview, with the exception of one mother, who was not comfortable with speaking in front of the recording device. In her case, the researcher made extensive notes of the conversation.

After the interviews, the two researchers exchanged their impressions, discussed the interviews and compared the information they obtained from the interviews with parents and children.

All parent interviews (apart from the one, which was not recorded) were fully transcribed. Interviews with children contained a significant amount of less relevant information (researcher’s explanations of different games, children were often distracted and strayed from the topic) and instead of full transcription, detailed interview summaries were made.

5.1.5. Implementation of the protocol of analysis

All interviews were coded following the protocol of analysis and the instructions it contains. After the interviews have been transcribed, the interviewers again listened to the audio recordings and made corrections and added notes to the transcriptions. This was especially important in the cases of interviews, which have been transcribed by a person other than the interviewer. While most interviews with the parents were transcribed by a person other than the interviewer. While most interviews with the parents were transcribed word to word, some sections of the conversation, which were not deemed very relevant for the purpose of the study, were only briefly summarised. As described above, interviews with children were not fully transcribed, and instead extensive summaries were made.
The interviews were analysed based on the method of critical discourse analysis (Wodak and Meyer, 2001), which makes it possible to establish the specific contents and frame the topics, and to understand the respondents’ positions on the research themes. Scrutinising the transcribed interviews, we looked for main argumentation strategies, which enabled us to understand how respondents perceived online technologies, their place in the family, their use by children and adults, their awareness of risks and opportunities, and the type of parental mediation with the children’s use of digital devices. After each interview was analysed, all interviews were compared and a matrix of commonalities and differences was set up, making it possible to come up with analytical conclusions. The preliminary protocols were translated into English.
5.2. Discussion

5.2.1 Why might the results have turned out that way?

The sampling strategy has a considerable effect on the results and the findings cannot be taken as representative for the entire Bulgaria. All families live in the capital Sofia, where the share of households, which own digital devices and have access to internet, is significantly higher than in the rest of the country. For example, the data of the 2011 census show that in Sofia, 62.9% of households have internet, and 65.3% own a PC or a laptop. In comparison, the national average is 43.9% for the internet and 46.6% for computers. In most of the smaller towns, these levels are at about 30%, while in the villages, they are below 20% (NSI, 2001).

In Sofia, where the standard of living is much higher than in the rest of the country, the peer pressure to own one or more digital devices is also much stronger. Although no accurate statistical data are available, various studies conducted by the Bulgarian Safer Internet Centre and confirmed by the current research show that the majority of children in Sofia have become active digital users by the age of seven, and many of them own a device (usually a tablet or a smart phone). Outside Sofia, this share would inevitably be smaller.

The peer pressure and the parents’ fear that the child would feel isolated if he/she does not have/use digital devices was strongly underlined also in our interviews. This is especially striking given the fact that seven of our families are in the lower middle or low income class. Despite that, all of them own several devices and stress how important it is that their children have the same access and develop the same skills as their peers from more affluent families.

The majority of parents from our sample have university education, which helps to explain the predominance of permissive and active parental mediation approach. In the two families, where parents were only with primary education, there was a marked contrast. One father, who is a high digital user with advanced digital skills, displayed an active and permissive approach, while in the other family, the parents who were basic users, preferred a passive and restrictive mediation. Although this sample is much too small for making definite conclusions, this fact indicates that parental mediation style depends much more on the parents’ digital skills and confidence than on their education.

A more diverse sample, including families of different social-economic, ethnic and cultural profiles and residing in different parts of the country would undoubtedly produce findings different from the ones presented in the current report.

5.2.2 How could the study be improved?

The ice-breaker exercise is generally a good way to start the interview, although some of the illustrations are hard to recognise or represent an activity or item, which is not prominent in the lives of the Bulgarian children. In contrast, not everything children said that happened on their typical day was illustrated by a card. The ice-breaker is rather long and is then followed by several questions in the interview with the parents, which again focus on the child’s daily routine, creating a sense of repetitiveness. For this reason, in the later interviews, the Bulgarian research team blended warming up questions from parents’ interview (Can you tell me about your family? Can you tell me what your child does during a typical week) with the ice-breaker. This worked well, as it set up good initial dynamics of the interview, while all relevant information was obtained.

The list of questions was long and most of the children felt tired by the end though the interactive activities ensured that the conversation is engaging for the child. The card game proved to be very useful and in the future it could be better to answer the questions around the cards that children use and focus on less devices but go into more depth. Otherwise, children show limited understanding of what their favourite apps are or how often they visit them.
Also, sometimes doing an interview with two children simultaneously proved to be challenging as older siblings rush to answer the questions for the younger child or younger siblings distract the process and demand attention to aspects of their interests that were not related to technologies. Asking children to do something together and observe may be a better approach than asking them how they do it.

5.2.3 What are the methodological recommendations for future research?

A larger scale study need to be carried out in order to produce findings that are generalizable across children and families from different backgrounds. The current study mainly focus on children from low income families because they are more likely to be exposed to risks. However, in order to formulate recommendations for nation-wide policies, the needs and specificity of diverse groups should be taken into consideration.

Additionally, the findings of a larger scale European qualitative study will be well combined with findings from a cross-national quantitative study, as the issue of children’s digital use and its impact is complex and will benefit from being addressed using different methodologies.

5.2.4 What is the future direction for research on this topic?

Future studies should address in a more systematic way the digital literacy skills that children possess and how these skills relate to age, parental mediation, family context and access to technology. This will be valuable information to base upon any policies and practices to guide educational reforms or other national policies.

Longitudinal studies should tackle the questions of impact of digital technologies on the different aspects of child development, what are the risks and benefits on the long run, what kind of parental mediation yields the most positive results, to name a few examples.
6. Conclusions

This report presented the findings from a study conducted in the Bulgarian capital Sofia. The study was based on interviews and observation of ten families with children aged 6-7. Its purpose was to examine how the young children interact with the digital technologies and how do they cope with the digital world. The study has tried to provide answers to four main research questions:

- How do children under the age of 8 engage with new (online) technologies?
- How are new (online) technologies perceived by the different family members?
- What role do these new (online) technologies (smart phones, tablets, computers, video games, apps, etc.) play in the children’s and parents’ lives (separately and in relation to family life in general)?
- How do parents manage their younger children’s use of (online) technologies (at home and/or elsewhere)? Are their strategies more constructive or restrictive?

The study has established that the online technologies occupy a very prominent role in the lives of the young children and their families. By the age of six, children from our sample have become regular users of at least one, but in most cases several digital devices. At this age, they are able to turn the device on and off, they can locate and access the content they are interested in (music, video, game), they are able to use the device to record a video clip or take a photograph and to store them. Most of the 7-year-olds know how to download, install and remove a file (most often a game) from different devices (PC or laptop, tablet, smart phone) and how to communicate with other people using Viber, Skype or Facebook. Some can edit the content they have made.

As a rule, children with older siblings become active digital users two, three or even four years earlier than their older brothers or sisters have. In several families from our sample, we have observed confident 3 or 4-year-olds handling a tablet. The early digital activity is seen by some parents as something normal and inevitable, and a source for concern by others. In both cases, however, the main mediation strategies seem to be restriction of screen time and supervision of what the children are doing with the devices. Most parents do not distinguish between skillful use and positive/beneficial use and devote little, if any, effort to encourage and build early digital literacy and critical thinking. While all children from our sample knew how to access and play a game or a movie, none of them knew anything about protection. The closest association children had to the digital safety was that devices should not be thrown or dropped, as they would break.

This does not mean that parents are unaware or unconcerned regarding the multitude of risks their children might encounter in the virtual space. Some of the parents, whose older children are in their teens, shared practical examples of some unpleasant situations their older children came across in the internet (pornography, extreme violence). They have talked openly and constructively with them about these and other potential dangers online, how to avoid them and what to do if they occur again. However, they all believe that 6 or 7 is too young an age for such a conversation and they plan to postpone it until “the time is right.” The interviews with the children show that the time is not only right – it is dangerously close to becoming late. Children are exposed to a multitude of risks from the moment they take a device in their hands and the only way to protect them is to develop their digital literacy along with their technical digital skills.
6.1. Key findings

1. Online technologies are an inseparable part of the lives of all children from our sample families. Even the families with the lowest income have at least one television set and a computer. Most families have two or three TVs, two computers, two tablets as well as smartphones and children start using them as early as 3 or 4. As a rule, those who have older siblings, become active users at a very early age, and they learn by looking at and imitating their brothers and sisters.

2. Tablets and smart phones are the favourite devices of children. For those children, who do not have access to a tablet or smart phone, the favourite device is a laptop or a PC. While television is watched daily by all children, none has named it as a favourite device. Game consoles do not appear to be popular with children in this age group, while DVD and MP3 players seem obsolete, as children prefer to watch videos online and listen to the music stored on smart phones.

3. Children are quick to learn basic operational skills. About a half of the children from the study can be considered independent users, but a display of more advanced online competencies is rare. Children see internet as a given. They do not know what online space represents and how it functions. For them, games, films, music simply exist and are there for them to watch and play. Some children are not passive consumers, but are able to produce content as well (making audio and video clips, photographs, drawings using programmes like Paint).

4. Almost all children use the devices solely for entertainment. This is especially true for children from low-income families, though in this families parents also report the most significant benefits. All children love to play games – mostly on smart phones, tablets and PC/laptops, and less often on game consoles. They most often play by themselves, but playing games with siblings or parents (usually fathers) is also quite common. Equally popular pastime is watching films, animation, TV serials and video clips. They also watch commercials and visit online shops.

5. Several children use technologies for communication (Viber, Skype, Facebook). Six children have a Facebook profile, which has been set up by their parents or older siblings with parents’ permission. Parents say that without it, their child would be socially isolated, as most of their peers are on Facebook.

6. Children clearly distinguish between those devices, which they consider their own, and those, which belong to parents or are used by all family members. In the latter case, they seem more concerned with the family rules regulating the use of these devices and follow them much more strictly.

7. The majority of parents have a positive opinion about the online technologies, as they encourage children's curiosity and desire for learning. However, few underscored the educational value of devices and most stress the importance of developing traditional literacy such as handwriting and reading. Technologies also help parents, who sometimes use the devices as “babysitters.” On the other hand, they are concerned that if they are used too often and for too long, technologies represent a health risk.

8. Parents are also concern about the “stranger danger”, but they see it as a distant risk. Few share concerns related to exposure to violent content that can potentially scare the child. Few parents also worry about the commercial and consumerist aspects of online world, and about misleading information children might come across, despite evidence that children are keen on watching advertisements or browse online shops. Exposure to inappropriate or harmful for children content is not perceived as a significant risk at this age, because according to the parents children rarely explore unknown territories online and only use the sites and apps they are familiar with and which have been checked and installed by their parents. However, it became clear that children intentionally access apps such as Facebook, Messenger and Instagram without their parents being aware of that and they often come across inappropriate music by chance on YouTube.
9. All parents declared that they need more information about how to mediate better their children’s use, how to effectively create balance between online and offline activities and how to better protect their children from harm online. Many were interested in the long-term implications of digital devices use. They share that information on that issue is scarce and difficult to obtain and they show readiness to follow recommendations if such are available.

10. No family enforces strict, well-defined rules for children’s use of technologies. Most rely on active, but permissive parental mediation, doing their best to provide the children with an appropriate example and model to follow. Nevertheless, there are several rules, which are observed in the majority of families - limitation of the screen time to one to two hours per day; children are not allowed to take devices outside of the home if parents are not with them; devices are not to be used during means or when having guests. Only one family has installed parental control software on the devices children use.

11. Most of the children have strong emotional attachment to their devices. It seems to be related to the way parents communicate the value of these devices, mainly underscoring their price. Some parents mention that they don’t attribute importance to technology on purpose, so that they are not perceived as valuable belonging by the child. In these families children showed the least attachment to the devices.

Recommendations

Recommendations to Policy-makers

- The existing policies such as national strategies and plans for safeguarding children and promoting and protecting their rights must take into account the reality that children start using digital technologies very early. This should be addressed in a proper way by championing early digital literacy, encouraging high quality positive online content, preventing potential online crimes against children and prosecuting them efficiently when they occur.

- Regular and systematic assessment of children’s use of digital technologies, risks, opportunities and skills should be carried out in order to inform the policy making to implement measures that are up-to-date and adequate to the needs of the children at different ages and from different backgrounds.

- Services and campaigns should be supported that inform parents and professionals on the children’s use of technologies, the importance of digital literacy and approaches to increase the benefit of digital devices while decreasing the potential harm.

Recommendations to Industries

- Media companies and especially TV channels must adopt and follow standards for high quality child content in order to limit exposure of young children to improper language or behaviour that they further imitate.

- Family and children oriented websites and apps can provide online safety advices for parents including information for options to report content or find advice.

- As the age of the users is decreasing, privacy and security settings, any added-value services or options to report must be communicated clearly to the users in a way that is appropriate for their age as many young children use technologies independently.
Recommendations to Parents and carers

- Given the early adoption of mobile devices and their independent use, often outside of the home, parents should encourage the early digital literacy of their children focusing on critical thinking and problem solving skills.
- Furthermore, parents should be aware that use does not equal benefit and if the child is to benefit from the use of technologies, creative activities should be introduced and actively encouraged.
- Parents should address risks such as exposure to inappropriate content such as movies and games with violence, as well as commercial content as this is something that children often come across online.
- Parents should regularly update their knowledge and skills with regard to the available apps and websites that foster children’s development or improve the safety of the devices as technologies change rapidly.

Recommendations to Schools

- Most children enter school as independent, yet vulnerable users of digital technologies. It is therefore an urgent task of the educational system to update the curriculum and address the needs of children to be digitally literate.
- Schools should safeguard the infrastructure and have clear safety rules of device use as most children bring their devices to kindergarten or school and use the Wi-Fi internet available there.
- Few schools have modern computer labs, but most children, even the ones from the most vulnerable communities, have their own devices and they bring them to school, which is an untapped resource that can be used to engage children in educational activities while encouraging early digital literacy and closing the digital divide.

Proposal for implementations

- Regular larger scale national quantitative and qualitative studies should be carried out producing comparable data across Europe to allow following trends, generating predictions and providing background for timely implementation of effective policies and practices both at a national and European level.
- A national policy addressing the positive and safe use of digital technologies should be devised and implemented. It should engage all key stakeholders such as parents, educational institutions, social services, NGOs, industry representatives and decision makers in order to develop and implement evidence-based measures to protect and empower children in the digital age.
- Digital literacy should become part of the school curriculum from pre-school. Teachers should be trained to work with parents and children on issues concerning digital literacy and be able to facilitate the use of digital devices in the classroom in a way supporting children’s learning.
- Educational institutions should adopt policies and practices that encourage the digital literacy of the children and safeguard them from online as well as offline harm. Preferably this should be done in partnership with the children and their parents to increase ownership and adherence to the rules. There are tools such as the E-safety label, developed by European Schoolnet, which can facilitate the process.
- Parents and professionals should be informed about the potential harm associated with different aspects of online use and measures to mitigate it. They should also be able to access up-to-date information concerning how to develop their children’s digital literacy, where they can look for help or report any inappropriate content, for example, through the services of the national safer internet centres.
A code of ethical conduct can be developed with and signed by all major providers of children-targeted content including standards for positive online content. Example of comprehensive guidelines have been developed by the POSCON.

7. References


