YOUNG CHILDREN (0-8) AND DIGITAL TECHNOLOGY

A qualitative exploratory study - National report - LATVIA

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Executive summary

[Type the executive summary of the document here. It should give the big picture of the report, its keys findings, recommendations and proposal of implementations. Max 2 pages]

Key findings

- The obtained data show that a wide range of technologies and intensive use of them is considered as a norm in the households, children's technical skills correspond to the particular age, as well as the reasons for using technologies are increasingly associated with entertainment rather than with searching for a practically useful information and performing deliberate learning activities, but they also indicate a certain type of habits.
- Families rarely practice a joint and purposeful acquisition of technologies, but it is mostly supported from parents' side or based on tactics of unsupervised children's attempts and principle of randomness. There could be mentioned several reasons for parents' lack of participation or fragmentation: they are not interested in helping children to learn to use the technologies because they see a learning potential in this activity, they themselves are unable to handle the technologies so skillfully to teach their children, they consider them to be negative, therefore, despite the fact that the parents have purchased the technologies and allow the child to use them, as a matter of principle, they do not consider it to be appropriate to help children to learn to use them, parents have not immersed themselves in this issue, thus allowing the process to run its course.
- Although neither the parents' nor the children's use of technologies as a whole suggested any specific potential threats, however, regular habits do not necessarily indicate an in-depth understanding and systemic strategic approach in the action. In general, the parents in the families do not implement a well-considered media education, and they have not purposefully developed an approach to technology use based on psychological and pedagogical arguments. This is indicated by the inconsistency of imposing the rules and requirements (time of the day, duration, type of technology, operational specifics), fragmentation in their implementation, as well as a voluntary use of technologies within the framework of implementing parental authority outside the technology area by rewarding or punishing children, by disciplining them with restrictions regarding technology use, as well as by regulating the free time of the parents to meet their own needs.
- The fact that media education is not implemented purposefully is justified by the fact that the parents are lacking media competence that would increase the confidence regarding the appropriate choice of parenting approach. Understanding both the usefulness and potential risks of the technologies is more abstract and intuitive, the arguments are often irrational and not from in-depth studies of literature, or based on conclusion of the field specialists, but rather on personal assumptions, oral messages of the media and the bystanders. Several families represented a belief that media education becomes relevant at a certain age, which is not defined within this study, and that the surveyed children have not yet reached such age, therefore, in parents' opinion, poorly targeted approach is still acceptable.

- Parents' lack of knowledge or unwillingness to analyze the issues regarding the impact of technologies is also revealed by children's superficial understanding of the risks associated with the technology use. The children associate the risks of technology use more with physical threats, which are more evidently identifiable and easier to understand for child's perception - the children are aware of the mechanically technical damage to the devices themselves and the potential damage to physical health of individuals, the risks of mental health, privacy or safety only in abstract terms.
- Children's technology use habits have correlations with parents' understanding and practice of technology use. A number of parents' understanding and logical courses of action are identifiable:

a) the parents who use technologies actively themselves, but give a relatively little thought to the content and superficially reflect on the consequences of technology use, they are more familiar with the child's digital activity habits and are less skeptical about children's interest in technologies, and mostly slightly critically liberal with regard to the child's urge to use technologies on a daily basis. The parents in this model prioritize the value and importance of technologies, but they pay secondary attention to the child's physical and emotional safety.

b) the parents who use technologies actively themselves, they look into the content and see the correlations between the use and consequences, they are more demanding with regard to the child as a user, and do not only limit the number, types, duration of use of the technologies, but also ask children to critically assess the role of technologies in general according to their age, their positive and negative features, as well as they orient children towards self-discipline with regard to the technology use by providing parents' assistance in the virtual reality.

c) the parents who see more negative trends in the existence and use of the technologies, they are passive and comparatively rarely use technologies. In such a model raising of a child is more dominated by prohibition to use technologies, which is not explained with reasonable arguments, or minimal attention is paid to children's technology usage habits.

d) the so-called rational technology use model was identified in which the parents are aware of the role of technologies in the present and the future, consider them to be a normal routine components of the family, however, they are aware of and understand the risks involved with regard to the raising of children by trying to balance between the virtual and real activities and by promoting the understanding of the child, as opposed to other models where parents are more focused on the inheritance of views, by not clarifying the reasons and therefore not promoting the child's ability to judge and media competence. In this model the parents, unlike the others, believe that the media competence should be gradually formed from an early age.

e) data from the study allowed to identify a gender contrast model in the parenting approach, in which the fathers are relatively less prejudiced and more technically competent technology users, and delegate more freedom to their children, while mothers are more conservative technology users, who develop more detailed provisions of use for children and often for spouses as well, so that it would be an example for children.

- Despite the extensive range of technologies both in households with low income and high-income, the children attaches high priority to the activities of real life - plays, games, physical activities, social contacts, suggesting that the environments are separated and the child is able to choose what he prefers in them both.
- Inconsiderate and non-purposeful media education in families also influences the purchase of technologies the reason for which is mostly the availability and affordability of the product in the market, changing fashion trends in technology acquisition, which is associated with a certain affiliation to social circles, implementation tool of penalty and reward system rather than care for achieving particular parenting and learning objectives.

Recommendations

1. Recommendations to Policy-makers [particularly important]

At the national level in general:

- to increase support for targeted virtualization of education at all levels, ensuring its gradual integration and continuity from pre-school to higher education level and legitimizing it as one of the priorities of competence-based education in laws and regulations, whilst providing access to technology and promoting effective use of it in the educational practice;
- to ensure a regular long-term distribution of informative narrative (social shares, didactic materials, thematic activities, etc.) about justification for the necessity of educational virtualization in order to raise public awareness about technology literacy as one of the core competencies of the individual;
- to raise funds for education management representatives in order to provide a systemic support for teachers and parents for improving media expertise in further education.

2. Recommendations to Industries

To technology manufacturers and distributors:

- technology producers should cooperate with the professionals from educational sector so that the technologies could be effectively used in order to achieve learning objectives and so that the pedagogical content could be integrated into the technical solutions;
- in collaboration with education professionals, the research should be implemented in order to identify the actual needs of the users and to identify their feasibility at all levels, for the next few years by prioritizing preparation of technology and digital materials for pre-school stage;
- to compile and promote examples of the effective use of technologies;
- in collaboration with educational institutions of all levels, to organize practical and interactive activities of acquiring to use technologies for teachers, parents, children and other interested persons, as well to develop didactic and informative materials, such as manuals for different target groups.
- to implement amplification of safety features in the technology manufacturing sector.

3. Recommendations to Parents and carers

- to consider their media competence as a tool to become a skilled mentor to the child;
- to recognize and to use the possibilities of further education in order to promote awareness of the diversity of technology use and to improve the skills in using tools;
- to purposefully implement effective media education in the family in collaboration with educational institutions, by developing a critical and safe approach to the usage, by developing a systemic supervisory model with consistent, reasonable rules and by providing user support;

4. Recommendations to School, libraries, Museums …

- to provide monitoring of the educational virtualization and management within the framework of the institutions, in order to actively participate in the making process of the educational virtualization discourse;
- to provide access to technologies for the management of educational institutions (especially pre-school), as well as to systemically organize training activities for improving media competence of teachers, parents and children;
- to create a motivation system for teachers that would facilitate meaningful integration of the technologies within the teaching content;
- teachers should ensure that the technologies would be meaningfully integrated in the learning activities, ensuring the efficiency and quality of the use in order to effectively achieve the learning objectives.
- library management and general staff should integrate the technological innovations in the everyday work processes and improve the level of their tool literacy in order to provide an adequate service and to actively participate in the making process of the educational virtualization discourse.
- museum management and general staff should integrate the technological innovations in the everyday work processes and improve the level of their tool literacy in order to provide an adequate service and to actively participate in the making process of the educational virtualization discourse.

1. Introduction

This study is conducted in the framework of the JRC's Project ECIT, Empowering Citizens' Rights in emerging ICT (Project n. 572). ECIT deals with "0-8 Young Children & Digital Technology". Research in Latvia was done by team of researchers - Dr. Zanda Rubene, Dr. Linda Daniela, Dr. Daiga Kalniņa, Dr. Nora Jansone Ratinika, Dr. Ilze Dinka, Raimonds Strods, Baiba Āriņa, Ieva Valpētere, Kristīne Kriņģele. Research was supported by Latvian Safer Internet Centre, Microsoft Latvia and British Councile.

Research focusing on the benefits and challenges associated with children's use of the Internet has, so far, mainly targeted 9-16 years old (see, for example, the EU Kids Online research carried out since 2006). Yet, research shows that children are going online at an increasingly younger age. However, "young children's lack of technical, critical and social skills may pose [a greater] risk" (Livingstone et al., 2011, p.3). In spite of the substantial increase in usage by very young children, research seems to be lagging behind. Therefore, research targeting 0-8 years old and which explores the benefits and risks of their online engagement is imperative.

In collaboration with a selected group of academic partners in different European countries, the present study is a qualitative study that aims at exploring young children and their families` experiences with new technologies. In particular, we will look at their (online) technological engagement as well as the potential benefits and risks associated to their (online) interactions with new technologies. Its results will serve as a basis for policy recommendations in country and Europe level, and what should be looked at when launching larger EU studies on the benefits and challenges associated to young children`s use of new (online) technologies.

The **aim** of our research is to generate data to address the overall question, in **what ways, if any, are children and/or their families empowered by the use of new (online) technologies?** In other words, what benefits or risks can be identified from the research, regarding young children's use of digital technologies at home?

In 2014, four areas of specific investigation have been identified (see below). The first two areas were core to the study, and the second two were be investigated as additional areas, insofar as time with the families permits.

As a general consideration, the interviewers focused on the HOW, WHY and its own observations. She/he will as well explore and take notes of interesting quotes/stories from the children and parents.

In this research 4 topics or dimensions have been identified (USE, PERCEPTIONS/ATTITUDES, INDIVUDUAL CONTEXT, FAMILY CONTEXT) and linked to the 4 main research questions (RQ) as shown in Table 1.

Table 1. Research dimensions and research questions.

	INDIVIDUAL CONTEXT	**FAMILY CONTEXT**
USE	**RQ 1:** Individual Use: children/ parents	**RQ 3:** Family Use/ Dynamics/ Practices
PERCEPTIONS/ ATTITUDES	**RQ 2:** Awareness to risks/opportunities •of the children •of the parents	**RQ 4:** Parental Mediation •passive/ active •restrictive/ permissive •implicit/ explicit •reverse mediation

Under this new frame, RQ 1 and RQ 2 remain clearly the core questions that the sets of questions of RQ 3 and 4 will complete to go behind the individual context and explore the family context and mediation.

According to this framework, four research questions were developed:

- RQ 1: How do children under the age of 8 engage with new (online) technologies?
- RQ 2: How are new (online) technologies perceived by the different family members?
- RQ 3: What role do these new (online) technologies (smartphones, tablets, computers, video games, apps, etc.) play in the children's and parents' lives (separately and in relation to family life in general)?
- RQ 4: How do parents manage their younger children's use of (online) technologies (at home and/or elsewhere)? Are their strategies more constructive or restrictive?

It has been underlined that most of the data collected for the children's part came mostly from observations and from the interview generated by the support of the card game and activity book. The questions present in the chart and in the interview schedule helped the researcher either to prompt the children in their actions or to clarify her/his own observation. To this end, it has been chosen to keep all questions of the first version of the Research Questions Chart and of the interviews' schedules but introducing the new perceptive of seeing them as a 'toolkit' provided to the interviewers. They used this collection of questions in which he/she will freely picked questions in order to help them to gather data for the 4 dimensions (USE, PERCEPTIONS/ATTITUDES, INDIVUDUAL CONTEXT, FAMILY CONTEXT) that do not comes spontaneously during the observation/interview.

The semi-conducted interviews of the parents, beyond the sets of questions, were as well supported by tools that here as well were freely used following the dynamic of the interview at the exception of the ice-breaking activity (activity book) and the card game that was used in all interviews. Structure of interviews is shown in Table 2.

Table 2. Structure of parents and children interviews.

Interview parts/tools	Ice-breaking	Parents	Children
The activity book	X		
The card game + smiley		X	X
The word cards		X	
The ICT use chart		X	
The Digital tour			X
Taking pictures by children			X
Drawings			X
Apps and Digital services logo and icones			X

2. Family Portrait Gallery

To ground the findings and to give a flavour of the diversity of family circumstances involved, this section will present the ten interviewed families within anonymised short narratives, following this structure:

a. Information about the family members: age, profession, level of digital skills according to ages (see overview about all families in Table 3 after narratives of all families).

b. Overview of technology at home:
   - What they posses?
   - What they use/ what children are allowed to use?
   - How they use?
   - Which is the access/ ownership (difference)? (see the overview in Annex 1).

c. Short answer to all three research themes:
   1. Use (individual and family contexts).
   2. Perception/ attitudes (individual and family contexts).
   3. Parental Mediation preferences.

The prior activities of children was detected to see the priority of using technologys as free-time activity against other traditional free-time activities (see the overview in Annex 2).

Family LV 01

Latvia

Family members

- Dad, LV1f37, army officer, medium level of digital skills
- Mum, LV1m35, army officer, medium level of digital skills
- **Girl, LV1g7, completed kindergarten, going into first grade this autumn, medium level of digital skills**
- Boy, LV1b1, living at home with mother, high level of digital skills for his age

Narrative

A family with low incomes. The family has a digital TV set, DVD player, portable computer, tablet, mp3 music player, smartphones, and electric piano. The **child is allowed to use all devices.** Out of the above-mentioned devices, the child **owns the tablet and the mp3 music player.**

> "Computer fluency, but knows those things, which is engaged. If she encounter any problems, then she called for help", mother, 35,

According to his age and interests, the **child effectively uses 10 devices**, including the digital TV set, portable computer, tablet, smartphone, portable game console, radio, digital piano. He uses the TV set mostly for watching cartoons and uses the smartphone, tablet and portable computer for playing games and watching cartoons on YouTube. The **child is able to download games, to take photos and to film, as well as to call (including on Skype) to his closest relatives, etc**. He **mastered use of technologies by observing and imitating his parents, as well as trying himself to learn what will happen if he pushes particular icons. The parents explained to him use of some devices.**

The devices are used for entertainment purposes in the morning before going to kindergarten and in the evening. However, the **kid prefers playing with pets, cycling, reading books and playing musical instrument.** The digital devices rank fifth (game console) among various toys which he likes to use most. The next digital device is the portable computer (ranks sixth).

Time of use of the devices is not strictly regulated, but for each time of use the parents determine the duration of use. Overall, the kid uses the devices for 2-5 hours a day. They are used not only for the kid's entertainment, but also for family recreation like watching cartoons.

The parents are aware that digital technologies play an important role in the kid's life and understand the significance of their skillful use in the kid's future. **Permission to use the devices or their giving as a gift is also considered as praise and reward, meanwhile prohibition to use the devices is often considered as a punishment.**

At the same time, the parents are also aware of the risk of use of technologies. The kid is **aware of the risk caused by technologies, but mostly he is afraid of short circuit that can cause a fire and of viruses that can damage the device. He is not aware of the risks related to personal safety in communication with strangers and impact on health of improper use of technologies.**

The **parents do not control the content of what the kid watches, because they believe that the kid himself chooses a content relevant to his interests**. However, the parents do not allow play games based on rivalry with the computer in order not to make the kid avoid the sense of disappointment.

The parents have set rules for time and duration of use of technologies, as well as ensure that the devices are not damaged. The kid has to ask permission to use a digital device every time.

The family has different rules for the younger and the older kids, for example, the **little kid is allowed to play with the digital watch unsupervised, while the older kid is not allowed** to do it because it is

considered that the older kid can try out various functions, change settings and download additional programs. In general, the parenting style is characterized as authoritative.

Family LV 02

Latvia

Family members

- Dad, LV2f27, Carpenter, medium level of digital skills
- Mum, LV2m28, Assistant of kindergarten teacher, medium level of digital skills
- **Boy, LV2b6, kindergarten, going in to 1st grade this autumn, medium level of digital skills**
- Boy, LV2b2, kindergarten, medium level of digital skills for his age

Narrative

> "We don't play games on our computer at all, and do not give computer to children", mother, 28, (LV2m28)

A family with low incomes. The family consists of father who is a carpenter, mother who is an assistant of kindergarten teacher, a child who is six years old and attends kindergarten, and his younger brother who is two years and attends kindergarten, too. The family has a digital TV set, DVD player, audio system, computer, tablet, mobile phone, smartphones and game console. Out of the above-mentioned devices, the **kid is not allowed to use the audio system, computer and game console**. The **kid himself owns the mobile phone. He may use the TV set, DVD player, smartphones and tablet sometime**, but he has to ask the parents' permission. The family's parenting style can be regarded as authoritative.

According to his age and interests, the child **effectively uses four devices**, including the digital TV set, DVD player, tablet and smartphone. He uses the TV set mostly for watching cartoons and uses the smartphone and tablet for playing games (Candy crash, Crazy dentist, Minecraft, Angry birds) (that he sometimes do with his family) and watching movies and cartoons on YouTube. Sometimes he also uses the computer to listen to the radio, which is turned on by his mom. The **child is able to download games and videos, to take pictures and to film, as well as call (including on Skype) to his closest relatives (aunt),** etc. The kid **cannot describe exactly the process of technology acquisition, but thinks that mostly it happened by simple trying to push different buttons or watching what his parents are doing, as well as through direct support of the parents**. Television watching time is not restricted, but in most cases it is watched in the morning before going to kindergarten.

Devices are used for entertainment purposes in the morning before going to kindergarten, when the kid watches cartoons, and in the evening, when he plays games or do other activities. There are devices which he himself knows how to turn them on and use (e.g., smartphone), and there are devices which must be turned on by the parents (computer). He knows names and purposes of use of some devices, but cannot show how to use them. From other activities that are not digital, the kid prefers watching movies together with his dad, playing with a variety of toys, doing sports activities and other outdoor activities.

Duration of use of the devices is not strictly regulated, but is mostly determined through mutual negotiations and agreements with the kid. The **parents are also trying to keep an eye on what the kid is doing in the digital environment**. The parents assert that there is no strict rules, but the kid says that rules do exist. The kid accepts the parents' rules. The **parents claim to have set rules for time and duration of use of technologies, as well as ensure that the devices are not damaged. The kid has to ask permission to use a digital device every time, however he claims that there are things that he can do without permission and there are also some rules that he violates when the parents do not see it.** He also tells that once he had damaged the computer and then made himself sit in a corner in order to punish himself for the fault. In general, it can be assumed that some kind of rules do exist, but they are not strictly defined.

Overall, the kid uses the devices for 2-5 hours a day. They are used not only for the kid's entertainment, but also for family recreation like watching cartoons and playing games.

The parents are aware that digital technologies play an important role in the kid's life and understand the significance of their skilful use in the kid's future, as they understand that the kid is interested in the technologies.

At the same time, parents are also aware of the risk of use of technologies since they know that the child lacks certain competence. The parents also recognize that technologies have a big impact on the overall family's life, therefore the parents are also involved in the kid's activities that he is doing or trying to do by means of the digital media, however the parents also purposefully organize activities that are not related to the digital media. The p**arents even claim that they do not allow the kid to use the computer at all, but the kid knows how to turn it on by connecting the cables and overcoming obstacles that are established to prevent the kid from using the computer.** He is able to show everything. The **kid says he is aware of the risks caused by technologies, but cannot explain what they could be.**

The family has **different rules for the younger and older kids**, for example, the parents allow the older kid to turn on Youtube channel on the TV set, but the little kid is not allowed to do it yet. In general, the parenting style is characterized as authoritative.

Arranging the cards, the kid puts board games and swimming as the first choice, and ranks the tablet only third followed by the TV set, toys and smartphone. As the least important, he states playing outdoors, though in the conversation he has said that it is something he likes to do and he could play outside even at night, if only parents allow it.

Family LV 03

Latvia

Family members

- Mum, LV3m39, manicure, high level of digital skills
- **Girl, LV3g7, completed kindergarten, going into first grade, medium level of digital skills**
- Girl, LV3b20, finished secondary school and hairdressing courses, high level of digital skills
- Grandmother, LV3gm65, inspector of social department, medium level of digital skills

Narrative

A family with low incomes. The family consists of mother, daughter studying in first grade, and grandmother who does not participate in the conversation, as well as it is not mentioned that the grandmother has set any ruler or teaches how to any of digital devices. Father does not live with the family and is not mentioned. There is an older sister, who is 20 years old. The mother has a boyfriend who does not live together with the family, but who has shown some games and taught how to use them. **He has also explained several safety rules**. The family has a computer, digital TV set, laptop, tablet, smartphone with an active SIM card. Out of the above-mentioned devices, the **kid is allowed to use the things that she owns.** These are the tablet and smartphone. Sometimes she is also allowed to use the TV set and the mother's portable computer. The family's parenting style can be regarded as authoritative.

> "Sometimes mom helps me with the phone, as if I loading a new game, then there's all written in English, and I do not understand what to press", girl, 7, (LV3g7)

Sometimes the kid watches TV, but it takes less than one hour a day. She is able to turn on the TV set by herself, as well as to adjust the volume and choose channels. Sometimes together with her mother, she watches some movies (comedies), and sometimes – cartoons. **As for use of tablets and personal smartphone, there are no any rules. The only limit is running the battery down**. She **uses the computer to play computer games with her friend. She uses the smartphone to play a variety of games** (Red ball and Paw), she is able to call and write messages, take pictures. **If she needs a new game or there is something else incomprehensible, then mom helps.** However, she **would like mom to help even more**. Sometimes she listens to music on the radio, but it is always turned on and off only by mom. Sometimes mom allows using her portable computer, using which the girl enters the social network "draugiem.lv", where she plays games, or plays Super Mario and Candy Crash on the Internet that are harder to play on a phone or tablet. **Mom helped the girl to create a profile on the social network "draugiem.lv", and now she also helps to invite friends and write them letters and greetings**. The portable computer is rarely used because it is difficult for the girl to figure out what to do with it. The girl uses the tablet for playing games. The most favourite game is Minecraft. The girl would miss the table most if she ever had to stop using technologies. The kid says that **mom taught her to use most of the technologies, while sister (20 years) helped to learn how to use telephone and tablet. The mother's boyfriend taught to play the Candy Crash game.**

The **devices are used any time the kid wants to use them, and there are no specific rules for their use**. There are no different rules for the elder sister. To the question whether it is clear how to behave on the Internet, the **kid replies that something bad can happen on the social network "Draugi", but cannot say what exactly**. **She has not had a discussion on such things with her mother.** During the conversation, the mother reveals that the girl is afraid to use any devices without the mother's presence. Event when using the social network "Draugi", the girl never opens letters by herself but asks mom to do it, and if someone calls from an unfamiliar phone number, she never takes the call. **Mom says that she has never discussed anything related to safety with the girl and thinks that it is unnecessary right now, since she sees that the child treats everything with suspicion.**

Overall, the kid uses the devices for up to one hour a day.

Out of the activities that the kid likes to do without digital technologies, she referred to family's sports activities, board games, Lego and colouring books. The girl watches movies and cartoons together with her mother, as well as sportscasts – together with her grandmother.

Arranging the cards, the kid puts LEGO as the first choice, followed by sporting activities, drawing. Smartphone is ranked only tenth. As the last choice activity (16th), the girl refers to books.

Family LV 04

Latvia

Family members

- Dad, LV4f51, Carpenter, medium level of digital skills
- Mum, LV4m49, Customer service specialist, low level of digital skills
- **Girl, LV4g7, completed kindergarten, going into first grade this autumn, medium level of digital skills**
- Girl, LV4g9, attending school (2nd Primary), high level of digital skills
- Grandmother, LV4gm79, pensioner, no digital skills

Narrative

A family with low incomes. The family consists of mother, father, a girl who at the time of the interview has completed kindergarten and is going to start attending school, elder sister who attends school and grandmother. The family has a computer, digital TV set, portable computer, smartphone and mp3 music players, which the kid is allowed to use. There is also a tablet, but, according to rules, the child is not allowed to use it. **The kid himself owns a mobile phone**. The family's parenting style can be regarded as authoritative.

> "Sister itself tried at the beginning to use the tablet and then showed me", girl, 7, (LV4g7)

The **kid plays various games, watches TV, and listens to music**. The **only limits for use of technologies are when the computer is not available because the sister plays computer games or the TV set is not available because the grandmother watches TV**. **If the technologies are available for the kid, the kid's activities are not subject to any time limits**. The mother confirms the words of the kid that there are no restrictions since the daughter watches cartoon just a little bit in the morning before going to kindergarten and in the evening. How much time it takes is undetermined, but mom thinks **it might be about 1.5 hours a day.**

When using the TV set, the kid watches the Kidzone channel. The kid is able to turn on the TV set, as well as to show how she does it. She is also able to switch channels to choose her favourite cartoons. She uses the computer to play games and to enter the portal Draugiem.lv where she plays the Aquarium game, which was shown by the sister. The **sister helps her to enter the Internet.** She likes to watch movies and shows about cats and dogs. When mom gives her smartphone, she turns on Youtube to listen to music or fairy tales. The girl says that she really likes cartoons. She watches cartoons on TV, computer, or using computer disks. The sister usually helps her to do it. The girl herself knows how to turn it on, but **mostly relies on her sister.**

She watches cartoons on the computer together with the whole family. The **kid is not allowed to use the tablet, but the girl herself says that sometimes she violates the rules**, and if no one sees, she uses the tablet to play games. The sister usually helps to download the games. The girl uses the radio to listen to music and is able to turn it on and off by herself. She knows how to call on her telephone. If something does not work, it requires the help of her sister or mother. The girl says that **once she even filmed something.** As for social networks, she uses only Draugiem.lv where she has friends and plays games. She also uses Youtube where she watches various videos, listens to music and fairy tales. The girl does not use any other apps. The mother confirms the same. Out of leisure activities that are not associated with digital technologies she prefers Lego and playing with dolls.

To the question about safety of use the digital media, the mother replies that Draugiem.lv has established a variety of safety conditions, and she knows her daughter's password, so she can check what she's doing there at any time. She **believes that if the girl would have experiences a suspicious incident on the Internet, then she definitely would have told her mother.**

Arranging the cards, the kid puts the portable computer as the first choice, followed by sporting activities. Tablet on which it is possible to draw is ranked third, followed by the video game console, TV set, tablet, and smartphone. As the last preference, the girl refers to outdoor activities, drawing, and board games.

Family LV 05

Latvia

Family members

- Dad, LV5f5135 not specified, medium level of digital skills
- Mum, LV5m31, not specified, low level of digital skills
- **Girls, LV5g7, completed kindergarten, going into first grade this autumn, high level of digital skills for her ages**

Narrative

A family with low incomes. The family consists of mother, father, and a girl who at the time of the interview has completed kindergarten and is going to start attending school. In this family, the **kid has her own computer and smartphone that she can use**. Besides, the **kid can use a digital TV set, DVD player, audio system, portable computer, and mp3 music player**. The child is able to read and write by herself. The family's parenting style can be regarded as authoritative.

> "I'd like best the tablet because my cousin have, and it can be very cool to shoot. With my phone now can't take a movie or shoot", girl, 7, (LV5g7)

The kid uses the TV set and computer for watching movies and cartoons. She wants to own a tablet, since it is a cool device for taking pictures, corresponding with others and playing games. She has tried to use the cousin's tablet several times. The girl **plays games on her smartphone and knows how to download them by herself**. The most favourite games are Pet Rescue, Angry Birds, Temple Run, Candy Crash, Zombie Tsunami, Minecraft, and Maya the Bee. Sometimes she plays on dad's phone. In the past, she used the mom's and cousin's phones for playing games. She **uses her phone to make phone calls and send text messages**. Out of the applications on her smartphone, she also **uses Whatsup that she knows how to use for communicating with text messages and sending photos**. Besides, she **knows how to use YouTube where she watches cartoons and videos for little girls, Google where she can find necessary information, and Inbox.lv where she plays games**. From applications, she also knows Facebook that is used not by herself but by her mom, and Nickelodeon that is used by herself to watch cartoons. Together with her family, she sometimes watches movies on TV or computer. They do not play games together, but sometimes she watches her dad playing.

If she had to stop using the digital technologies, she would most miss the computer, TV set and tablet.

She is **allowed to watch TV or spend time playing on computer or smartphone not longer than 2-4 hours.**

The kid knows how to turn the TV set on and off and to find different channels. **Knows how to use her smartphone for making calls, sending text messages, photographing and filming. Together with cousin, she makes films that she uploads on Youtube afterwards**. She does not know how to turn on the DVD by herself. She asks her mom to help her do it. **On the computer, she knows how to open the page Draugiem.lv, and her cousin helped her to create a profile on this social network**. She uses this portal for playing games and corresponding with friends. She has learned from the cousins how to play games, as well as has learned how to enter the Internet, watching the cousin. Dad helped to download Whatsup, however she has learned by herself how to use it for writing messages. Mom has shown how to send photos using Whatsup.

Out of leisure activities that are not related to the digital technologies, she likes reading books, playing games together with other children, riding a bike, swimming and playing board games. In addition, there are specific domestic responsibilities that she has to perform. For example, she has to water flowers both at home and in the greenhouse or to help dad with works in the garden. **If she has not fulfilled any of her**

obligations, she will be forbidden to use the digital devices. For example, she will not be allowed to play on the computer or watch TV.

To the question about safety of use of the digital media, the **mother replies that it is still too early and thinks that if the daughter has had any suspicious incidents, then she would have definitely told her mother about them. Currently, the parents have not installed any safety program, since they believe that it is too early.**

Arranging the cards, the kid puts board games as the first choice, followed by the portable computer, drawing, LEGO, playing ball. As the last preference, the girl refers to outdoor activities and activities that cannot be currently performed because there are no necessary devices at home, such as mp3 player or video game console. In the end of the list, there are also pets that family do not have.

Family LV 06

Latvia

Family members

- Dad, LV6f33 economics, high level of digital skills
- Mum, LV6m31, not specified, high level of digital skills
- **Boy, LV6b6, completed kindergarten, going into first grade this autumn, medium level of digital skills**
- Boy, LV6b2, attending kindergarten, high level of digital skills for his age

Narrative

A family with high incomes. The family consists of mother, father, a boy (6 years) and his little brother (2 years). Both of them attend kindergarten. In the family, the **kid own mp3 player**. Out of the family's devices, **he is allowed to use the TV set, tablet and smartphone**. However, the kid is not allowed to use the DVD, Digibox and portable computer owned by the family. The family's parenting style can be regarded as authoritative.

> " 3 year old just came into being with the smartphone. We do not know how he learned. Some games just learned by himself in smartphone", mother, 31, (LV6m31)

The kid uses the TV set for watching movies and cartoons. He knows how to turn on the TV set by himself and does it in the morning before going to kindergarten. He uses the smartphone to play games. He uses the tablet to watch cartoons and play games, such as Angry birds, Minecraft, Clumsy Ninja, Fruit Ninja, Candy Crash. His most favourite game is Hay Day, but the game that he plays most frequently is Lonely Toones. Usually hi plays on the tablet at home, but the parents also allow to use it when traveling by car **in order not to make the kid feel bored**. Out of applications the kid also uses TV3 Play to watch cartoons that were shown on the previous day. He uses Youtube to watch movies or cartoons. He does not know how to use it by himself, but asks mom to help with it. Mom also believes that the child has to know different games in order to know what other kids are talking about. **The kid has learned how to use some technologies by watching what the parents do. Dad helps to download games. He would like his parents to help with doing different activities on the tablet, but the parents believe that the kid will learn better if he tries to use it by himself**, therefore they sometimes use the tactics "*we do not know how to do it*". Usually the parents search for cartoons to watch, but sometimes he also finds them by himself. He says that it happens by accident. To the question of what he does if a cartoon shows something horrible, he answers that he continues to watch. He cannot take pictures with his smartphone and therefore does not do it. He also does not like to listen to fairy tales. At least he will never listen to fairy tales without the presence of one of his parents.

If the kid had to stop using the digital technologies, he would most miss watching TV. The kid is **allowed to watch TV or play on computer or smartphone for not longer than one hour,** but sometimes on weekends he is allowed to do it for up to two hours.

Out of leisure activities that are not related to the digital technologies he likes listening to music and dancing or singing karaoke.

The parents also believe that the child has to be familiar with digital technologies, but at the same time they **try to balance the kid's activities in such a way as to ensure that the ratio of real-life activities and digital activities are of about 70% vs 30%. When the kid was smaller he had problems with aggression,** but then the parents banned and deleted all the games with elements of aggression, and the kid's behaviour returned to normal.

To the question about safety of use of the digital media, the kid replies that **it is not safe to watch a lot of TV because it can damage the eyes**, **meanwhile computer is not safe because one can press wrong**

keys. As for the tablet, he also says that it can damage the eyes, and the Internet can disappear and then it will be bad because you will not be able to watch cartoons anymore.

Out of the activities that are not related to the digital environment, the kid likes riding a bike, jumping on a trampoline, playing ball and doing other sports activities. He often does it with the rest of the family. He would also like the parents to buy him a Spiderman costume. The parents are trying to habituate the kid to reading. If the kid does not like any particular book, then he can choose another book, but anyway he has to be purposefully habituated to reading.

Arranging the cards, the kid puts playing ball as the first choice, followed by bike, music player, musical instruments and board games. As the last preference, he refers to a variety of activities that are not available at home.

Family LV 07

Latvia

Family members

- Dad, LV7f43, economist, medium level of digital skills
- Mum, LV7m46, lawyer and psychologist, medium level of digital skills
- **Girl, LV7g6, completed kindergarten, going into first grade this autumn, low level of digital skills**
- Boy, LV7b9, attends primary school (3rd grade), medium level of digital skills

Narrative

A family with high incomes. The family has a digital TV set, DVD player, audio system, desktop computer, portable computer, tablet, mp3 music player and smartphone. The child is allowed to use digital TV set, DVD player, tablet and mp3 player. The kid himself does not own any digital device.

> "My daughter don't have a smartphone. I generally have the opinion that until the 3rd class child don't need the phone.", mother, 46, (LV7m46)

According to his age and interests, the **child effectively uses three devices**: desktop computer, digital TV set and tablet. He uses the tablet and the computer for playing games, rarely for watching animation movies or listening to fairy tales and music. **The kid's skills of use of digital devices are characterized as weak**, he often asks the parents to help him, for example, to turn on a TV channel that he needs.

In the morning, when having breakfast, the kid is allowed to watch cartoons or children's programs. Other times he is allowed to watch television only on weekends. As an exception, the kids can watch television on weekdays when the parents are at home. **Time of use of devices is not strictly regulated**, overall it is 30 minutes on weekdays and 1 to 1.5 hours on weekends.

The kid does desire to use digital technologies, **but prefers traditional activities** (drawing, reading books, LEGO, playing with toys, etc.). Out of the digital technologies, the kid likes to use the tablet (ranked seventh) and the video game console (ranked eighth) most, while the smartphone is ranked 15th and the digital TV set – ranked 17th.

The parents are aware that digital technologies play an important role in the children's lives, so **permission or prohibition to use the devices are used as reward or punishment**. Usually the kid's desire to use some device is used as motivation to do necessary homework without a reminder. **There are different rules for duration of use**, depending on the kid's age (the elder brother is allowed to use devices for a longer time).

The parents monitor the content that the children watch. They have banned access to one television channel, the content of which is too aggressive and destructive in the parents' opinion. If the parents see that the children are viewing an aggressive content on other channels, they draw the children's attention to another content, expressing particular proposals for what to watch.

The **parents tell the children about possible consequences of use of devices**. The interviewed kid says he does not want to have a smartphone (although the parents do not mind if he had one) because he believes that it is unnecessary for a third-grade kid to have such device. In general, the family's parenting style can be regarded as authoritative.

Family LV 08

Latvia

Family members

- Dad, LV8f34, engineer, high level of digital skills
- Mum, LV8m34, stewardess, high level of digital skills
- **Boy, LV1b6, completed kindergarten, going into first grade this autumn, medium level of digital skills**

Narrative

A family with high incomes. The family has an audio system, desktop computer, portable computer, tablet, mobile phone, smartphone, game console and multimedia projector. Out of these devices, the child owns the desktop computer, tablet, smartphone and game console. The parents do not allow to use the mobile phone and multimedia projector.

> "No, they don't teach me the computer. Dad does not know anything at all, mom knows nothing", boy, 6, (LV8b6)

The **kid effectively uses three devices**: desktop computer, tablet and smartphone. **The devices are used for playing games, listening to music and watching movies**. The kid plays games with his friends using the game console. **He mastered use of technologies by observing and imitating his peers, as well as trying himself to learn what will happen if he pushes particular icons**. The kid believes that the parents do not know how to use the technologies, so they cannot help him to learn.

Time of use of devices is not strictly regulated. Every time the parents agree with the kid on time of use of a device and remind him when the time has gone. In weekday evenings, the kid watches cartoons for about 30 minutes. On weekends, he is allowed to use devices for a longer time, even for up to 4 hours a day.

The parents are aware that digital technologies play an important role in the people's lives and allow the kid to use them, because they believe that a kid has to spend plenty of time for playing in childhood, so that he could devote time to work and family in adulthood, rather than to compensate for the lack of playing in childhood. **Most of all, the kid likes traditional toys and entertainment activities, such as swimming, board games, playing in a playground, Lego, bike, etc**. Technologies have a relatively low rank: game console is ranked second, followed by the music player (ranked eighth), while television is ranked 22nd and smartphone – 28th.

The parent do not controlle content of the technologies. In general, the family's parenting style can be regarded as permissive.

Family LV 09

Latvia

Family members

- Dad, LV9f50, engineer, high level of digital skills
- Mum, LV9m35, not specified, medium level of digital skills
- **Girl, LV9g6, completed kindergarten, going into first grade this autumn, medium level of digital skills**
- Boy, LV9b9, attends primary school (3rd grade), high level of digital skills

Narrative

A family with high incomes. The family has a digital TV set, DVD player, desktop computer, portable computer, tablet smartphone and game console. Out of these devices, the tablet and game console belong to the kid, while the others – to the parents. The kid is allowed to use the desktop computer, portable computer and smartphone only with parents' permission.

> "Tablet should not be used much, because otherwise damage the eyes", girl, 6, (LV9g6)

The kid effectively uses seven devices including digital TV set, game console, portable computer, tablet and smartphone. The **devices are mainly used for entertainment purposes**: for watching cartoons and music videos and for playing games. **The kid is able to download games and install them on the tablet**. **The kid has mastered use of technologies by observing and imitating her parents, elder brother and friends, as well as trying herself to learn what will happen if he pushes particular icons**. The elder brother's role in learning of use of devices prevails.

The devices are mainly used in the evening and on weekends. Although the kid prefers playing on the game console and smartphone, the places 3-7 in the priority list are taken by traditional leisure activities (drawing, play with dolls, etc.). The tabled it ranked eighth, while television – twelfth.

Time of use of devices is not strictly regulated. **In general, the kid uses them for up to two hours**. The parents restrict duration of use of the devices, however they recognize admit that they use the devices to rest from the kids, for example:

> _*"For how long can a kid play outdoors? After some time she gets tired, becomes annoying, but **when we give her the tablet she calms down**." (LV9g6)*_

The parents are aware that digital technologies play an important role in the children's lives, therefore sometimes **they use permission to play with the devices as reward and other use prohibition to play with the devices as punishment**. **The parents trust the child in choosing content, but check on the Internet browser history from time to time**. At the same time, the parents are aware of the risks of use of technologies, so they do not allow the kid to create profiles on social networks. The kid is only aware of the risk of damage to vision caused by long use of the tablet.

In general, the family's parenting style can be regarded as authoritative.

Family LV 10

Latvia

Family members

- Dad, LV1044, works in insurance business, high level of digital skills
- Mum, LV10m39, chef, low level of digital skills
- **Girl, LV10g7, completed kindergarten, going into first grade this autumn, medium level of digital skills**
- Boy, LV10b10, attends primary school (4th grade), medium level of digital skills
- Girl, LV10g13, attends primary school (3rd grade), low level of digital skills

Narrative

A family with low incomes. The family has a digital TV set, portable computer and smartphone. The kid is allowed to use all the devices. Out of these devices, the kid himself owns the smartphone.

> "Mom just recently bought a new phone, she does not give it to me. I'm playing games in Dad's phone", girl, 7, (LV10g7)

According to his age and interests, the child effectively uses five digital devices including digital TV set, portable computer and smartphone. The kid mainly watches cartoons and feature films on television and uses the smartphone and the computer for playing games. **The kid has mastered use of technologies by observing and imitating his parents, as well with the help of his elder brother**.

The kid is allowed to watch television on weekdays for a maximum of two hours after he has finished his homework. On weekends, television watching is limited to five hours. However, the kid prefers using the mp3 player, followed by the portable computer, and drawing that is ranked third. The father downloads movies and watches them together with the children, while the mother does in only on holidays, as she believes that the kids watch the same movies, thus it is not interesting for her.

The parents are aware that digital technologies play an important role in the children's lives (the children use a stopwatch for each other to fix the time spent on the computer, so that they spend equal time playing on it). However, the parents believe that the children are not yet able to distinguish between what is good and what is bad, so they strictly determine how long the child can spend in front of the TV set and the computer, as well as determine what the kid is allowed to watch. **The computer is often used as a reward or punishment**, for example, when one of the children is punished for failure to do what he had to do and thus is not allowed to use the computer, the rest family members also cannot use it in order to prevent the kid from watching what they are doing on the computer from a distance. At the same time, the **mother recognizes that she often allows to use the computer only to establish peace at home**.

The children are also aware of the risks of use of technologies, but mostly in the context of their health:

> _*"**It is harmful for eyes**: if you use a device for a long time, the eyes will hurt after that" (LV10g7)*_,

as well as possibility to damage the device:

> _*"Telephone, because some other kid may push it, and the **telephone will fall out of your hands and break**." (LV10g7)*_

In general, the family's parenting style can be regarded as authoritative.

Table 3. Overview of the interviewed families

Family code	Member Code	Low – medium-high family income	Ethnicity	Sex	Age	Year school/ max level of education	Profession parents
LV1	LV1m35	Low	Latvian	f	35	Tertiary	Army officer
LV1	LV1f37	Low	Latvian	m	37	Tertiary	Army officer
LV1	LV1g7	Low	Latvian	f	7	Kindergarten (no school experience)	
LV1	LV1b1	Low	Latvian	m	1		
LV2	LV2m28	Low	Latvian	f	28	Secondary	Assistant of kindergarten teacher
LV2	LV2f27	Low	Latvian	m	27	Secondary	Carpenter
LV2	LV2b6	Low	Latvian	m	6	Kindergarten (no school experience)	
LV2	LV2b2	Low	Latvian	m	2	Attending kindergarten	
LV3	LV3m39	Low	Latvian	f	39	Secondary (vacational)	Manicure
LV3	LV3g7	Low	Latvian	f	7	1st Primary	
LV3	LV3g20	Low	Latvian	f	20	Secondary	
LV3	LV3gm65	Low	Latvian	f			Inspector of social department
LV4	LV4m49	Low	Latvian	f	49	Tertiary	Specialist of client's service
LV4	LV4f51	Low	Latvian	m	51	Secondary (vacational)	Carpenter
LV4	LV4g7	Low	Latvian	f	7	Kindergarten (no school experience)	
LV4	LV4g9	Low	Latvian	f	9	2nd Primary	
LV4	LV4gm79	Low	Latvian	f			pensioner
LV5	LV5m31	Low	Latvian	f	31	Tertiary	
LV5	LV5f35	Low	Latvian	m	35	Secondary	
LV5	LV5g7	Low	Latvian	f	7	Kindergarten (no school experience)	

LV6	LV6m31	High	Latvian	f	31	Tertiary	
LV6	LV6f33	High	Latvian	m	33	Tertiary	Economics
LV6	LV6b6	High	Latvian	m	6	Kindergarten (no school experience)	
LV6	LV6b2	High	Latvian	m	2	Attending kindergarten	
LV7	LV7m46	High	Latvian	f	46	Tertiary	Law, Philology
LV7	LV7f43	High	Latvian	m	43	Latvian	Economics
LV7	LV7g6	High	Latvian	f	6	Kindergarten (no school experience)	
LV7	LV7b9	High	Latvian	m	9	3rd Primary	
LV8	LV8m32	High	Latvian	f	32	Tertiary	Pedagogy, stewardess
LV8	LV8f34	High	Latvian	m	34	Tertiary (vacational)	Ingeneering
LV8	LV8b6	High	Latvian	m	6	Kindergarten (no school experience)	
LV9	LV9m35	High	Latvian	f	35	Secondary	
LV9	LV9f50	High	Latvian	m	50	Tertiary	Engineer
LV9	LV9g6	High	Latvian	f	6	Kindergarten (no school experience)	
LV9	LV9b9	High	Latvian	m	9	3rd Primary	
LV10	LV10m39	Low	Latvian	f	39	Tertiary	Chef
LV10	LV10f44	Low	Latvian	m	44	Tertiary	Insurance business
LV10	LV10g7	Low	Latvian	f	7	Kindergarten (no school experience)	
LV10	LV10b10	Low	Latvian	m	10	4th Primary	
LV10	LV10g13	Low	Latvian	f	13	7th Primary	

3. Findings

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

When describing the results of the study in Latvia in the individual context, it should be admitted that the interviewed children use a variety of digital technologies. All children use interactive television. Although not all children have a tablet and smartphone at home, however, they all have used it according to their interests (for example, to play games and to watch cartoons).

The Table 4 reflects the number of children who are able to use certain devices efficiently. It should be noted that none of the interviewed children uses a camcorder or camera, although most of them knows how to film and take photos by using a smartphone or tablet.

Table 4. Number of working devices that the children effectively use

Name of device	Number of interviewed children
FIXE	
PC	6
Smart TV	8
Fixe game only console	1
MOBILE	
Laptop	8
Tablet	8
Smartphone with active SIM card	6
Smartphone without active SIM card	0
Mobile game (only) device	2
Others (mp3 player, DVD player, CD player, digital piano etc.)	11

The children use the new technologies in various ways. All of the interviewed children play computer games, 7 of the children watch broadcasts and listen to music, as well as create virtual objects or creatures online. Six children make and edit photos, download free applications and watch video clips online. Five children visit social networks. None of the interviewed children visits chat rooms, uses possibility to share files, registers his/her own geographical location, reads QR or barcodes, reads e-books, publishes posts web pages or blogs, searches for maps or schedules, shops online or downloads applications that should be bought.

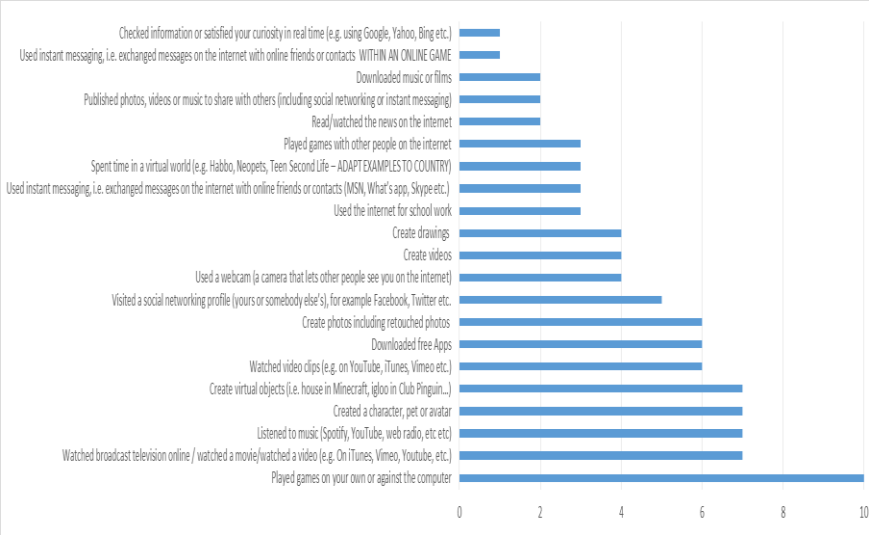

Fig. 1. Number of different activities children perform with ICT (as passive user and as active user)

However, it has to be acknowledged that the use of technologies is not the most favourite activity for the children. When children were asked what they prefer to do most, in general all of the interviewed children (the average) told that they liked to play board games and to draw, playing with pets holds 2nd place and the usage of laptop takes only 3rd place, which is an equal average indicator to playing an instrument. The next digital devices hold only 9th place (CD player) and 10th place (toy computer with educational children games). The smartphone holds 11th place, video game console – 13th place, tablet – 15th place, and digital TV – 17th place.

Various digital devices are being used for different periods of time, but in general most children use various digital devices for 2 - 5 hours daily. On holidays it is allowed to use devices for a longer period of time. Before going to school or kindergarten on working days, it is generally allowed to watch cartoons on TV, but in the evening devices mostly can be used only after finishing preschool or school homework. Most children would like to use devices for longer than the parents have allowed.

In general, it was observed that the interviewed children did not use the digital devices excessively (see Table 5). However, some children showed an inclination to over-intensive use of technology, as well as they often or very often feel an irresistible urge to use digital devices and desire to extend the duration of use of the devices.

Table 5. Indicators of excessive usage (0=not at all, 1=rarely; 2=sometimes; 3=periodically, 4=often;5=very distinct)

Indicators	**Average results**
Experiences irresistible urge to use digital technology	2.6
Reports obvious increase in time spent using digital technology	2.4
Reports appearance of withdrawal symptoms when not being able to access digital technology	1.1
Experiences being online for a longer period of time than intended	2.1
Reports neglecting other domains of life because of the digital technology usage	0.9
Experiences negative repercussions because of the digital technology usage	0.5

Family context

When describing the family context, it has to be acknowledged that all of the interviewed families have a wide range of technology, which is quite typical for Latvia where consumer society values are popular. Thus, access to technology is considered to be wide. Almost all parents have to use digital technologies at work, but not all of the interviewed parents use digital technology and the possibilities offered by them in daily communication (see Table 6). The interviewed mothers tend to use social networks more actively, but none of them plays video games, which is done by 4 fathers of the interviewed children.

Table 6. Parental ICT use situations

	Mother	Father
Work	8	7
Active online / mobile social life	6	2
Daily communication (emails, skype, whats'App, ...)	9	8
Shopping online	4	5
Video gaming	0	4

Technologies are purchased because they have emerged and being supplied in the outlets, and they are trendy, but nobody gives enough thought to exactly what family members will do with them and how they are useful for children's development.

In families with several children the use of digital devices is more limited because one device should be shared with several children. In eight of the interviewed families digital devices are used for common entertainment, mostly while watching television together.

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

Individual perceptions

Parents have different views on the use of technologies. Parents mostly want to limit the time that children spend with technology, but they do it intuitively rather than based on any specific arguments or instructions. Parents are worried about the potential impact of technologies on children's eyesight. The interviewed parents let their children to use technologies from 1 hour to 5 hours a day. Several families have technologies which have time limits for using them, such as a computer, but there are technologies that can be used without restrictions, for example, there are no restrictions regarding watching television.

The parents are aware that digital technologies play an important role in the children's lives and understand how important it is for child's future to use technologies efficiently. Permission to use the device or giving it as a gift is used as a praise and reward, but prohibition to use the device more frequently is used as a punishment.

Opportunities

There are parents who see the advantages of using technology, for example, to develop child's memory, to improve his artistic taste. The parents often use the technologies as a "babysitter" in order to keep children occupied so that parents would get time to meet their needs. For example:

1) using technologies for development of the child:

   _*" What does your daughter get from using the technologies, the Internet? What does she learn?*

   *I suppose that some aesthetics, colour combination from an artistic point of view and she improves her taste. Perhaps she gets something from playing "memory" games." (LV1m35)*_

2) using technologies as a pastime in order to shorten the waiting time for the child, as well as in order for parents to get a free time to meet their needs:
   *"I have a small, mobile game console, but I do not give it as well so that there wouldn't be too many technologies. Sometimes, for example, when going to see the doctor, I take it with me to keep the child occupied while waiting." (LV1m35)*

The children form their views on the use of technology on the basis of opinions and judgements of their parents, for example:

> _*"Where did you get that playstation?*
>
> *I simply had it, my dad told that playstation is good." (LV8b6)*_

Risks

- of the children

As regards the possible risks concerning technology use by children, it should be acknowledged that none of the interviewed children is aware of them – it is apparent from

the non-approval of criteria during the interviews dealing with the potential risks of using technologies. The children are aware of how the devices work, i.e. how to use them. However, when it comes to risks, the children are aware only of the fact that the device can be broken or otherwise damaged, as well as that prolonged use of devices may damage eyesight:

> *_"It is harmful for eyes: if you use a device for a long time, the eyes will hurt after that." (LV10g7)_*

In interviews they confirm that they are not informed about what kind of risks they are facing, as well as about how to avoid exposure to such risks, or how to reduce them.

- of the parents

It can be concluded that the interviewed parents are mostly unaware of the risks associated with children's usage of technology. The parents have discussed with children the potential risks posed by technology, such as short-circuit in the power supply that can cause fire or viruses that can damage the device itself, damage caused by careless handling of the device:

> *_"Telephone, because some other kid may push it, and the telephone will fall out of your hands and break." (LV10m39)_*

However, parents are not aware of the risks associated with children's personal safety regarding communication with strangers or impacts of inappropriate technology use on human health. The parents believe that children are too small to discuss such issues with them and consider that if the child was exposed to such situations, then he would definitely tell his parents about it. In other words, the fact that they have not talked with children about potential risks on this topic should be considered as a signal for necessary development of parental pedagogical competence.

- of other members of the (extended) family if any (older siblings, grand-parents)

In families there can be observed different rules for the younger and older kids regarding the use of technology, for example, the oldest kid is not allowed to use certain technology unsupervised, while the youngest one is allowed to do that, because the parents believe that the oldest child would try out various functions, change settings and download additional programs. This suggests that in the heart of the risk awareness there is a concern for the preservation of an expensive technology, not about the safety of the child.

> *_"No, they do not give it to me [digital watch]. They allow my brother [youngest] to play with it. But they are afraid that I will press wrong buttons and something will either get erased or damaged." (LV1g7)_*

There are situations when exactly the oldest child in the family is given more freedom to use the technology as he is more experienced, for example, the oldest kid is allowed to turn on Youtube channel on the TV set, but the youngest one is not allowed to do that yet.

It can be concluded that in general differences in the requirements to youngest and oldest children regarding the use of technologies are based on concern for the technology rather than safety of their own children.

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

Parenting style

Five of the interviewed families practise an authoritative parenting style, four families – authoritarian style, but one – permissive style. It can be concluded that in five of the interviewed Latvian families parental requirements are aligned with the responsiveness for the child's needs, in four families parental requirements prevail over the needs of the child, but in one family parents do not impose enough requirements for parenting, but focuses on the needs of the child.

Content control

In terms of the content, it can be acknowledged that the parents are more focused on worrying about technologies, but less focused on the safety of children – it also applies to the control of the content of the technologies. Some parents control the content of the used digital devices, but they do it intuitively, based on their own views and current mood:

> _*"When your daughter uses the internet, do you keep an eye on exactly what she's doing?*
>
> *I don't sit next to her, but I am near. She is not allowed to use computer if I'm not at home." (LV1m35)*_
>
> _*"Do you look after your daughter when she's watching TV?*
>
> *I always listen and see what she's watching, and if I don't like something, I turn it off.*
>
> *And how about using computer?*
>
> *The same, I can see what she is doing more or less by passing by. It's not like she can do whatever she wants." (LV10m39)*_

Some parents rely on children's choice regarding the content of technologies because they do not see the reasons for such control. Parents are convinced that the children are too small to be able to find or understand information that is inappropriate for them:

> _*"I don't particularly supervise what they are doing on youtube.com. At the moment I don't see a reason why should I watch what they're doing. I think that she is still too young." (LV5m31)*_

The main criteria for the selection of the content are:

1) trying to protect the child from disappointment by losing a game:

   *"I don't like games where one must compete against the other, even with computer. I try to protect him from feeling disappointed or losing." (LV1m35)*

2) compliance with reality:

   *"I'm shocked that in television every second cartoon contains dinosaurs and every third one – aliens. I'm starting to think that Martians is a norm and that without them it is not possible to make a cartoon. I would prefer more realistic things to be shown." (LV1m35)*

3) no violence:

*_"The main thing is to avoid violence." (LV1m35)_*

*_"I prefer content to be child friendly, to avoid shooting and blood." (LV5m31)_*

*_"There have been such situations when there have been quarrels, fighting, anger during the day, then I have even thought that it is because in some game or cartoon some animal was treated badly, and I come home and delete all games from the I-pad." (LV6m31)_*

4) Educational value:
*_"I approve when she plays some kind of educational games where she need to guess names and the like." (LV5m31)_*
*_"No, she doesn't play aggressive games. She plays some kind of race games, it develops a reaction, I suppose." (LV4m49)_*

Use of the device as a punishment or reward

It can be concluded that the interviewed Latvian parents often use technologies as a punishment or reward in order to get their children to behave and act in accordance with their instructions. It should be acknowledged that penalty and reward system, i.e. the prohibition or allowance to use technologies is used to achieve parenting goals beyond the field of technology. So technology is a tool for managing of children's activities, but parents lack understanding that it is necessary to supervise children's behaviour also in the virtual reality. Technologies are used to implement the parental authority over children in situations when other means are not effective. When parents are unable to reach an agreement regarding, in their opinion, appropriate use of digital devices, they use threats:

_"And how often do you use computer?

*Well, yesterday I didn't, today as well, but today I wanted to, my mother didn't let me. She told me that if I use computer too much, she will turn off TV, computer, except telephone." (LV5g7)_*

*_"When she didn't do some task, I didn't let her use computer." (LV5m31)_*

Parents considers such a system of punishment to be effective:

_"How did she take it?

Didn't protest a lot. But the following day she did all the tasks, though.

Could we call such type of punishment effective?

*At the moment, I suppose that yes. If she wants to use the computer, then she knows what tasks she need to do. Then we both will be satisfied." (LV5m31)_*

Rules

In families the duration of use of devices is not strictly regulated, but there are families which practice mutual negotiations and agreements with the child about the use of technologies. Parents are trying to keep track of what and how long the child is doing in the digital environment. In all families the parents claim to have set rules for time and duration

of use of technologies, as well as ensure that the devices are not damaged. However, the rules are set intuitively rather than based on any psychological or pedagogical arguments.

> _*"I'm not allowed to turn it on, if parents have not given consent. All activity is based on this rule." (LV10m39)*_

> _*"They [rules] are not written, but they exist. It just shouldn't be used for too long, when I feel like I have used it for three, four hours, then I stop using it. If we all are going out, then we all must go. If I tell her that we should go to the garden, but she replies that she still wants to play games, then I say: "No, you are coming." (LV5m31)*_

Although parents claim that there are no strict regulations regarding the use of technologies, the children themselves disagree and point out that the rules exist. Admittedly, the children accept the rules set by their parents and basically respect them, for example, a child needs to ask permission every time he wants to use a digital device. However, according to the children themselves, there are activities that they are doing without permission and there are also rules that they are breaking when parents are not watching. There are children who are clearly aware of the consequences if they fail to comply with the set rules, moreover, they use this behaviour for their own benefit in order to extend the time of use of technologies, for example, they know that serious sanctions will be taken only after the third admonishment, so the first two times can be ignored:

> _*"I say a little. And when mom says it again, then she gets angrier and tells that she will not say for the third time. I know that when she will say it for the third time, then she will scold me so much that she can even spank me. [..] Always when she says that she will not tell me for the third time, then ok, ok, I'm turning it off." (LV1g7)*_

Although in general children do not participate in the process of establishing the rules, there are several families in which parents allow the child to suggest the conditions under which he receives permission to use the digital device:

> _*"Do children have any say regarding the rules?*

> *Following the carrot principle, they themselves offer to do something in exchange for spending time on the computer. But then they should do those tasks my way. It requires a lot of time and patience." (LV10m39)*_

I should be acknowledged that among the members of the family themselves there can be observed inconsistency in the development process of the rules, namely, in families the parents do not always mutually agree on common rules for the use of technologies for the children:

> _*"Perhaps your family has some kind of rules stating when you are allowed to go to the computer and when not?*

> *When mom forbids, then it is not allowed.*

> *Does dad have any strict rules? Does dad allow to use the computer?*

> *Well, yes." (LV5g7)*_

A frequent argument for forbidding to use digital devices is the possibility to damage them.

Teaching how to use digital devices

The children claim that they learned to use digital technologies themselves – by trying and making mistakes, or through watching how the older siblings or adults use them:

> *_"One night my mom simply told me that we have a new TV. Okay, a new TV. I just looked at it myself, she showed me what to do and how to do it, and then I just understood everything." (LV1g7)_*

In some families parents purposefully have taught their children to use certain technologies:

> *_"Did you understand yourself which buttons to press or did dad teach you?*
>
> *No, dad taught me everything." (9 LV1g7)_*

The overall conclusion is that parents are rarely targeted to teach children to use digital devices, often they even avoid teaching and rather do all the necessary things themselves and give the child to use them in a finished state:

> *_"Yes, I tell to stop using them. I neither encourage her nor teach, if she sees something and learns how to use it, then she can use it. But I will not teach her all the many things that can be done with it, because then she will spend a lot more time on the computer. Therefore I let her do all the things that she can learn herself." (LV5m31)_*
>
> *_"Is it necessary to use search engines and to be able to analyze the information found through them?*
> *I usually find the information for children and show what they should read." (LV10m39)_*
>
> *_"No, they don't teach me, they find it for me and show me." (LV1g7)_*
>
> *_"RWho downloads the games?*
> *Actually I don't know, may she downloads them herself, because she knows how to find them in Google Play. She learns it from her friends or chooses applications that look interesting. She tends to download, try and if she doesn't like it, she searches for a new one. She downloads more games when we are going on a longer trip." (LV9f50)_*

Parental mediation in the technology field can be regarded as rather passive – active parental mediation in the field of children's media socialization is not observed. When it comes to the time that children spend using the technologies, there are restrictive features. There are also permissive parental mediation features when it comes to the content and targeted management of children's activities in the digital environment – children mostly use them as they wish. Reverse mediation is not observed – kids this age have not yet become more proficient than adults and do not teach adults to use technologies.

Safety

As already mentioned, the children from the interviewed Latvian families did not confirm that they were aware of the potential risks and threats in the digital environment:

> *_"Does any of the devices that you use could be considered to be unsafe, containing something dangerous?*
>
> *No, not like dangerous. So it is difficult to say. But tablets could contain a lot of dangerous things. [..] Those with batteries, they supposedly could not be dangerous,*

because they have only games and tasks. But telephones, TV sets, computers, those viruses and all the turning off modes, all the erasing modes, those can be dangerous.

Dangerous in a way that one can accidentally delete something, it can catch fire or something hazardous could be within it, so you can accidentally connect to this hazardous thing?

*No, something like virus, when it discharges or something." (LV1g7)_*

However, in several interviews the parents claim that they have explained the safety issues to the children and supervise children so that they would not use social networks, which may pose threats:

*_"She has an educational disc about safety. On the Internet I have showed her educational cartoons about the use of Internet." (LV1m35)_*

_"There are some kind of technologies, sites, which could be unsafe to use.

*None of our children has profiles in social networks. I'm on facebook.com, and I would quickly find them." (LV9f50)_*

Particular attention is paid to how the child should act if strangers want to communicate with them: they want to communicate with unfamiliar persons:

*_"There has been already a situation, an unpleasant experience when some stranger sent her a message. But I have also told her about telephone, that she can receive calls from unknown phone numbers, and she will definitely not pick them up. There was one time when the phone rang and rang, I picked it up and it was BITE. Then I told them that it is a child's phone number and asked them not to call anymore. In portal Draugiem.lv she doesn't open messages, and if she sees that the person is a stranger, she calls me first. That time the message contained a request for her e-mail and password, afterwards everything will be ok again. Administration of Draugiem.lv. After that I wanted to log in and take a look, but he was already blocked, probably many other people had received such messages and someone had notified that it is not normal, someone had already blocked him." (LV3M39)_*

However, as children in negotiations with the researchers did not acknowledge that they were informed about these issues, it must be concluded that parental mediation in this field is insufficient. Moreover, some parents allow children to use digital devices freely:

_"Good. Can you use the computer for as long as you want?

Only when nobody plays some games or uses it to do some work.

Yes, when it is free and not occupied, then you can.

Yes. Sometimes I can also ask, if mom is doing some work, then I sometimes ask if I could use it after that.

Do you always need to ask permission to use the computer?

*No, only when someone is playing games or working on it." (LV4g7)_*

The previously mentioned raises important issues in terms of formation of safe Internet usage habits for children and development of pedagogical competence of parents and teachers in this field.

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

Latvia is a country which has a very fast Internet and wide possibilities of accessing it, it is fairly typical situation when a household has available WiFi Internet and a number of technological devices which are dependent on the Internet. Also spending free time on digital media is a fairly common practice for all members of the family. The parents and students need the Internet for doing their professional work and homework. As well as younger children, especially in urban areas, are active users of technologies.

Therefore, technologies are considered to play an essential and typical role in family's daily life. Use of technologies is a norm. The parents believe that children should use technologies and that digital skills will be useful to the children in their later lives.

Technologies themselves are considered to be important because there are expensive and fragile devices that the children could damage. It is concluded that the parents often focus on product preservation, but are unaware of the potential risks to children's safety. Some parents believe that the children are still too small for them to be necessary to talk about the potential risks. Children are subject to the requirements of the time they spend on technology. But it is not always clear whether the time limits are determined according to the needs of the child or the necessity for other family members to use the technologies, or the care of the technology itself.

Moreover, technologies are tools for raising children – they are used for implementing adult requirements in any area of daily life, namely, they are used as a punishment or reward in order to achieve the objectives of the parents. As well as they are used as a "babysitter" to keep a child occupied in situations when children can be in adults' way during their daily activities. In families the devices are used when children want to use them, and often there are no specific rules for their use.

3.5 Surprising findings

In the interviewed families technologies themselves are considered to be important, because they are expensive and fragile devices that children could damage. It is concluded that the parents often focus on product preservation, but are unaware of the potential risks to children's safety. Some parents believe that children are still too small for them to be necessary to talk about the potential risks. Children are subject to the requirements of the time they spend on technology. But it is not always clear whether the time limits are determined according to the needs of the child or the necessity for other family members to use the technologies, or the care of the technology itself.
It is observed that there is a lack of parental mediation on child safety issues. Discussion on the criteria in order to evaluate digital literacy of the interviewed children confirms that the interviews do confirm exactly those criteria, which deal with the awareness of potential risks and problem solving in the digital environment. The parents consider that 6-7 year olds are too young to discuss these matters with them.
When analyzing the activities that the child gladly would like to do, in the first place raises such activities as drawing, playing board games, active activities such as riding a bicycle, playing ball, and only then follows the activities in the digital environment.

4. DIGCOMP framework

4.1 Based on the interviews and observations what are the digital skills interviewed children as described in the DIGCOMP framework?

Children's digital skills were evaluated, based on "DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe" (see Framework in Annex 3).

DGCOMP Skills	Family 1	Family 2	Family 3	Family 4	Family 5	Family 6	Family 7	Family 8	Family 9	Family 10
Interviewed Child	LV1g7	LV2b6	LV3g7	LV4g7	LV5g7	LV6b6	LV7g6	LV8b6	LV9g6	LV10g7
1	BU	BU	BU	BU	BU	BU	BU	BU	BU	
2	BU		BU			BU		BU		
3	BU	BU	BU	BU	BU			BU		
4	BU	BU	BU	BU	BU			BU	BU	
5										
6			BU							
7			BU	BU	IU					BU
8										
9	BU	BU	BU		BU			BU	BU	
10							BU			
11										
12			BU		BU	BU				BU
13										
14										
15								BU		BU
16						BU	BU		BU	BU
17										
18										
19										
20										
21		BU	BU	BU	BU	BU	BU		BU	BU
22		BU	BU	BU				BU	BU	BU
23								BU		
24										
25										

4.2 Discussion of the categorisation of young children's skills with DIGCOMP?

When analysing the results of the interviews in Latvia according to the suggested 25 criteria, it has to be acknowledged that in general the skills with DIGCOMP of all respondents – children correspond to the basic level (BU). Only in the 7th criterion one of the respondents confirmed that he complies with the independent user IU level, i.e. his digital skills correspond to the statement "I pass on or share knowledge with others online, e.g. through social networking tools or in online communities". It can be concluded that in general the compliance with the BU level is considered to be appropriate for a digital experience of 6-7 years old children, because they are using technologies only a few years, as well as development features of their age group define the belonging to the basic level.

From analysis of the respondents' compliance with the BU level in terms of frequency it can be concluded that most frequently the children confirmed their skills in the 1st criterion – in 9 cases and in the 21st criterion – in 8 cases. Therefore, the Latvian respondents – children most often have the skills to search and find information online, as well as the skills to find help or support, if they are faced with the challenges offered by new and unknown technologies.

These indicators are followed by 7 children whose digital skills conform to the BU-level in the 4th criteria, i.e. 7 out of 10 respondents – children in Latvia confirm that at the age of 6-7 years they are able to communicate with people through various online channels. In interviews 6 respondents (according to the 3rd, 9th and 22nd criterion) confirm that they know how to store and retrieve a certain content online with the help of technologies, create a new content within it, as well as are able to deal with typical problems online.

None of the 10 interviews confirmed 11 out of the proposed 25 criteria. The methodology of 4 of these 11 criteria does not offer a BU level. This explains why the confirmations for these criteria do not appear in the interviews because the Latvian respondents – children generally correspond to the basic level.

Lack of compliance with the other 7 criteria shows weaknesses, deficiencies in parents' cooperation with children regarding the use of technologies in the family, as well as the fact that obviously neither a kindergarten nor a primary school teaches these skills.

It follows that 6-7 years old technology users in Latvia have both a lack of technological skills (e.g., ability to share files by using simple tools) and lack of awareness of the potential risks online and ways how they could be mitigated, they lack skills for solving problems with the help of technologies, as well as they do not recognize the need to improve their digital skills on a regular basis.

For example, none of the interviewed respondents – children is aware that when using digital tools, specific rules of communication should be taken into account (such as commenting, sharing personal information on the Internet), as well as children are not aware of the copyright. None of the respondents is able to determine what forms of action should be taken to protect both the devices (for example, by using anti-virus programs or passwords) and himself – they are not informed that they might face unsafe information online.

The respondents do not understand the need to take some basic steps to save energy for economic or environmental reasons. Likewise, none of the respondents knows how to use digital tools upon facing a technological or non-technological problem.

The lack of previously mentioned skills outlines the current parenting tasks in a family, as well as in media education in pre-school and primary school.

5. Method

5.1 Procedure

Before starting the study in Latvia, the opinion of the Ethics Commission of the University of Latvia regarding the researches in humanities and social science that involve people was received, stating that the applied research methodology and the provided confidentiality measures comply with the scientific and ethical requirements. The next step was organizing the team of researchers, invited to join were those researchers who are interested in the pedagogical aspects of the use of digital technologies. The team ended up having 5 people with a doctorate in pedagogy and 4 PhD students of pedagogy.

The next step was selecting the families to involve in the research according to the requirements defined in the research.

5.1.1. The sampling procedure

The families for the research were selected according to guidelines of the European Research Centre, there must be 6-7 years old children, and they should have at least a 10 month long educational experience. The Latvian education system provides that children start attending school starting from the age of 7, however, the requirement that the children should have at least 10 months of educational experience was met, because in Latvia compulsory education is from the age of 5 years. The period from the age of 5-7 years in Latvia is called pre-school education, which also takes a variety of organized activities to prepare children for going to school, thus 6-7 year-olds in Latvia have this kind of educational experience.

The families for the study were recruited from the network of acquaintances of the research group members, as well as approached through educational institutions. Initially, the families that met the requirements of the target group and guidelines defined in the study were identified. Then members of the research group contacted the families to ask them to participate in the study. Two of the approached families initially agreed to participate in the study, but later refused to take part in it. All families are from Riga or the surrounding regions of Riga, which means that the aggregated results of the study at the moment can be attributed to urban conditions, but they cannot be directly attributed to the rural areas where the situation could be different. When addressing the families, they were not offered any material benefits or other types of benefits. The families agreed to participate in the study voluntarily. The souvenirs procured by the European Research Centre and the Latvian Centre for Safe Internet were given to the families only during the course of the study.

The study involved:

- two families with one child, who corresponds to the requirements of the study, and with both parents. One of these families has low income, but the other – high income;
- one family with only one parent and the child involved in the study is 6 years old, but there is also an older sister in the family who is 20 years old and a grandmother who does not engage in the mediation processes of digital technologies and children. The income of this family is low;
- three families with both parents who have children who participate in the study and who have also younger children. Two of these families have low income, but one has high income;

- four families with both parents, there are children who participate in the study and older children as well. Three of these families generally have two children, but one family has three children. In one of these families lives also a grandmother who does not engage in the mediation processes of digital technologies and children. Two of these families have low income, and two has high income.

All families involved in the study in their daily communication speak Latvian.

5.1.2. The sample

Family code	Member Code	Low – medium-high family income	Ethnicity	Sex	Age	Year school/ max level of education	Profession parents
LV1	LV1m35	Low	Latvian	f	35	Tertiary	Army officer
LV1	LV1f37	Low	Latvian	m	37	Tertiary	Army officer
LV1	LV1g7	Low	Latvian	f	7	Kindergarten (no school experience)	
LV1	LV1b1	Low	Latvian	m	1		
LV2	LV2m28	Low	Latvian	f	28	Secondary	Assistant of kindergarten teacher
LV2	LV2f27	Low	Latvian	m	27	Secondary	Carpenter
LV2	LV2b6	Low	Latvian	m	6	Kindergarten (no school experience)	
LV2	LV2b2	Low	Latvian	m	2	Attending kindergarten	
LV3	LV3m39	Low	Latvian	f	39	Secondary (vacational)	Manicure
LV3	LV3g7	Low	Latvian	f	7	1st Primary	
LV3	LV3g20	Low	Latvian	f	20	Secondary	
LV3	LV3gm65	Low	Latvian	f			Inspector of social department
LV4	LV4m49	Low	Latvian	f	49	Tertiary	Specialist of client's service
LV4	LV4f51	Low	Latvian	m	51	Secondary (vacational)	Carpenter
LV4	LV4g7	Low	Latvian	f	7	Kindergarten (no school experience)	
LV4	LV4g9	Low	Latvian	f	9	2nd Primary	

LV4	LV4gm79	Low	Latvian	f			pensioner
LV5	LV5m31	Low	Latvian	f	31	Tertiary	
LV5	LV5f35	Low	Latvian	m	35	Secondary	
LV5	LV5g7	Low	Latvian	f	7	Kindergarten (no school experience)	
LV6	LV6m31	High	Latvian	f	31	Tertiary	
LV6	LV6f33	High	Latvian	m	33	Tertiary	Economics
LV6	LV6b6	High	Latvian	m	6	Kindergarten (no school experience)	
LV6	LV6b2	High	Latvian	m	2	Attending kindergarten	
LV7	LV7m46	High	Latvian	f	46	Tertiary	Law, Philology
LV7	LV7f43	High	Latvian	m	43	Latvian	Economics
LV7	LV7g6	High	Latvian	f	6	Kindergarten (no school experience)	
LV7	LV7b9	High	Latvian	m	9	3rd Primary	
LV8	LV8m32	High	Latvian	f	32	Tertiary	Pedagogy, stewardess
LV8	LV8f34	High	Latvian	m	34	Tertiary (vacational)	Ingeneering
LV8	LV8b6	High	Latvian	m	6	Kindergarten (no school experience)	
LV9	LV9m35	High	Latvian	f	35	Secondary	
LV9	LV9f50	High	Latvian	m	50	Tertiary	Engineer
LV9	LV9g6	High	Latvian	f	6	Kindergarten (no school experience)	
LV9	LV9b9	High	Latvian	m	9	3rd Primary	
LV10	LV10m39	Low	Latvian	f	39	Tertiary	Chef
LV10	LV10f44	Low	Latvian	m	44	Tertiary	Insurance business
LV10	LV10g7	Low	Latvian	f	7	Kindergarten (no school experience)	
LV10	LV10b10	Low	Latvian	m	10	4th Primary	
LV10	LV10g13	Low	Latvian	f	13	7th Primary	

5.1.3. Implementation of the protocol of observations

In Latvia 10 families were interviewed (the instruction of the children interview protocol can be found in Annex 4, but instruction of the parents' interview protocol can be found in Annex 5), in each of the families there was an individual agreement about the desired time of the interview. Each of the families was visited by two researchers, one of them interviewed the child (children, if a family had several), focusing on the answers of the child who takes part in the study, and the other researcher interviewed a representative of the family who in most cases was the mother. All interviews took place in family homes. Each family was interviewed once. Each interview lasted from 1.3 up to 2 hours. All interviews were recorded in a digital format, as well as the photos were taken showing how the children use technologies and play with cards, the photos were organized successively according to their importance. After interviews the interviewers took also their own notes to ensure that the data obtained during interviews are analysed in the context of the things said and shown during the interview. These notes were taken only about such facts as the layout of digital devices, the child's ability to use them and other aspects that could be important.

Before interviews the researchers asked the parents and children to sign a consent form confirming the willingness to participate in the study. The parents were also asked to sign a document confirming that they agree that the collected data will be analysed and used in the research report. All families were told that the obtained results will be used only in aggregate form, the names of families and children will not appear anywhere in order to ensure the confidentiality of the participants of the study. Each researcher filled the family observation protocol.

Each family visit had a specific structure. Initially, the family was briefly introduced with the interviewers, the goal of the research, the planned course of the interview, who are the organizers of the study and what countries are participating in it. The family was also informed about the approximate length of the interview. It was told that there are no right and wrong answers. The idea of the study was explained also to the children, they were told that their opinion is important in order to evaluate their digital literacy. At this point the parents also signed a document in which they confirmed that they agree to do the study and agree that the interview will be recorded in a digital form. At this moment the researchers also clarified the factual information about the family, such as age of the family members, level of education and profession, family income level. They were asked whether there are other people living in the family except the children and their parents and what language do they speak in daily communication. This part took on average 10 minutes.

The next step was the ice-breaker activity, during which the children and parents were still together. In this activity they used books on the use of the Internet by children procured by the Centre for Safe Internet, as well as they filled in the sheet about the typical daily life of the child.

After that the interviews of parents and children were initiated. 9 interviews took place as planned, the parents and children responded to questions separately, but in one family mother definitely wanted to be present when the daughter responded to the interviewer's questions, though previously the structure of the study was explained. Initially, all of the participants of the interview were acquainted with the rules of the interview, for example, when one person speaks, then others allow him to speak and does not interrupt. In general, parents and children did not hear each other's answers to the questions of the study, except this one family where the mother changed her mind and wanted to be present.

The interviews were carried out in accordance with the instructions of the interview protocol. As warm-up activities for children were selected the 1st activity – card game (see Annex 6) and 3rd activity – examination of digital devices. In the card game the children were asked to arrange them in sequence by putting the first those activities that they like to do best and sequentially arranging them to the less exciting activities. The researchers took photos and analyzed the lines of cards arranged by the children in order to understand which activities in general excites the children more, as well as they were asked questions about each digital device, for example: what is this? what do you do with it? how did you learn to do it? This part took on average 20-30 minutes.

The course of the activity "Examination of digital devices" was different. According to the situation, in some families it was associated with the card game, i.e. inviting the child to demonstrate how he uses the particular device, but in other families the examination of the device took place during the following interview by asking the child to demonstrate what he is able to do with each device about which the questions were asked.

In all families the parents agreed to carry out such a tour. Interviewers asked additional questions as well, such as whether you know how to find a cartoon when you turn on the TV, or does somebody help you? What else are they able to do with technology, who helped to learn that, etc.? At this point, the interviewers asked questions that were related to the research questions in order to explore the perceptions of the participants of the study on how digital technologies are used in the daily life, the availability of various technologies to the child, which of them belong to the child, the rules for the use of technologies that the family has set, what risks may be encountered by using digital technologies and how the children have learned about these risks. We asked to clarify whether the digital devices are used together with parents or do the parents control the content that the child is watching, or what the child is doing with digital devices. They were asked about how frequently and for how long they use the devices, but some children were unable to answer these questions precisely, so the researchers formulated them in a more understandable way by asking what kind of cartoon did you watch yesterday? What kind of game did you play the last time you used a smartphone? The children were asked to show a variety of applications that they most frequently use and asked to tell how did they get these applications, and how often do they use the specific application. Both children and parents were asked similar questions.

At the end of each interview, the researchers asked participants whether there is something else that they would like to add and that has been left undiscussed. Then both parents and children met together with researchers who thanked the family for involvement in the study and gave the family bags with a variety of souvenirs provided by the JRC and Centre for Safe Internet.

5.1.4. Recording

All interviews were recorded by using the personal smartphones of the researchers. Also the photos were taken with researchers' smartphones. After transcribing the results of the interviews and compiling the results, the researchers deleted the materials obtained during the interview from their smartphones in order to comply with the ethical principles of the study and to ensure the confidentiality of data. The notes about the observations during the interview were made in the notebooks that the researchers carried along with themselves.

5.1.5. Implementation of the protocol of analysis

The interviews were transcribed. Each researcher who interviewed a particular child or a particular parent carried out a complete transcription of the interview. After that the obtained materials were coded. The code is based on the coding system that was sent to the researchers by JRC, but it was updated with the current codes (see the code system in Annex 7). For coding and code analysis the program MAXQDA 12 was used. The researchers carried out the transcriptions of their interviews and coding individually, but all researchers used the chat on Facebook created for the researchers where in an online mode they were able to both consult each other on the choice of the most appropriate code and supplement the system of codes. After encoding, the group of researchers discussed the results and corrected the selected codes, if necessary. The person who took over the transcription and coding management of the interviews was one of the researchers who has a doctorate in pedagogy and who after that gathered all the results of the interviews and analysed them by using programs MAXQDA12, IBM SPSS Statistics 22 and Excel 2013.

5.2. Discussion

5.2.1 Why might the results have turned out that way?

This study confirmed the phenomena of `digital natives` (Prensky, 2001, 2011) and `dot-com generation` (Rifkins, 2004) described in the scientific literature. They characterize the generation of the end of the 20th century and the beginning of 21st century as such a generation whose forms of cultural acquisition have been affected by technological advances and whose personalities are characterized by individuality, independence and consumerism. The results of the study clearly demonstrated that the children are using digital media actively, and this active use is enhanced also by a supportive situation reflected in the data of Central Statistical Bureau of the Republic of Latvia, which shows that in households with two adults and children the computer and Internet are available in 94% of the cases. (Central Statistical Bureau of RL) Also, they improve technical skills quickly, independently and successfully (Frechette, J., Williams, R. (2015). Media Education for a Digital Generation. England: Routledge, 322 p.), both individually and through `peer learning` (Spanhel, D. (2006) Medienerziehung. Band 3. Erziehungs und Bildungsaufgaben in der Mediengesellschaft. Stuttgart: Klett-Cotta.), however, they are not purposefully guided and supervised during this process. The parents do not talk with children about various safety risks that may be faced by using digital media online. The only emphasis is on damaging the technology and damaging eyesight of the child. The children at this age are given access to the digital media, and children's rooms are provided with an advanced technical media (Dinka, 2015), but it is also not clear whether these devices are meant to be only tools for entertainment or should they also provide educational activities. Some parents believe that their child can also learn a lot by using these digital tools, but it is not clear for them how this can happen and why in order for such learning to be successful, which confirms that the parents do not have sufficient expertise to use these tools in a targeted manner. Despite the fact that in the subfield of media pedagogy it is being increasingly emphasized that digital media both in the family and school should be viewed as a learning opportunity and a tool (Taranto Dalbon, Gaetano, 2011), instead of using them purposefully to improve and diversify the learning process by making it interesting and meaningful, the parents associate them more with leisure activities and entertainment.

In this study, the parents acknowledge that currently they do not see any threat to changes in family relationships that could be caused by inappropriate use of technology, but they are not sure whether such changes could not occur later. The results of a different survey carried out in Latvia confirm that the active use of Internet, hence also of different technologies, among children and young people is increasing every year, and the amount of time spent on their use is increasing as well, which leaves a negative impact on time allocation habits to family, friends and also studies. (Brikše, Spurava, 2014) Although currently the everyday life of the families surveyed in the study is not significantly affected by children's technology use habits and media competence, which is seen as the ability to access, analyze, evaluate and share (Aufderheide, 1993; Meyrowitz, 1998, Tyner, 1998), this will be a growing phenomenon. Although currently the parents do not regard the systemic approach as significantly urgent, it should be taken into account that media competence should be developed gradually and in the long term, starting from pre-school age.

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Another aspect that definitely should be taken into account is the fact that digital devices are more accessible to the children in those families who live in the city or in its surrounding region, as it was also in this study, which means that these results cannot be generalized on a national level because as the results of the previously made study show (Daniela, Rubene, Žogla, 2015), there are often situations when the families with low income do not have such technologies, in these families the children tend to watch TV and play games on a mobile phone that has a strongly different (limited) options compared to the smartphones and tablets, and therefore it would not be possible to measure the use of digital media of such children, because they simply do not use them. However, a situation should be taken into account, which is proven both by other international studies (Hill & Tisdall, 1997; Hill, M., Tisdall, K. (1997). Children and Society. England: Pearson Education Limited.) and the data obtained in the study that the income level of the family does not always clearly determine the availability of technologies in the children's rooms and household as a whole. There are also situations where the family's financial indicators do not comply with the wide range of the existing technologies in the households. However, technology accessibility is not *a priori* guarantee for creating safe and healthy habits regarding the technology use neither in households with high income nor low-income. This confirms that it is necessary to have a purposeful plan on preparing teachers and parents to work with the use of digital media for children, so that the process would be structured and pedagogically justified, and these tools could be used not only for leisure but also for educational activities in order to increase the expertise of using digital media that is highlighted by OECD as one of the groups of key competencies that are important for the successful functioning in a modern society, a competence for interactive use of a variety of tools, including digital media.

Among the contemporary competencies defined by OECD, it is mentioned that it should be possible to use the technologies in an interactive manner, therefore, when using the digital media, the teachers should be creative, they should be able to link the teaching content to the reasons why they are using a variety of information technologies, as well as they should be sufficiently competent and able to both use the different media and promote the development of children's digital literacy. It is clear that also pre-school students should be provided with the possibility to get acquainted with the digital media during the education process, and in order to engage in the digital world their ability to critically analyze the available information should be developed as well (Media Literacy Task Force, 2004; Snyder, 2001).

However, it has to be acknowledged that according to a study published by OECD on 27.07.15 stating that the development of competence of using digital media is limited due to the unavailability of various ICT in the educational environment, it is also a topical issue for Latvian pre-schools. Despite the fact that Latvian schools have a relatively high ICT availability ratio, in Latvian pre-schools it is equal to zero.

5.2.2 In what way did the findings changed over time?

[If longitudinal data are available (e.g. follow-up telephone interview), discuss them and link them to background literature.]

This is the first time in Latvia when this type of research is made, so it is impossible to carry out a comparative analysis.

5.2.3 How could the study be improved?

[Think about what could have been done differently. How more participants could have been recruited, the design could have been better, or a different question/ tool could have been used.]

In the next stages of the research it would be preferable to interview also those families, which do not have digital media in order to make a comparison. Secondly, more thought should be given to structuring of the sentences so that it would be easier to mutually compare them, otherwise in order to gain a complete understanding of the big picture, it would be necessary to analyze the historic and financial context of the country, for example, in Latvia, which is regarded as a post-socialist country and which for a long period of time had limited access to resources, there is a very high proportion of people who want to buy all the latest possible tools without evaluating the necessity and whether they can financially afford them. Often there are situations when families with low income spend a relatively large portion of their income on the things that have status, which do not in any way ease the financial situation of the family, for example, they purchase technologies that they really cannot afford and which do not have neither parenting nor educational advantages. This could also be one of the reasons why parents are more worried about the possibility of damaging these devices rather than about the fact that children may be faced with inappropriate or harmful content, the use of technology could adversely affect the sensory development of the children. For example, some parents mentioned the possibility that technology may adversely affect the eyesight, but did not mention such important aspect as the development of the vestibular system, which has an important role in a balanced development of the child.

It is possible that teachers who work with children in the target group of the study could be involved in the study.

Before starting the next phase of the study, the assessment criteria for Digital literacy according to the age group of the children that are being evaluated should be developed.

5.2.4 What are the methodological recommendations for future research?

The overall design of the study should be improved in order for the data collected to be comparable, presentable, timely and accurately obtained.

A questionnaire with structured questions should be developed, which have emerged in the previous stages of the study. Part of the questions could be closed and part could be open where respondents could freely express their views. This would allow to summarize the results in a structured way with a possibility to obtain qualitative and quantitative results to be analyzed. However, children should still be interviewed and observed.

The study could also be a longitudinal so that it would be able to detect long term changes in the approach to media education, parents' and children's comprehension and technology using habits, and their interrelationships.

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

[After discussing the current study, analyzing the results, and determining ways to improve the research, assess what the next step could be.]

In the further studies a wider range of participants should be involved, but it should be taken into account that it is difficult to do that by using only qualitative data collection and data analysis methods, therefore development of structured questionnaires should be considered.

Teachers who work with this target group on a daily basis should be involved in the study.

6. Conclusions

6.1. Key findings

- The obtained data show that a wide range of technologies and intensive use of them is considered as a norm in the households, children's technical skills correspond to the particular age, as well as the reasons for using technologies are increasingly associated with entertainment rather than with searching for a practically useful information and performing deliberate learning activities, but they also indicate a certain type of habits.
- Families rarely practice a joint and purposeful acquisition of technologies, but it is mostly supported from parents' side or based on tactics of unsupervised children's attempts and principle of randomness. There could be mentioned several reasons for parents' lack of participation or fragmentation: they are not interested in helping children to learn to use the technologies because they see a learning potential in this activity, they themselves are unable to handle the technologies so skillfully to teach their children, they consider them to be negative, therefore, despite the fact that the parents have purchased the technologies and allow the child to use them, as a matter of principle, they do not consider it to be appropriate to help children to learn to use them, parents have not immersed themselves in this issue, thus allowing the process to run its course.
- Although neither the parents' nor the children's use of technologies as a whole suggested any specific potential threats, however, regular habits do not necessarily indicate an in-depth understanding and systemic strategic approach in the action. In general, the parents in the families do not implement a well-considered media education, and they have not purposefully developed an approach to technology use based on psychological and pedagogical arguments. This is indicated by the inconsistency of imposing the rules and requirements (time of the day, duration, type of technology, operational specifics), fragmentation in their implementation, as well as a voluntary use of technologies within the framework of implementing parental authority outside the technology area by rewarding or punishing children, by disciplining them with restrictions regarding technology use, as well as by regulating the free time of the parents to meet their own needs.

- The fact that media education is not implemented purposefully is justified by the fact that the parents are lacking media competence that would increase the confidence regarding the appropriate choice of parenting approach. Understanding both the usefulness and potential risks of the technologies is more abstract and intuitive, the arguments are often irrational and not from in-depth studies of literature, or based on conclusion of the field specialists, but rather on personal assumptions, oral messages of the media and the bystanders. Several families represented a belief that media education becomes relevant at a certain age, which is not defined within this study, and that the surveyed children have not yet reached such age, therefore, in parents' opinion, poorly targeted approach is still acceptable.
- Parents' lack of knowledge or unwillingness to analyze the issues regarding the impact of technologies is also revealed by children's superficial understanding of the risks associated with the technology use. The children associate the risks of technology use more with physical threats, which are more evidently identifiable and easier to understand for child's perception - the children are aware of the mechanically technical damage to the devices themselves and the potential damage to physical health of individuals, the risks of mental health, privacy or safety only in abstract terms.
- Children's technology use habits have correlations with parents' understanding and practice of technology use. A number of parents' understanding and logical courses of action are identifiable:

a) the parents who use technologies actively themselves, but give a relatively little thought to the content and superficially reflect on the consequences of technology use, they are more familiar with the child's digital activity habits and are less skeptical about children's interest in technologies, and mostly slightly critically liberal with regard to the child's urge to use technologies on a daily basis. The parents in this model prioritize the value and importance of technologies, but they pay secondary attention to the child's physical and emotional safety.

b) the parents who use technologies actively themselves, they look into the content and see the correlations between the use and consequences, they are more demanding with regard to the child as a user, and do not only limit the number, types, duration of use of the technologies, but also ask children to critically assess the role of technologies in general according to their age, their positive and negative features, as well as they orient children towards self-discipline with regard to the technology use by providing parents' assistance in the virtual reality.

c) the parents who see more negative trends in the existence and use of the technologies, they are passive and comparatively rarely use technologies. In such a model raising of a child is more dominated by prohibition to use technologies, which is not explained with reasonable arguments, or minimal attention is paid to children's technology usage habits.

d) the so-called rational technology use model was identified in which the parents are aware of the role of technologies in the present and the future, consider them to be a normal routine components of the family, however, they are aware of and understand the risks involved with regard to the raising of children by trying to balance

between the virtual and real activities and by promoting the understanding of the child, as opposed to other models where parents are more focused on the inheritance of views, by not clarifying the reasons and therefore not promoting the child's ability to judge and media competence. In this model the parents, unlike the others, believe that the media competence should be gradually formed from an early age.

e) data from the study allowed to identify a gender contrast model in the parenting approach, in which the fathers are relatively less prejudiced and more technically competent technology users, and delegate more freedom to their children, while mothers are more conservative technology users, who develop more detailed provisions of use for children and often for spouses as well, so that it would be an example for children.

- Despite the extensive range of technologies both in households with low income and high-income, the children attaches high priority to the activities of real life - plays, games, physical activities, social contacts, suggesting that the environments are separated and the child is able to choose what he prefers in them both.
- Inconsiderate and non-purposeful media education in families also influences the purchase of technologies the reason for which is mostly the availability and affordability of the product in the market, changing fashion trends in technology acquisition, which is associated with a certain affiliation to social circles, implementation tool of penalty and reward system rather than care for achieving particular parenting and learning objectives.

6.2. Recommendations

1. Recommendations to Policy-makers [particularly important]

At the national level in general:

- to increase support for targeted virtualization of education at all levels, ensuring its gradual integration and continuity from pre-school to higher education level and legitimizing it as one of the priorities of competence-based education in laws and regulations, whilst providing access to technology and promoting effective use of it in the educational practice;
- to ensure a regular long-term distribution of informative narrative (social shares, didactic materials, thematic activities, etc.) about justification for the necessity of educational virtualization in order to raise public awareness about technology literacy as one of the core competencies of the individual;
- to raise funds for education management representatives in order to provide a systemic support for teachers and parents for improving media expertise in further education.

2. Recommendations to Industries

To technology manufacturers and distributors:

- technology producers should cooperate with the professionals from educational sector so that the technologies could be effectively used in order to achieve learning objectives and so that the pedagogical content could be integrated into the technical solutions;
- in collaboration with education professionals, the research should be implemented in order to identify the actual needs of the users and to identify their feasibility at

all levels, for the next few years by prioritizing preparation of technology and digital materials for pre-school stage;

- to compile and promote examples of the effective use of technologies;
- in collaboration with educational institutions of all levels, to organize practical and interactive activities of acquiring to use technologies for teachers, parents, children and other interested persons, as well to develop didactic and informative materials, such as manuals for different target groups.
- to implement amplification of safety features in the technology manufacturing sector.

3. Recommendations to Parents and carers

- to consider their media competence as a tool to become a skilled mentor to the child;
- to recognize and to use the possibilities of further education in order to promote awareness of the diversity of technology use and to improve the skills in using tools;
- to purposefully implement effective media education in the family in collaboration with educational institutions, by developing a critical and safe approach to the usage, by developing a systemic supervisory model with consistent, reasonable rules and by providing user support;

4. Recommendations to School, libraries, Museums …

- to provide monitoring of the educational virtualization and management within the framework of the institutions, in order to actively participate in the making process of the educational virtualization discourse;
- to provide access to technologies for the management of educational institutions (especially pre-school), as well as to systemically organize training activities for improving media competence of teachers, parents and children;
- to create a motivation system for teachers that would facilitate meaningful integration of the technologies within the teaching content;
- teachers should ensure that the technologies would be meaningfully integrated in the learning activities, ensuring the efficiency and quality of the use in order to effectively achieve the learning objectives.
- library management and general staff should integrate the technological innovations in the everyday work processes and improve the level of their tool literacy in order to provide an adequate service and to actively participate in the making process of the educational virtualization discourse.
- museum management and general staff should integrate the technological innovations in the everyday work processes and improve the level of their tool literacy in order to provide an adequate service and to actively participate in the making process of the educational virtualization discourse.

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8. Annexes

Annex 1

Overview of belonging and use of technologies in all interviewed families

Family code	Television	DVD_player	Blu-ray_player	Digibox	Advanced_Audio_system	Personal_computer	Laptop	Tablet	Music_player_mp3	Mobile_phone	Smartphone	Gaming_console_for_TV	Portable_gaming_console	Multimedia_projector
LV1	belong to parents and it is allowed to use for child	belong to parents and it is allowed to use for child	not found	belong to parents and it is allowed to use for child	not found	not found	belong to parents and it is allowed to use for child	belong to child and it is allowed to use for child	belong to child and it is allowed to use for child	not found	belong to parents and it is allowed to use for child	not found	not found	not found
LV2	belong to parents and it is allowed to use for child	belong to parents and it is allowed to use for child	not found	not found	belong to parents (it is not allowed to use for child)	belong to parents (it is not allowed to use for child)	not found	belongs to other people and it is allowed to use for child	not found	belong to child and it is allowed to use for child	belong to parents and it is allowed to use for child	belong to parents (it is not allowed to use for child)	not found	not found

Family code	Television	DVD_player	Blu-ray_player	Digibox	Advanced_Audio_system	Personal_computer	Laptop	Tablet	Music_player_mp3	Mobile_phone	Smartphone	Gaming_console_for_TV	Portable_gaming_console	Multimedia_projector
LV3	belong to parents and it is allowed to use for child	belong to parents and it is allowed to use for child	belong to parents and it is allowed to use for child	not found	belong to parents and it is allowed to use for child	belongs to other people and it is allowed to use for child	belong to parents and it is allowed to use for child	belong to child and it is allowed to use for child	not found	not found	two similar devices at home, one belong to parents, another to child	not found	not found	not found
LV4	belong to parents and it is allowed to use for child	not found	not found	not found	not found	belong to parents and it is allowed to use for child	belong to parents and it is allowed to use for child	belongs to other people and it is allowed to use for child	belong to parents and it is allowed to use for child	belong to child and it is allowed to use for child	belong to parents and it is allowed to use for child	not found	not found	not found

Family code	Television	DVD_player	Blu-ray_player	Digibox	Advanced_Audio_system	Personal_computer	Laptop	Tablet	Music_player_mp3	Mobile_phone	Smartphone	Gaming_console_for_TV	Portable_gaming_console	Multimedia_projector
LV5	belong to parents and it is allowed to use for child	belong to parents and it is allowed to use for child	not found	not found	belong to parents and it is allowed to use for child	belong to child and it is allowed to use for child	belong to parents and it is allowed to use for child	not found	belong to parents and it is allowed to use for child	not found	belong to child and it is allowed to use for child	not found	not found	not found
LV6	belong to parents and it is allowed to use for child	belong to parents (it is not allowed to use for child)	not found	belong to parents (it is not allowed to use for child)	not found	not found	belong to parents (it is not allowed to use for child)	belong to parents and it is allowed to use for child	belong to child and it is allowed to use for child	not found	belong to parents and it is allowed to use for child	not found	not found	not found
Family code	Television	DVD_player	Blu-ray_player	Digibox	Advanced_Audio_system	Personal_computer	Laptop	Tablet	Music_player_mp3	Mobile_phone	Smartphone	Gaming_console_for_TV	Portable_gaming_console	Multimedia_projector

LV7	belong to parents and it is allowed to use for child	belong to parents and it is allowed to use for child	not found	not found	belong to parents (it is not allowed to use for child)	belong to parents (it is not allowed to use for child)	belong to parents (it is not allowed to use for child)	belong to parents and it is allowed to use for child	belong to parents and it is allowed to use for child	not found	belong to parents (it is not allowed to use for child)	not found	not found	not found
LV8	not found	not found	not found	not found	belong to parents and it is allowed to use for child	belong to child and it is allowed to use for child	belong to parents and it is allowed to use for child	belong to child and it is allowed to use for child	not found	belong to parents (it is not allowed to use for child)	belong to child and it is allowed to use for child	belong to child and it is allowed to use for child	not found	belong to parents (it is not allowed to use for child)
Family code	Television	DVD_player	Blu-ray_player	Digibox	Advanced_Audio_system	Personal_computer	Laptop	Tablet	Music_player_mp3	Mobile_phone	Smartphone	Gaming_console_for_TV	Portable_gaming_console	Multimedia_projector

LV9	belong to parents and it is allowed to use for child	belong to parents and it is allowed to use for child	not found	belong to parents and it is allowed to use for child	not found	belong to parents (it is not allowed to use for child)	belong to parents (it is not allowed to use for child)	belong to child and it is allowed to use for child	not found	not found	belong to parents (it is not allowed to use for child)	belong to child and it is allowed to use for child	not found	not found
LV10	belong to parents and it is allowed to use for child	not found	not found	not found	not found	not found	belong to parents and it is allowed to use for child	not found	not found	not found	belong to child and it is allowed to use for child	not found	not found	not found

Annex 2

Overview of preference of online and traditional free-time activities

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
VAR26_board_games	10	17	1	18	8,90	1,980	6,262	39,211
VAR28_drawing	10	20	1	21	8,90	2,089	6,607	43,656
VAR24_domestic_animals	9	25	1	26	10,67	2,404	7,211	52,000
VAR02_laptop	8	25	1	26	10,88	3,627	10,260	105,268
VAR29_playing_music_instruments	8	16	4	20	10,88	2,326	6,578	43,268
VAR21_bicycle	9	20	2	22	11,22	2,448	7,345	53,944
VAR23_swimming	10	29	1	30	11,40	3,030	9,582	91,822
VAR10_LEGO	10	27	1	28	11,70	2,741	8,667	75,122
VAR25_tennis_sports	8	18	3	21	11,88	2,553	7,220	52,125
VAR13_ball	8	27	1	28	12,25	2,999	8,481	71,929
VAR01_music_player	8	25	3	28	12,38	3,122	8,831	77,982
VAR03_child_game_laptop	7	24	3	27	12,71	3,510	9,286	86,238
VAR08_smartphone	10	26	2	28	13,10	2,523	7,978	63,656
VAR30_digital_watch	7	16	4	20	13,29	2,157	5,707	32,571
VAR04_play_console	8	25	2	27	13,38	3,364	9,516	90,554
VAR15_knight	10	27	2	29	13,60	2,884	9,119	83,156
VAR09_tablet	10	22	3	25	13,80	2,564	8,108	65,733
VAR19_child_game_tablet	7	21	1	22	14,14	2,492	6,594	43,476
VAR07_TV	10	23	4	27	14,40	2,227	7,043	49,600
VAR22_playground	10	26	4	30	14,50	2,600	8,223	67,611

VAR16_barby_doll	9	25	5	30	15,22	3,353	10,060	101,194
VAR14_car	7	19	4	23	15,71	2,222	5,880	34,571
VAR12_books	9	23	2	25	15,78	2,842	8,526	72,694
VAR06_video_game_consoe	10	25	4	29	15,90	2,885	9,122	83,211
VAR17_magnetic_drawing_board	8	25	5	30	16,38	2,618	7,405	54,839
VAR27_dancing	7	24	5	29	17,29	3,496	9,250	85,571
VAR05_mp3_mp4_player	6	28	1	29	18,17	4,715	11,548	133,367
VAR11_baby_doll	7	22	7	29	20,29	2,826	7,477	55,905
VAR18_handheld_console	6	18	12	30	21,17	2,738	6,706	44,967
VAR20_e_book_reader	6	18	10	28	23,50	2,754	6,745	45,500

Annex 3

DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe

Authors: Author: Anusca Ferrari , Editors: Yves Punie and Barbara N. Brečko
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Available at: http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=6359

Basic user		Independent user		Proficient user	
I can look for information online using a search engine.	1BU	I can use different search engines to find information. I use some filters when searching (e.g. searching only images, videos, maps).	1IU	I can use advanced search strategies (e.g. using search operators) to find reliable information on the internet. I can use web feeds (like RSS) to be updated with content I am interested in.	1PU
I know not all online information is reliable.	2BU	I compare different sources to assess the reliability of the information I find.	2IU	I can assess the validity and credibility of information using a range of criteria. I am aware of new advances in information search, storage and retrieval.	2PU
I can save or store files or content (e.g. text, pictures, music, videos, web pages) and retrieve them once saved or stored.	3 BU	I classify the information in a methodical way using files and folders to locate these easier. I do backups of information or files I have stored.	3IU	I can save information found on the internet in different formats. I can use cloud information storage services.	3PU
I can communicate with others using mobile phone, Voice over IP (e.g. Skype) e-mail or chat – using basic features (e.g. voice messaging, SMS, send and receive e-mails, text exchange).	4 BU	I can use advanced features of several communication tools (e.g. using Voice over IP and sharing files).	4IU	I actively use a wide range of communication tools (e-mail, chat, SMS, instant messaging, blogs, micro-blogs, social networks) for online communication.	4PU
I can share files and content using simple tools.	5 BU	I can use collaboration tools and contribute to e.g. shared documents/files someone else has created.	5IU	I can create and manage content with collaboration tools (e.g. electronic calendars, project management systems, online proofing, online spreadsheets).	5PU
I know I can use digital technologies to interact with services (as governments, banks, hospitals).	6 BU	I can use some features of online services (e.g. public services, e-banking, online shopping).	6IU	I actively participate in online spaces and use several online services (e.g. public services, e-banking, online shopping).	6PU
I am aware of social networking sites and online collaboration tools.	7 BU	I pass on or share knowledge with others online (e.g. through social networking tools or in online communities).	7IU	I can use advanced features of communication tools (e.g. video conferencing, data sharing, application sharing).	7PU
I am aware that when using digital tools, certain communication rules apply (e.g. when commenting, sharing personal information).	8 BU	I am aware of and use the rules of online communication ("netiquette").	8IU		8PU
I can produce simple digital content (e.g. text, tables, images, audio files) in at least one format using digital tools.	9 BU	I can produce complex digital content in different formats (e.g. text, tables, images, audio files). I can use tools/editors for creating web page or blog using templates (e.g. WordPress).	9IU	I can produce or modify complex, multimedia content in different formats, using a variety of digital platforms, tools and environments.	9PU
I can make basic editing to content produced by others.	10 BU	I can apply basic formatting (e.g. insert footnotes, charts, tables) to the content I or others have produced.	10IU	I can create a website using a programming language.	10PU

I know that content can be covered by copyright.	11BU	I know how to reference and reuse content covered by copyright.	11IU	I can use advanced formatting functions of different tools (e.g. mail merge, merging documents of different formats, using advanced formulas, macros).	11PU
I can apply and modify simple functions and settings of software and applications that I use (e.g. change default settings).	12 BU	I know the basics of one programming language.	12IU	I know how to apply licences and copyrights.	12PU
	13 BU		13IU	I can use several programming languages. I know how to design, create and modify databases with a computer tool.	13PU
I can take basic steps to protect my devices (e.g. using anti-viruses and passwords). I know that not all online information is reliable.	14 BU	I have installed security programmes on the device(s) that I use to access the Internet (e.g. antivirus, firewall). I run these programmes on a regular basis and I update them regularly.	14IU	I frequently check the security configuration and systems of my devices and/or of the applications I use.	14PU
I am aware that my credentials (username and password) can be stolen. I know I should not reveal private information online.	15 BU	I use different passwords to access equipment, devices and digital services and I modify them on a periodic basis.	15IU	I know how to react if my computer is infected by a virus.	15PU
I know that using digital technology too extensively can affect my health.	16 BU	I can identify the websites or e-mail messages which might be used to scam. I can identify a phishing e-mail.	16IU	I can configure or modify the firewall and security settings of my digital devices.	16PU
I take basic measures to save energy.	17 BU	I can shape my online digital identity and keep track of my digital footprint.	17IU	I know how to encrypt e-mails or files.	17PU
	18 BU	I understand the health risks associated with the use of digital technology (e.g. ergonomy, risk of addiction).	18IU	I can apply filters to spam e-mails.	18PU
	19 BU	I understand the positive and negative impact of technology on the environment.	19IU	To avoid health problems (physical and psychological), I make reasonable use of information and communication technology.	19PU
	20 BU		20IU	I have an informed stance on the impact of digital technologies on everyday life, online consumption, and the environment.	20PU
I can find support and assistance when a technical problem occurs or when using a new device, program or application.	21 BU	I can solve most of the more frequent problems that arise when using digital technologies.	21IU	I can solve almost all problems that arise when using digital technology.	21PU
I know how to solve some routine problems (e.g. close program, re-start computer, re-install/update program, check internet connection).	22 BU	I can use digital technologies to solve (non-technical) problems. I can select a digital tool that suits my needs and assess its effectiveness.	22IU	I can choose the right tool, device, application, software or service to solve (non-technical) problems.	22PU
I know that digital tools can help me in solving problems. I am also aware that they have their limitations.	23 BU	I can solve technological problems by exploring the settings and options of programmes or tools.	23IU	I am aware of new technological developments. I understand how new tools work.	23PU
When confronted with a technological or non-technological problem, I can use the digital tools I know to solve it.	24 BU	I regularly update my digital skills. I am aware of my limits and try to fill my gaps.	24IU	I frequently update my digital skills.	24PU
I am aware that I need to update my digital skills regularly.	25 BU		25IU		25PU

Annex 4

Observation protocol children

Please remember that the protocol goes beyond a recording of events and provides an overall context for the data. Therefore, think of the following during each family visit:

- **Describe the setting**, i.e., where the observation took place and what the physical setting was like;
- **Identify and describe family members**, i.e. family constitution, age of children & parents, ethnic background, schools/day-care children attend, parent`s work, etc.);
- **Document the interactions** between observers and observed putting special attention on these 5 categories:
  1. Digital-related activities
  2. Devices used
  3. Children`s skills
  4. Family rules
  5. Any other surprising, unusual or unexpected aspect
- **Be alert to** unanticipated events that might require refocusing one or more questions/areas of interest.

Family name (Pseudonym) :_____

Observer 1 Initials |__|__|__|

Observer 2 Initials |__|__|__|

Family constitution: (*circle all that applies*):

Father

Mother

Other adult (specify)_____

7-year old child

Younger sibling(s) (age)_____

Older sibling(s) (age) _____

other:_____

Audio file: |__|__|__|

Date |__|__/__|__/__|__|

Possession parents	Possession child	Usage child
○ Television ○ DVD player ○ Blu-ray player ○ Digibox (digital TV) ○ Advanced Audio-system ○ Personal Computer ○ Laptop ○ Tablet ○ Music player/MP3 player ○ Mobile Phone ○ Smartphone ○ Gaming console for TV ○ Portable gaming console ○ Other: _____ ○ Other: _____ ○ Other: _____ ○ Other:_____	○ Television ○ DVD player ○ Blu-ray player ○ Digibox (digital TV) ○ Advanced Audio-system ○ Personal Computer ○ Laptop ○ Tablet ○ Music player/MP3 player ○ Mobile Phone ○ Smartphone ○ Gaming console for TV ○ Portable gaming console ○ Other:_____ ○ Other: _____ ○ Other: _____ ○ Other:_____	○ Television ○ DVD player ○ Blu-ray player ○ Digibox (digital TV) ○ Advanced Audio-system ○ Personal Computer ○ Laptop ○ Tablet ○ Music player/MP3 player ○ Mobile Phone ○ Smartphone ○ Gaming console for TV ○ Portable gaming console ○ Other:_____ ○ Other: _____ ○ Other: _____ ○ Other:_____

Добавлено примечание ([KL1]): Maybe we could include this card here – after the other fill out form?

Introduction (10 min.)

All together:

- Introduce yourselves
- I am _____ from _____ (Observer 1)
- I am _____ from _____ (Observer 2)
- Explain general purpose of the study in a child-friendly way. For instance mention that one of the objectives is:
  - To learn if children and their families use (devices such as) mobile phones, smart phone, iPad, game consoles, and what they think of them…
  - To learn about what if children and their families like/don`t like about the internet, smartphones, i-pads, etc.
- Mention who is involved in the process (JRC, other country participants)
- Explain why the participants' cooperation is important
- Ask family members to introduce themselves using first names and ask how old the children are
- Explain aims of the discussion and expected duration (1.5-2.5 hours max.)

- Remind participants that it is important for us to hear everyone's ideas and opinions. There are no right or wrong answers – just ideas, experiences and opinions, which are all valuable.
- It is important for us to hear all sides of an issue – the positive/nice and the negative.
- Confidentiality is assured. "What is said in the home cannot be traced back to the home"; "if you don't wish to have a specific piece of information appear in the report let us know", etc.
- Ask if they have any questions
- Check position and functioning of recording device
- Check for everyone's consent to participate and be recorded and have informed consent forms signed by parent(s)

Ice-breaker (all) (15 to 30 min.)

After this short introduction, the children and parents will stay together to perform a short ice-breaking activity. Page 10 of the *Activity Book - Play and learn: Being online.* and its stickers has been chosen as a way for the family to determine the activities done as a family all together in a typical day requesting to match time and activities thanks to stickers provided with the book. This is set as a common start for all interviews.

After this activity explain that from now on parents will go to another room with observer 1 and children will stay in the living room (or the other way around) with observer 2, if that`s OK for the parents and children.

Interview (1 hr.)

- Ask siblings to define their own ground rules, for example:
  - Only one person talks at a time.
  - We first listen to what others have to say and then we can give our opinion.
  - We don`t need to agree on everything. If you think in a different way you can always say it.
- Now we are going to talk about your experiences with the objects you have shown me during the tour (so, the iPad, the smartphone etc. etc.)/ the objects you have seen during the memory game we played…

Devices employed and activities

During the interview it is important to find out about the types of devices and new technologies that children use, when they use them and why. Talking about these devices and observing children interact with them is also a great opportunity to find out about the child`s perceptions of new as well as more traditional technologies such as the TV. Activities and questions such as the ones listed below can be performed/asked during the interview. You don`t need to ask ALL these questions or perform ALL these activities, you can even ask different ones. What is important is to try to get a good overview of the technologies children

use, their contexts of use and the child`s perceptions of these technologies, but also not to make the child feel uncomfortable with any activities or questions we may ask. In other words, collect enough information so as to be able to provide answers to all our research questions in a child-friendly way. The request to use family devices is a matter of trust and therefore it is a question to ask when a trustable relationship is established between the researchers and the family members. It has been agreed by all participant to request the possibility to use the device on the spot.

Warming-up/setting up the context (20 min.)

In order to have a better understanding of the role new technologies play in children`s lives it is important to understand what children`s lives are like, what they do, what they like/don`t like, their hobbies, etc. Collecting this type of information is also important to contextualize our findings. This will also give us the opportunity to understand the child`s world better while the child may actually feel more at ease as they would feel that they themselves (not just their use of new technologies) is important to us. So, maybe we should start both the children`s and parents` interviews by asking **a few** of these questions, just as a warm-up:

- Can you tell me what you did today/yesterday? (E.g. going to school, playing with toys, reading books, watching TV, playing football, etc.)?
- Do you have any favourite toys, books, magazines? Can you show them to me?
- Do you have any hobbies? Which ones?
- Do you practice any sports? Which one?
- Do you have a best friend? What is his/her name? What do you like doing together, etc.?
- Is there anything you like (doing) a lot? Why?
- Is there anything that you don`t like (doing)? Why?
- And what about your family? How many brothers/sisters do you have? What are their names? How old are they? Do they go to school? Do you do things together, e.g. play together, watch TV, etc.? What kinds of games do you play together? And with your parents? What kinds of things do you do together?

After having had this conversation we should try to make a smooth transition towards the topic of new technologies and start with (some of) traditional media such as watching TV, watching films, etc. as the questions below.

- Do you sometimes watch films together with your family? Or do you ever go to the cinema?
- Which movie was the last one you saw? Was it on TV, Cinema, Youtube?
- What is your favourite movie? Why?
- Do you ever watch movies or videos on YouTube/the laptop?/i-pad?/your dad/mum's telephone, etc.?

Possible activities (optional depending on the interviews conditions and settings)

- **Activity 1:** CARD GAME
  Could you put all of the pictures in a line, with the picture at this end (point to left) of the thing you like using best, then the next best and so on to the other end of the line, where you can put what you like using least (point to right). So, let's start with what you like using best – which is it? (then prompt for each one after that)

  - As the child identifies a digital device, but only if you think that the child will be able (and willing) to tell you, ask questions about frequency of use, where they use it, who they use it with, what times of day they use it and so on. **1b/ 3a**
- **Activity 2:** draw me a picture of your best app/ game/ site. [When it is drawn] – Tell me about the drawing. **1a/1b/ 2a**
- **Activity 3:** Digital Tour done with the Children as facilitators: children could perform a digital tour with the observer but only if parents allow it. Alternatively, the tour could be carried out by the whole family at the end of the divided session between parents and children, but parents should be asked to let their children take the initiative and "guide the tour" and *NOT to interfere unless asked by their children.*

Possible questions related to the use of new technologies

- I would like to know if you sometimes use mobile phones, computers, tablets, and so on. I have pictures here of some of these things – which ones do you use? [Show child pictures of common devices]. **1a**
- What do you use X, Y for (if necessary prompt: to watch cartoons, to play games, etc.)? **1.a**
- Tell me about some of the things you like to do best on TV/ computer/ tablet/ music player/ radio/ games console. **1c**
- Observe/listen to what a child is able to do on different devices. If that does not come naturally, prompt the child to show you what he/she can do on X device (through memory cards or, if possible, show you directly in a device such as the family i-pad, laptop, etc. what they can do) **1a/ 1c**
- Do you ever visit websites? What are your favourite ones? Why? **1b**
- Can you show me your favourite game on your mother's phone/family iPad? **1b**
- Out of all of the things you have shown me (e.g. smartphone/ tablet/ laptop, etc.), which (would you miss the most if it was taken away from you? Alternatively, you can use one of the activities described below:**1b/ 3a**
- With the help of the CARD GAME displaying cards of tablets/ laptops/ PCs/ smartphones (as well as traditional toys) you can ask (some of) the following questions:
  - Which [app/ game/ site] do you like best? Do you want to show it to me? 1b
  - How do you use/ play it? **1a**
  - Tell me why you like it **1b**
  - When do you play/ use it? Do you use it a lot? **1a**
  - How did you learn to use the (smart) phone? To do this? Who taught you how to do this? **1d**
  - Do you use it/ play it with anyone else? Who? **1a**.
    - What do you do with him/ her when you play/ use it? **1a**
  - Do you have any toys/ books/ stickers etc. of this [app/ game/site?] **1e**
  - Which [app/ game/ site] would you tell your friends to play? Why? **1b**
  - What other apps/ games/ sites do you use? Tell me what you do on these. **1a**
- Are there any good or bad things about using the internet (or X device)? **2a**

- What do you think about [name device]? If you had to choose a word to describe it, what word would you choose? **2a/ 2b**
- Using the pictures as a prompt, ask the child, 'Are any of these things not safe to use sometimes? Why?" **2c**

Skills

Skills refer to what a child is able to do in a general sense as observed or told by the child, e.g. turn i-pad on/off, search for information, find pictures, videos on specific devices, scroll through different screens, select specific games, Apps, download things, identify certain icons (e.g. Google, YouTube, Facebook, etc.), etc. The emphasis for this theme should be our observations of the child's online activities, and avoid questioning them simply about what they say they can do.

Possible questions

- Which of these (show cards with devices) is easiest/hardest to use? Why? **1c**
- Which of these (show cards) can you use on your own? **1c**
- Which of these (show cards) can you use with someone else's help, e.g. your brother/sister, mum, dad, your teacher? **1c**
- Why do you need help to use X, Y (and not to use Z)? **1c**
- How did you learn to do this? Who showed/taught you how to do this? **1d.**
- Do you sometimes play at the same time with the [Device] and [Traditional Game]? **1e**
- Do you watch videos or play games of your favorite [traditional toy](e.g. Do you look for lego video's or do you play lego's game on the Wii?) **1e**
- Do you get inspired by any video, picture, website to play with [Traditional toy] **1e**

Parental Mediation

4.0	Do your parent show you things online, guide you to discover new things online?
4.0	Are there particular things your parents encourage you to do or to explore online? Would you like them to do more of something? (e.g. showing more cool stuff, play with you more, …)
4.0	Do you sometimes sit with them while they go online? Or just stay nearby to keep an eye on what they do online? If so, do you like it, why?
4.0	Are there activities that you and your parents do together online? Who ask for it? Do you? Does your parents do? Is it for school purposes? Or just like that like playing football or jigsaw together..
4.0	If your parents show you something, why do you think they do this? Do you think that's that helpful? Are there other things you would like your parents to do with you, or talk to you about, when you go online?

Family rules

Family rules refer to the agreements surrounding the use of digital devices at home (and outside home), implicit and explicit rules governing the use of these devices, etc. Refer to when these rules apply, but also when can these be broken.

Possible questions

- Can you use these (show cards with devices present at home) as much as you want? If not, why not? **4e**
- Can you use [x] device(s) everywhere (at home, at school, at restaurants, etc.)? **4e**

- Can you use [x] on your own or should mum or dad be present when you want to use it? **4e**
- Does mum or dad tell you how long, when or where you can use [X] device or play [Y] game? If so, why? **4b/4e**
- Can you play or use [device] at any time and for the time you wish? '**4/4e:'**
- If there are rules who created the rules?' **4/4e**
- Did you discuss, negotiated them? 'Do you follow them?' What happens if you do not follow the rules?' **4.b / 4d/4e**
- Are the rules the same for [device X] and [device Y], for different family members (e.g. can your little brother/sister play the same games as you do? Or can you visit the same websites that your older brother/sister visit?)? **4c.**

Unusual/unexpected/surprising

If there is anything important, interesting, relevant, surprising, unusual said or observed and not included in the categories above, please include them here.

Closing

- We are now approaching the end of our visit. Is there anything else anyone would like to tell me that we have not talked about?

After asking this question, parents, children and researchers will get together. They will be asked if there is anything else anyone would like to add or if they have any questions. The researchers will thank participants and will give them some incentives for their participation.

Annex 5

Observation protocol parents

Please remember that the protocol goes beyond a recording of events and provides an overall context for the data. Therefore, think of the following during each family visit:

- **Describe the setting**, i.e., where the observation took place and what the physical setting was like;
- **Identify and describe family members**, i.e. family constitution, age of children & parents, ethnic background, schools/daycare children attend, parent`s work, etc.);
- **Document the interactions** between observers and observed putting special attention on these 5 categories:
  6. Digital-related activities
  7. Devices used
  8. Children`s skills
  9. Family rules
  10. Any other surprising, unusual or unexpected aspect
- **Be alert to** unanticipated events that might require refocusing one or more questions/areas of interest.

Family name (Pseudonym):_____

Observer 1 Initials |__|__|__|

Observer 2 Initials |__|__|__|

Family constitution: (*circle all that applies*):

Father

Mother

Other adult (specify)_____

7-year old child

Younger sibling(s) (age)_____

Older sibling(s) (age) _____

other:_____

Audio file: |_|_|_|_|_|_|_|_|

Date: |_|_|_|_|_|_|_|_|

Introduction

All together:

- Introduce yourselves
- I am _____ from _____ (Observer 1)
- I am _____ from _____ (Observer 2)
- Explain general purpose of the study in an extremely child-friendly way
    - To learn if children and their families use devices such as mobile phones, smart phone, iPad, game consoles, and what they think of them…
    - To learn about what if children and their families like/don`t like about the internet, smartphones, tablets, etc.
- Mention who is involved in the process (JRC, other country participants)
- Explain why the participants' cooperation is important
- Ask family members to introduce themselves using first names
- Capture (not ask in detail at this point, yet) demographic details – using first name for discussion, More detailed data will be asked at the beginning of the parents' interview
- Explain aims of the discussion and expected duration (2.5 hours max.)
- Remind participants that it is important for us to hear everyone's ideas and opinions. There are no right or wrong answers to questions – just ideas, experiences and opinions, which are all valuable.
- It is important for us to hear all sides of an issue – the positive/nice and the negative.
- Confidentiality is assured. "What is shared in the home stays in the home."; "if you don't wish to have a specific piece of information appear in the report let us know", etc.
- Ask if they have any questions
- Check position and functioning of recording device
- Check for everyone's consent to participate and be recorded and have informed consents signed by parents

Ice-breaker (all) (15 to 30 min.)

After this short introduction, the children and parents will stay together to perform a short ice-breaking activity. Page 10 of the *Activity Book - Play and learn: Being online.* and its stickers has been chosen as a way for the family to determine the activities done as a family all together in a typical day requesting to match time and activities thanks to stickers provided with the book. This is set as a common start for all interviews.

After this activity explain that from now on parents will go to another room with observer 1 and children will stay in the living room (or the other way around) with observer 2, if that`s OK for the parents and children.

Interview (1 hr.)

- Explain what will happen with the collected information and that the participants' data will be treated anonymously and confidentially.
- Start the interview with a sentence like: "Now we are going to talk about your child/children`s experiences with new technologies and devices such as laptops, smartphones, iPad, etc.
- End with collecting participants` demographic details either within a semi-conducted interview or by asking the parents to fill-in a short survey or shall we ask relevant questions directly.

Devices employed, activities and skills

During the interview it is important to find out about the types of devices and new technologies that children use, when they use them and why. What is important is to try to get a good overview of the technologies children use and their contexts of use from the parents` perspective. We can then compare this information to the one obtained from children so as to better understand the role new technologies play in both the children`s lives but also in the family life.

Warming-up/setting up the context (20 min.)

In order to have a better understanding of the role new technologies play in children`s lives it is important to understand what children`s lives are like, what they do, what they like/don`t like, their hobbies, etc. Collecting this type of information from the parents` point of view is also important to contextualize our findings. This will also give us the opportunity to understand the child`s world better while the child may actually feel more at ease as they would feel that they themselves (not just their use of new technologies) is important to us. So, maybe we should start the parents` interviews by asking them questions like:

- Can you tell me about your family? How many children do you have? How old are they? Etc.
- Can you tell me what your child [7-year old child + younger sibling] does during a typical week including the weekend (e.g. going to school, playing, doing homework reading books, watching TV, playing football, etc.)? **1a/ 3a**

After having had this conversation we should try to make a smooth transition towards the topic of new technologies and start with some questions about traditional media such as watching TV, watching films, etc. as the questions below.

- Do you sometimes watch films together with your children? Or do you ever go to the cinema with the children?
- And do you ever watch movies or videos on YouTube/the laptop? /i-pad? /your smartphone, etc.? **3d**

For this, it is highly recommended to use the card game to support the interview process as it gives parents a good idea on the different topics that can be touched. It also enables the researcher to guide the interview more stepwise and not to introduce technologies that are not familiar to the parents since they can choose the cards themselves. Of course, it is up to the researcher and the parents to decide if this approach is helpful in the specific interview or not.

Possible questions:

The researcher will first ask parents to freely talk about the technological devices they have at home in general and, in particular, identify the ones their children use/like most – (the Card Game can be used as well with parents for collecting this information). We could then ask more specific questions about those devices that seem to be the most important ones. Here some general questions tacking the smartphone as starting point followed by some of the device-related questions, chose between the device-list the most appropriate ones:

- Does anyone in the family possess a mobile phone or a smartphone? What about the children? **1a**
- Since when does child X possess a phone? What does s/he use it for? **1a/ 1c**
- If child does not possess a phone, ask: Does your child ever try to use someone else's mobile phone? If so, what does he/she do with it? **1c**
- How did your child learn to use the (smart) phone? **1d**
- Apart from the smartphone, what other technological devices do you have at home?
- Of these, which ones does your child use/know how to use? **1a**
- How did your child learn to use [X} device? Did anybody teach him/her? **1d**
- Which of these devices can your child master independently? And which ones can he/she use with someone else`s help (e.g. because they are difficult to use)? **1c**
- Which device(s) does he/she use more frequently? Why? **1a**
- According to you what is/are your child favourite device(s)? Why? What does he do with it/them? **1b/ 2a**
- Does your child play any online games? Which one(s)? **1a**
- In which device does he/she usually play these game(s)? **1a**
- Does your child use the internet? What for? **1a/ 1c**
- In which device does he/she usually use the internet? **1a**
- What are his/her favourite websites? Why do you think he/she likes them? **1b/ 2b**
- Does your child take pictures, record videos or sounds with devices? Do they or you share them or upload them on the internet? Do they create or curate other content? **1a/ 1c**
- Can your child use any devices or the internet any time s/he wants? If not, why not? This can be a good question to lead us towards the topic of family rules, parental concerns, etc. **4, 4c**
- Do you use any digital technology to encourage, stimulate, and/or educate your child? **3f/3g**

Depending on the child`s favourite devices you can chose some of the questions below, but it may be better to focus more on what a child does (most likely across devices) than on the specific devices/gadgets they child uses. If we focus on every device, it may be difficult to keep a natural conversation flow because many questions will be repeated all over again and most likely, parents will jump from device to device while telling us what their child is able to do (ex. playing online games online, on the laptop, on the Wii, etc.).

Possible questions about Tablets

- How many working tablets do you have in the home? **1a**
- At what age did he/ she start using it? Who taught him/ her to use? **1a**
- What does he/ she like to do on it? **1a/ 1c**

- For how long would you say he/ she uses the tablet on a typical week-day/ on a weekend day? **1a**
- Does he/ she use the tablet with anyone? If so, how? **1a/ 1d**
- Who uploaded them? **3g**
- Which games/ apps are his/ her favourite? **1b/ 2a/ 2b**
- Who taught him/ her to use the tablet and from what age? **1d**
- Did you child teach you anything in the use of the tablet? Where do you think this knowledge comes from? **1c/ 2d**
- What kinds of things do you think he/she learns from using tablets, if anything? **1c/ 2d(i)**

Possible questions about Games consoles

- Does your child use a games console at home? **1a**
- At what age did he/ she start using it? **1a**
- Which games does he/she like to play best? **1b**
- For how long would you say he/ she uses the games console on a typical week-day/ on a weekend day? **1a**
- Who chooses which games he/she can play? **4/ 4b/ 4c**
- Are your children following the rules?' What happens if they do not follow them?' **4e**
- Does he/ she play on the games console with anyone? **3d**
- Do you ever play games with your child? Which ones? **3d**
- What kinds of things do you think he/she learns from playing videogames, if anything? **1c**

Possible questions about Computer/ laptop

- How many working computers/ laptops do you have in the home?
- Does your child have his/ her own computer/ laptop?
- For how long does your child use the computer/ laptop on a typical week-day/ on a weekend-day? **1a**
- What does he/ she do on it and who with? [Prompt: searching information, images, watching videos, playing online games, Skype, SNS, …] **1a/ 1c**
- Do you ever use the computer/ laptop with him/ her? If so, what for? **3d**
- Who taught him/ her to use the computer/ laptop and from what age? **1d**
- What kinds of things do you think he/she learns from using computers/ laptops, if anything? **1c/ 2d(i)**

Possible questions about music (radio, MP3/ Music player – MP4 / video player)

- For how long does your child listen to music on a typical week-day/ on a weekend-day?
- What does he or she like to listen to? **1a**
- Does your child have an MP3/ music player of his own? How often does your child listen to it on a typical week-day/ on a weekend-day? **1a**
- What does he or she like to listen to/ watch to? **1b**
- Does he/ she ever ask you to buy specific songs or upload a specific video and if so, can you give me an example? **1a**

Possible questions about Television

- Does your child have a TV in his/ her bedroom?
- For how long does he/ she watch TV on a typical week-day/ on a typical weekend day? **1a**
- Which TV programmes does your child like watching? **1b**

- What are his/her favourite films? **1b**
- How independent is he/ she in using the TV and DVD player? **1c**
- For how long does he/ she watch films on a typical week-day/ on a typical weekend day? **1a**
- What programmes do you watch together? **3d**
- Do you use/play with [Device] with your brothers/sisters/ parents? When? For how long? Who is the best at it? Why? **3d**
- Does he/ she watch TV on any of these devices: a pc/ laptop/ netbook; games console player; mobile phone; tablet computer; portable media player? When? **1a**
- What kinds of things does [child's name] do when watching TV? [Prompt if necessary – sings/dances/plays, etc.] What are the most prevalent activities? **1a**
- Does any of [child's name]'s play relate to TV or film? If so, what do they play? [Probe how, e.g. dressing up, asking other family members to also be characters, etc].

Off-line and On-line practices

- Does your child have any favourite toys, books, magazines? Which ones? **1e**
- Does your child have any hobbies? Which ones? **1a/ 1b/ 1e/ 2a (if interests relate to technologies)**
- What does your child like doing with his/her friends, etc.? **1a/ 1b/ 1e/ 2a (if interests relate to technologies)**
- Is there anything your child likes (doing) a lot? **1a/ 1b/ 1e/ 2a (if interests relate to technologies)**
- Is there anything that your child doesn`t like (doing)? **1a/b/ 1e/ 2a (if interests relate to technologies)**
- Do your children play or do other things together? **1a/3c/ 1e/ 3d (if interests relate to technologies)**
- Are there any things that your children do together with dad (but not with mum) (e.g. playing football, playing videogames, going to school, etc.) and vice versa? **1e/ 3c/ 3d (if interests relate to technologies)**
- What kinds of things do you do all do together (the whole family), e.g. watch TV, etc.? **1e/ 3c/ 3d**
- Compared to other toys, books, etc. your child possess, how much do you think your child technological devices (e.g. like device [x]) **1e**
- Compared to other toys, books, your child possess, how often does your child use device [x]? **1e**
- How do you choose the games/ apps to download to the tablet/Smartphone? [Prompt: by default on the tablet, app liked with children toys or films, free or not, trust? children choice…] **1e**

Parental Mediation

4.0	Do you talk to XX to try to guide how they go online or what they might do online?
4.0	Are there particular things you encourage XX to do or explore online? Would you like them to do more of something online?
4.0	Do you sometimes sit with your child/ren while they go online? Or just stay nearby to keep an eye on what they do online? If so, why?
4.0	Are there activities that you and your child do together online? Why (do you perform these activities together (and not others)?

After each question – ask why.

Follow up questions: What do you think could be the benefits/harm? Do you do this because you want to or your child wants you to or because you've discussed this with your child? How effective do you think you are in doing this (e.g. is it hard to find the time, or do domestic tasks or other children make your efforts difficult)?

Family rules

- Are there any rules concerning the use of digital devices/internet/etc. at home? **4**
- Are they the same for all? **4c**
- Who makes these rules? Do your children have a say in the making of the rules? **4b**
- Are you making some decisions about what programs/games/apps/ your children can use/see? If yes how? **4 (or question added as to 'what' are the rules)/ 4a**
- Do all family members accept these rules? If not, how do you deal with children's resisting the rules? **4d**
- Have these rules changed with time? If yes, why? **4a/ 4b**
- Are digital devices part of the 'reward-punishment' system of the family? If yes, how and with whom? **4.1 / 4c**
- Do you have parental controls installed on laptops/ computers? **4.1 / 4c**
- Do you use the safety mode features offered on websites or by internet providers, for instance, on YouTube? **4.1 /4a**

Parents` perceptions of new technologies and parental concerns

- Do you think any technologies are particularly "positive" or "negative" for your children? Which ones? Why? **2d(i)**
- Are you worried in any ways about your children`s experiences with new (online) technologies (e.g. children spending too much time, fear of their child being contacted by strangers, etc.)? Why? **2d (ii)**
- How important do you think are (online) technologies for your children? **2d(i) / 2d (ii)/ 3a**
- How important are new (online) technologies for you? And for family life? **3b/3c**
- Do you think that your children`s use of (online) technologies interfere in any way (positive and/or negative) with family life? (E.g. family interaction is decreasing). **2d (ii)/ 3e/ 3f**
- Do you feel that family parenthood is helped or influenced or affected in any ways by the use of new (online) technologies at home? How? **3g**
- Do you feel that your child benefit from using any of these technologies? Which ones? Why? **2d(i) / 2d (ii)**
- Do you have any worries or concerns about your child using these technologies? Or about the use of new technologies at home? If you do, what do you do about it? **2d(i) / 2d (ii)/**
- Has anyone in your family experienced a positive/exciting/enlightening situation online? What happened? What did you/your child do about it? **2d(i) / 2d (ii)**
- Has anyone in your family experienced a difficult/unpleasant situation online? What happened? What did you/your child do about it? **2d(i) / 2d (ii)**
- Using the pictures as a prompt (if necessary), ask the parent, 'Are any of these things not safe to use sometimes? Why?"**2c**

Unusual/unexpected/surprising

If there is anything important, interesting, relevant, surprising, unusual said or observed and not included in the categories above, please include them here.

Closing

We are now approaching the end of our visit. Is there anything else anyone would like to add about that we have not talked about?

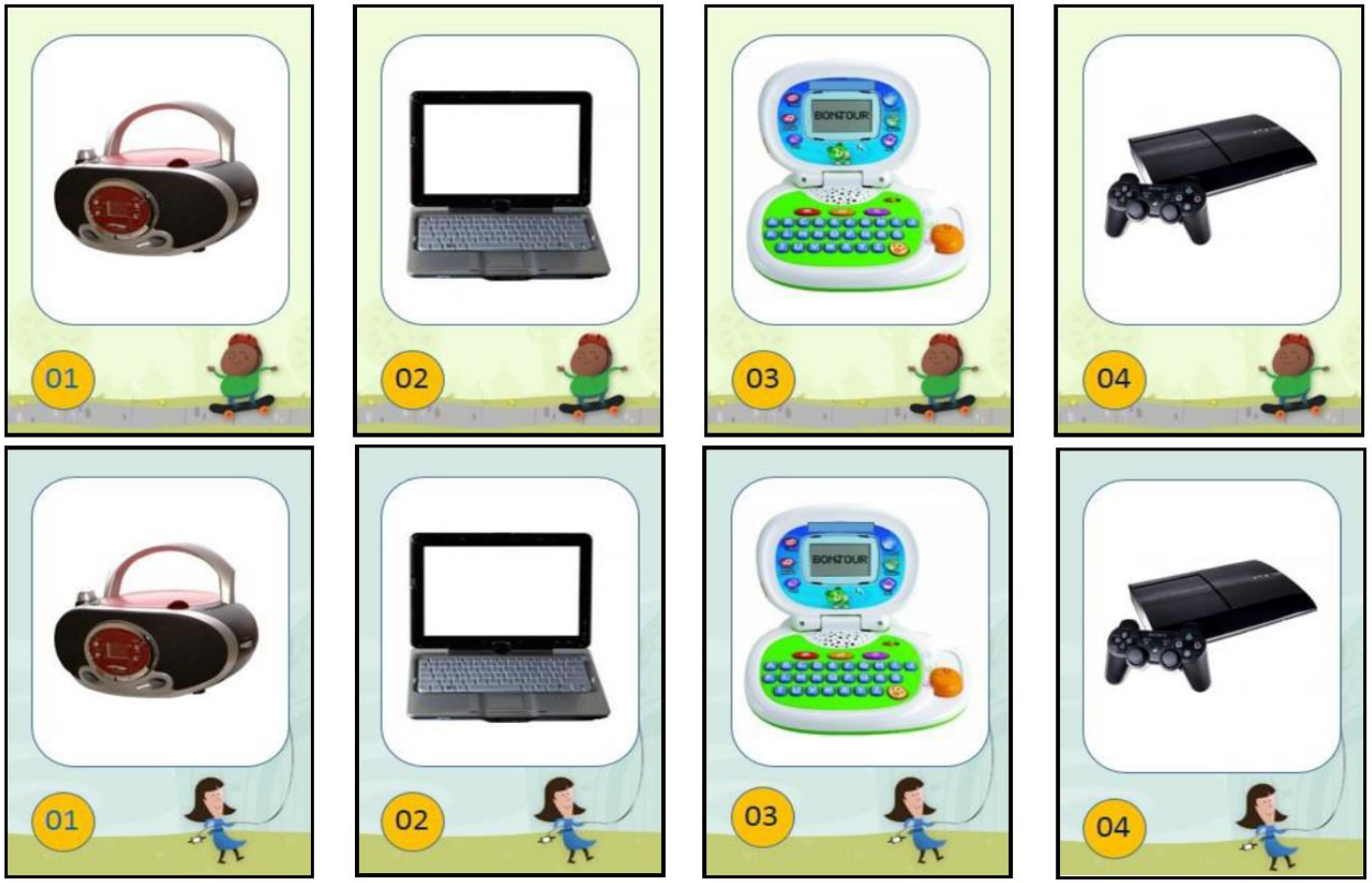
- ✓ Summarise
- ✓ Thank participants
- ✓ Provide extra information (Insafe Activity Book and JRC's materials) and contacts to participants

Annex 6

Card game

Ask to child: Could you put all of the pictures in a line, with the picture at this end (point to left) of the thing you like using best, then the next best and so on to the other end of the line, where you can put what you like using least (point to right). So, let's start with what you like using best – which is it? (then prompt for each one after that)

As the child identifies a digital device, but only if you think that the child will be able (and willing) to tell you, ask questions about frequency of use, where they use it, who they use it with, what times of day they use it and so on.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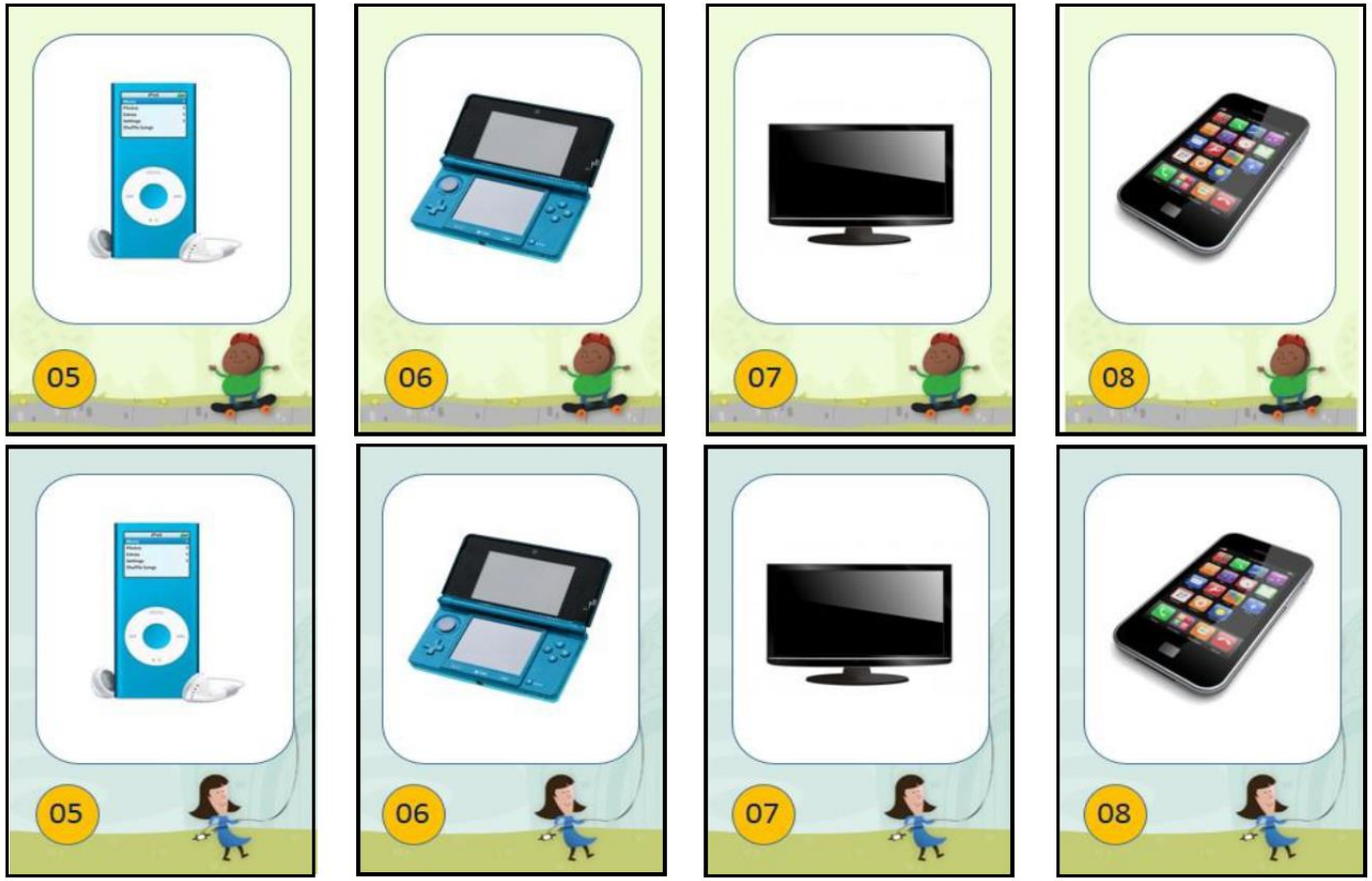
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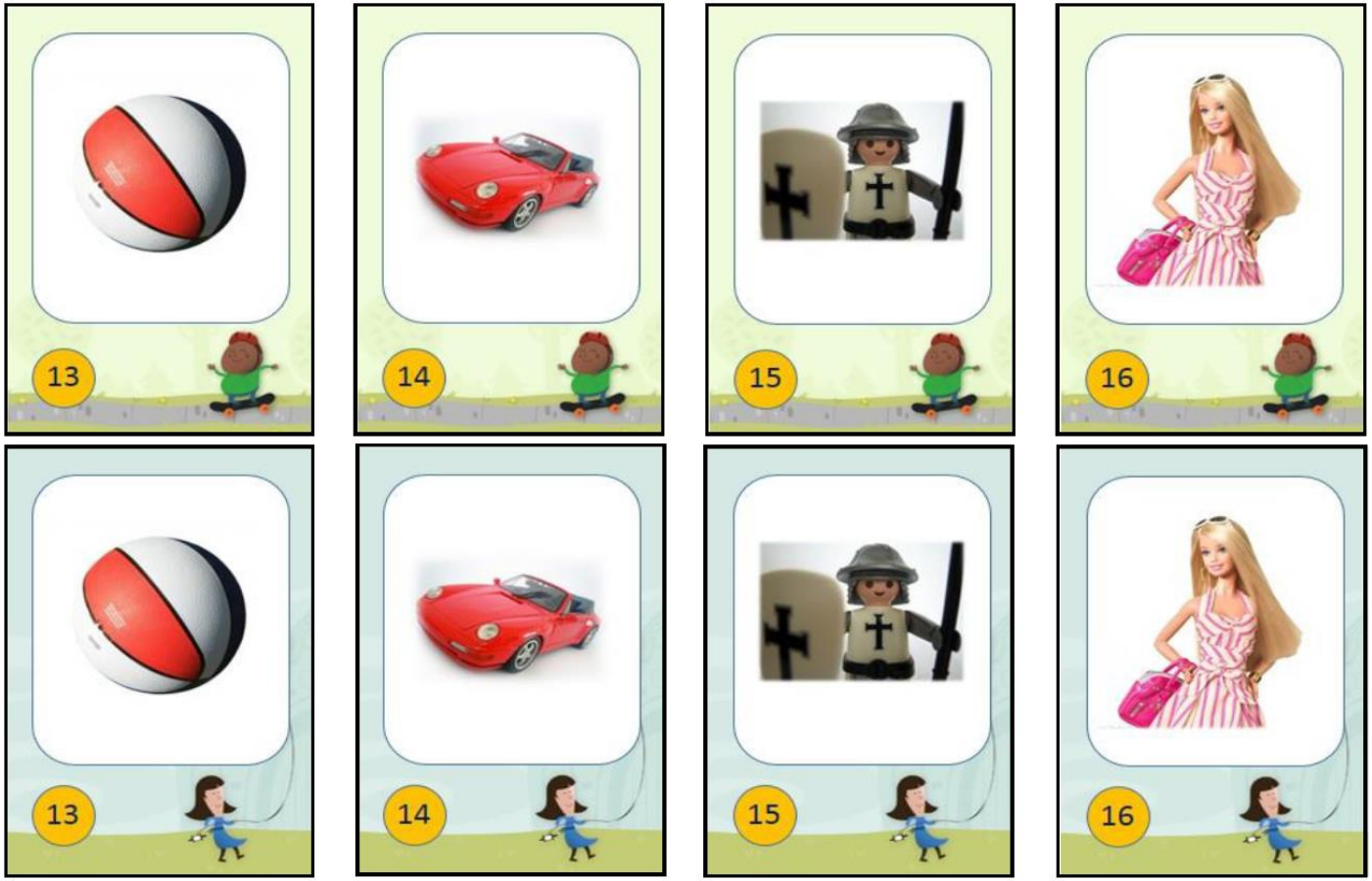
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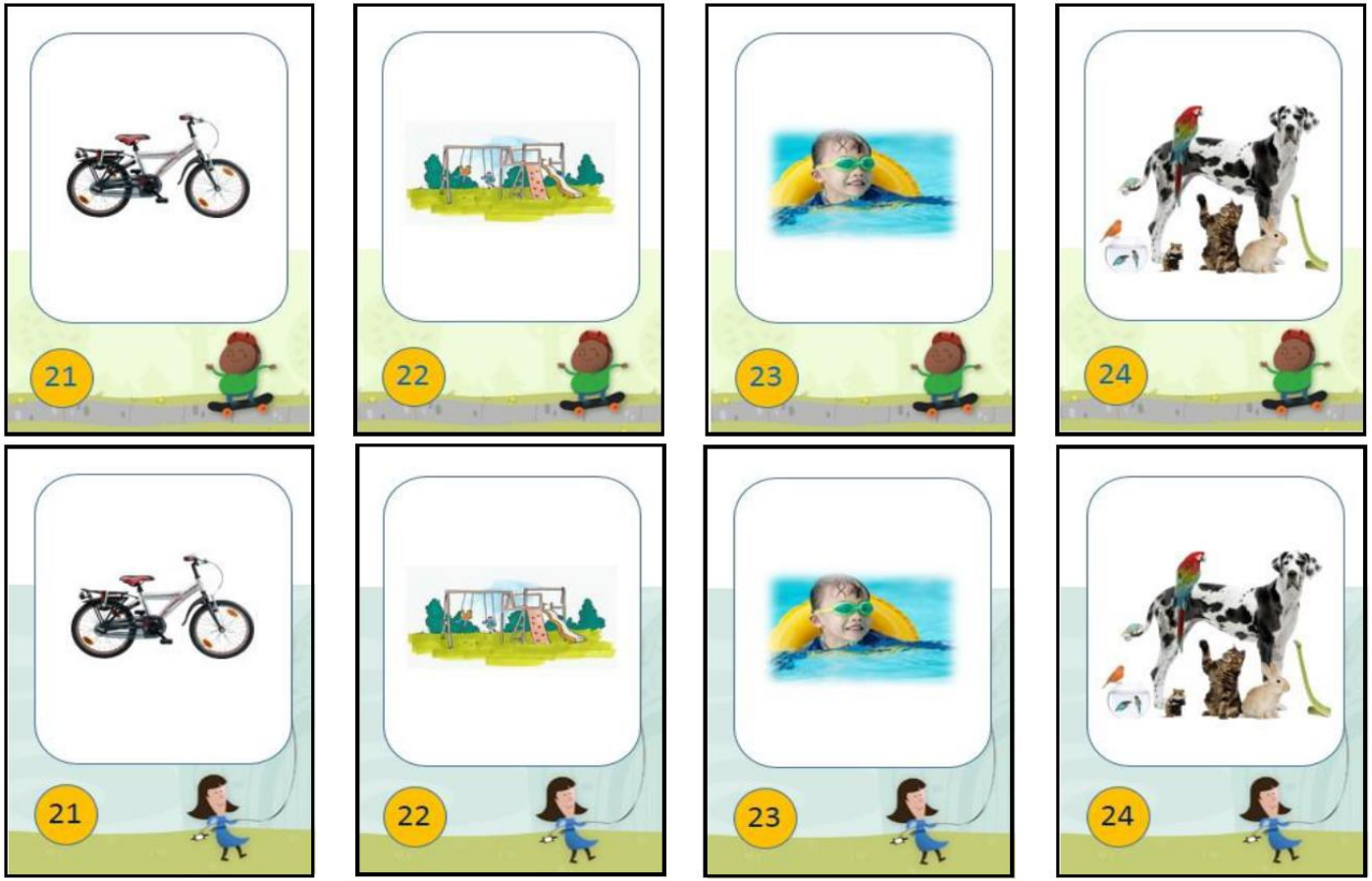
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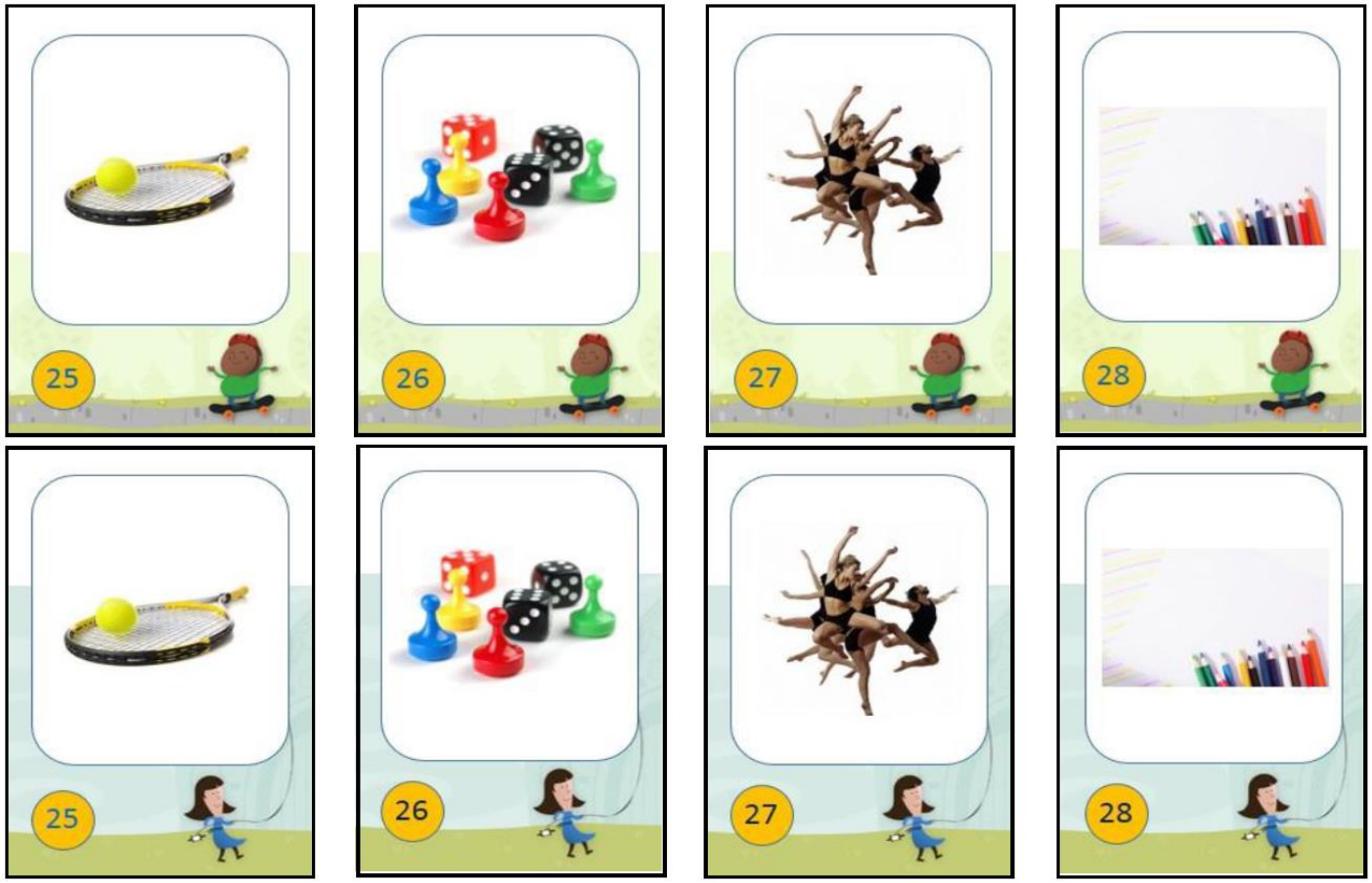
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Annex 7

Code system

Research question	Metacode	Code
RQ 1: How do children under the age of 8 engage with new (online) technologies?	**Regularity of use**	
		Unlimited time (more than 5 hours)
		2 - 5 hours per day
		Less than 2 hours per day
		Less than 1 hour per day
		Use as more as want
		Afternoon (after school home works)
		Morning (before school/ kindergarten)
		Weekend
		Working days
	Apps	
		inbox.lv
		draugiem.lv
		Gran Theft Auto
		My Horse
		Moron Test
		Crazy Dentist
		Pizza Maker
		Barbie Cash Register
		Princess Salon
		iBooks
		Dora the Explorer
		Maya the Bee
		Fruit Ninja
		Clash of Clans
		Jigshaw
		Sonic
		Pet Rescue
		Farmville
		Candycrush
		Call of Duty
		Tetris
		Snapchat
		Zelda
		Super Mario
		Club Pinguin
		Disney Channel
		Nickelodeon

		Miniclip
		Temple Run
		Minecraft
		Gran Turismo 5
		Zombie Tsunami
		Clumsy Ninja
		Angry Birds
		iStore
		iTunes
		Pinterest
		Skype
		Amazon
		Ebay
		WhatsApp
		Instagram
		Twitter
		Facebook
		CBeebies
		YouTube
		Google
		Miniones
		Kid-zone
		Creep Kick
		Monster High
		Airball
		Paw
		Sponge Bob
		Cat Simulator
		Red Ball 4
		Red Ball
		Chess
		Dumb Ways to Die
		Princess Frozen
		Ice Princess
		Free Fall
		PetCakeShop
		Subway Surf
		Furby boom!
		Minion Rush
		TV3Play
		Lonely Toons
		Hay Day
		Rayman Legends
		Furbu boom!

Digital technologies	
	Digital piano
	Multimedia technology
	Digital watch
	Interactive whiteboard
	E-reader
	Video camera
	Camera
	Radio
	TV
	mp4 player
	mp3 player
	Console player
	DVD player
	CD player
	Handheld computer
	Smartphone
	Laptop
	Tablet
	Computer
	Mobile Phone
Use of technologies	
	Phone
	Watching/ playing together with family
	Educational purpose
	Play with friends
	Streaming service
	Social networking
	Search strategies
	Repetitive viewing/play/use
	Photo/video storage
	Download games
	Taking photographs
	Making films
	Searching for information
	Writing
	Gaming
	Listening music
	Watching films
	Watching cartoons
	Entertainment purpose
	Watching sports
Level of use technologies	
	Multitasking

		Advanced user
		Choose/use activities used regulary (game, homepage, TV channel
		Only switch on/off and ask for help from parents/siblings
		Can tell what is possible to do with technology, but can't demo
		Knows the name, but don't now what to do
		Lack of digital skill
	Non-digital technology free time activities	
		pets
		cinema
		toys
		sport activities
		outdoor play
		books/ reading
		Board game
		Board game
		Free time activities
	How learned the use of technologies	
		Not sure how learned
		Learning by doing and trying
		Other support
		Watching and copying parent
		Parent support
		Watching and copying friend
		Friend support
		Watching and copying siblings
		Sibling support
RQ 2: How are new (online) technologies perceived by the different family members?	**How technologies perceived**	
		children's understanding of online safety
		technologies not important for parent
		technologies not important for child
		technologies important for parent
		technologies important for child
		quality judgement on kids' skills
		quality judgement on kids' products
		perception of inequity
		parent's view of future
		parent's positive perception
		parent's perception of risk
		parent's negative perception
		parent's understanding of online safety
		lost interest in programme/ film/ game/ app or device
		little interest in technology

		lack of digital skill
		favourite technology
		explicitly taught
		educational value
		concern
		child's values
		child's understanding of parents' views
		child's positive perception of technologies
		child's perceptions of risk
		child's negative perception of technologies
		child's interests
		child's dislikes
		child lack of knowledge
		beneficial for family life
RQ 3: What role do these new (online) technologies (smartphones, tablets, computers, video games, apps, etc.) play in the children's and parents' lives (separately and in relation to family life in general)?	**Role of technologies in lives**	
		Technology as baby sitter
		play with friends
		technology impact on family life
		technology filling time
		technology impact on parenthood
		technology/ media related family activities
		parent taught by child
		ownership issues
		online/ offline interface
		non-media/ technology related family activity
		negotiation of use
		interference in family life
		collaborative play
		co-viewing
		beneficial for family life
		technology as babysitter
RQ 4: How do parents manage their younger children's use of (online) technologies (at home and/or elsewhere)? Are their strategies more constructive or restrictive?	**Parents manage their younger children's use of technologies**	
		trust to the child's choice
		use of age inappropriate media
		unsupervised online activities
		technology as reward
		technology as punishment
		supervised online activity
		parents share values with child
		parental values
		parental rules
		parental monitoring of activity
		parental controls applied
		parental controls

		parental choice of games
		online safety
		lack of parental controls
		disputes on using technologies
		different parental rules for m/f
		defying rules
		conforming to rules
		children's rules
		age differentiation