Country reports presenting the findings from the four case studies

Austria | Estonia | Norway | Romania

DigiGen - working paper series

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DigiGen

The impact of technological transformations on the Digital Generation

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Abstract: This report comprises the findings on the use and integration of Digital Technologies (DT) in the lives of children ages 5-10 and their families. The report is organized as four case studies in Austria, Estonia, Norway and Romania. Data collection took place between the latter part of 2020 until the first half of 2021. Overall, 21 focus groups with children ages five–six (Kindergarten), 21 focus groups with 8–10 year old children (primary school) and 42 single interviews (total of 124 respondents) with children and family members were conducted. This report provides the foundation for the cross-country analyses and the final Deliverable of in work package 3 focusing on the family ecosystem.

Key words: Digital technology and digital media, family, children, well-being, vulnerability, beneficial and harmful effects, Austria, Estonia, Norway, Romania

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List of abbreviations

DoA	Description of Action
GA	Grant Agreement
EU	European Union
WP	Work Package

Regarding Digital Technologies:

DT	Digital technologies (devices and apps)
ICT	Information and communication technologies (specific devices and apps)
DD	Digital devices (without apps)

Country Codes:

AT	Austria
ET	Estonia
NO	Norway
RO	Romania

Methodological approach:

FG_KG	Focus Groups Kindergarten
FG_PS	Focus Groups Primary School
F	Family Interview

For example: AT_FG1_KG (Austrian Focus Group in Kindergarten No.1)
ET_F8 (Estonian Family Interview No.8)

In order to ensure the anonymity of individual family members, the exact No, of the family in the specific country is not identified, only the country code and the role in the family e.g.:

NO_child (Norwegian child)
ET_father (father in Estonia)

1. Foreword

Olaf Kapella & Merike Sisask (Ed.)

The DoA describes the deliverable of WP3 as follows:

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Digital technologies have penetrated the lives of children, young people and their families (see DigiGen Working Paper, Lorenz & Kapella, 2020). While families (adults) learn to navigate and live with the ubiquitous technology permeating the fabric of their everyday lives, we often describe children and young people growing up today as the digital generation. This thinking is influenced by researchers such as Christiano and Atay (2020), who consider children and young people as being the most relentless users of digital technologies in this 'media-ecology'. Children today live in media-rich households with access to a variety of devices, which they use from an early age. The omnipresence of ICT at home shapes family dynamics. As a result, digital technologies are part of the daily act of reproducing the family by social interactions among its members and can thus be understood as a central element of the concept of 'doing family' and can be described as mediatized (Lange, A. 2020).

The Grant Agreement (GA) with a focus on Work Package 3 (WP3) is described as focusing on the family system and children's home environment and the out of school context. This WP looks at children's use of digital technologies (DT) within the family and its impact on family communication and daily family life. In the description of action (DoA) the focus was directed at three levels:

1. Access to technology, the digital divide, devices and modes of connectivity
   a. to investigate the use and subjective assessment by children (ages 5-6 and 8-10) of DT and its relevance to their everyday lives.
   b. to understand how these two age groups navigate the digital world and their reflections on the content and experiences of DT.
2. Digital affordability, modes of digital inclusion, opportunities and forms of use
3. Negotiations within families in terms of use and outcomes
   a. to examine the potential positive and negative impact of DT on family life, communication, and the overall family system.
   b. to understand the challenges, advantages and impacts associated with DT from the perspective of different family members, primarily children, but also parents or significant others (siblings, grandparents, etc.). To explore the intergenerational and bi-generational dynamics of DT use and digital competences (or even generational digital divides).

In addition, focusing on these three levels, WP3 also aims to gain more insights into the methodological approach of conducting research within the family setting, particularly when focusing on children in early childhood. Some topics of interest are the behaviour of the interviewer and interaction with young children; the researcher's perception of the interview, tasks and question formats; inclusiveness in recruitment; and ethical considerations.

The main research questions for WP3 were formulated as follows:

- How is family life shaped by technological transformation and reflected in 'doing family'?
- How do children use and subjectively assess digital technologies in their everyday life?
- How do families negotiate the integration and use of DT in the family and are conflicts regarding DT arising?
- What kind of beneficial and harmful effects on the family system and on individuals can be described?
- What kind of diversity, vulnerability and social inequality regarding digital technologies can be described?
- What are the methodological insights when conducting research within the family setting, particularly with children in early childhood?

For understanding the daily life in contemporary family and the role digital technology is playing in it, WP3 uses a constructivist and praxeological concept – the 'doing family' approach (Jurczyk et al., 2014, 2020). This approach understands family as being produced and exhibited as a daily common practice by its members, through for example the management of balance in the family and the construction of commonalities (intimacy, closeness, we-ness, displaying the family and family identity).

DigiGen and especially WP3, works with a wide and broad definition of family. Children are seen as actors and agents in their own lives and development, but at the same time as a vulnerable group in society (e.g. James, 2013; Andresen et al., 2018). Family is understood as an exclusive solidarity unit – a social-relational structure or network of two or more people – designed for a relative duration. Family members share goals, values, have a long-term commitment to one another, take responsibility for each other, and often reside in the same household. In the Socio-historical perspective the family was always and still is diverse (e.g. Mitterauer, 2009; Segalen, 2010; Nave-Herz, 2015). In DigiGen our aim was to recognise and include different family forms: same-sex parents and families, patchwork families, adoptive families, mix-race families, families with different cultural backgrounds, single-parent families, transition to parenthood with the help of reproductive medicine, foster families and multiple parenthood. Children are positioned in DigiGen as both agentic and as a vulnerable group and to secure and enhance their well-being is an important aspect of the research in DigiGen.

Although most of the families we spoke to have access to the Internet, a specific kind of vulnerability can be seen with regard to children across Europe – their digital deprivation (Ayllón et al., 2021). According to Eurostat (2019), Internet access is almost universal for households with children in Europe (98 % on the EU average) and parents are also more likely to use digital technologies than adults without children (Kildare & Middlemiss, 2017). However, 5,3 % of children in Europe are digitally deprived – understood as children living in a household that could not afford to have a computer and/or lived with adults who claimed they could not afford to have an Internet connection for personal use at home (Ayllón et al., 2021).

As described in the GA the main task within WP3 was the collection of qualitative data with a multi-method and multi-perspective approach by conducting focus groups (10 per country) with children and family interviews (10 families per country, minimum of three interviews per family) as ethnographic case studies in four participating countries: Austria, Estonia, Norway and Romania. The countries were selected in order to capture a geographical variety across Europe. Within the fieldwork of WP3, we focused on two age groups of children: (1) children between 5 and 6 years of age and being still in kindergarten, and (2) children between 8 and 10 years of age and being already in primary school. By focusing on these two different age groups, we expected considerable developments and modifications in the significance of DT for children for and after the transition into primary school.

The objectives in the focus groups were the elicitation of collective orientations and constructions of children's assessment of digital technology and its relevance to their everyday lives. We reconstructed the discourses among children in their peer groups rather than in a conversation with an adult researcher. The analysis focused on the 'common sense' and joint constructions of meaning in the peer groups rather than on an individual biography. In contrast, the objectives of the interviews within one family were to explore the unique views of respondents on digital technologies and their construction of family life and practices of 'doing family'. By triangulating perspectives, we did not aim to validate the individual interviews but rather to better understand the constructive nature of family reality and intra-family dynamics regarding digital technologies.

In the qualitative research of WP3, we aimed for a diversity of different family forms and living arrangements comprising diverse backgrounds. Initially, we planned to recruit children and families for focus groups and individual interviews via institutions like kindergartens or schools. However, due to the COVID-19 pandemic, the recruiting strategy had to be modified. In some participating countries, it was still possible to contact children and families via institutions. In other countries, the recruiting had to be changed to contacting parents individually and motivating them to support the researchers in reaching out to other families and children.

Overall, in WP3 we conducted 42 (N) focus groups with a total of 176 (N) children in the age of 5 to 6 and 8 to 10 years and 42 (N) family interviews with a total of 124 (N) individual interviews of family members in the participating countries. The final sample reflects/comprises a variety of different family forms and living arrangements, diverse backgrounds in terms of parental highest school education and in terms of rural and urban areas. Next to families involving (biological) parents living with their children, we also included single-parent families, families living in a multi-generational household, families with a migration or binational background, large families (3+ children), divorced parents and reconstituted-families, as well as families of specific communities like Roma families. More information on the sample per country will be presented in the individual country reports.

To ensure a similar procedure in the process of collecting and analysing the data, we developed a manual for all WP3 researchers and conducted monthly online meetings with all participating countries. In addition to a methodological discussion and the outline of the workflow in WP3, the manual included e.g.:

- Consent forms and information sheets for children and adults, which had to be translated into each country's language.
- Show cards for the focus groups with children, but also to use in family interviews.
- Focus group guideline with a description of leading questions, the use of the show cards, etc.
- Interview guideline for children and adults (incl. a short questionnaire for adults to collect information on the family background).
- Template for a theoretical and methodological memo separately for moderator/ interviewer and assistant to analyse each focus group and interview.
- Template for 'focus groups results' and for 'interview results' including observations and reflections on the methodological approach.

The manual and the monthly meetings with constant exchange among participating researchers provided space and openness for country specifics, questions and discussions and, consequently, improved the qualitative approach. Moreover, the manual together with monthly discussions, enabled us to prepare the cross-country comparison, which will be presented in the final Deliverable 3.2 in March 2022.

The results of the four case studies (Austria, Estonia, Norway and Romania) are presented individually in the current report. Each country team was given a broad guideline but also much freedom as possible to present the country's specific analyses of the qualitative data. In addition, participating countries were asked to bring out key findings unique to their country context in their data analysis and to focus on two main topics:

A. Results related to DT and its role within the Family, for example, Children's own use, access and relevance of DT, family life and family practices (e.g. integration in family, challenges and advantages, family members role, rules and negotiations), harmful and beneficial effects of DT on children's well-being.
B. Results related to the methodological approach, for example, regarding family interviews, focus groups, used material, recruitment.

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2. Case Study: Austria

Eva-Maria Schmidt, Olaf Kapella, Susanne Vogl

Among other countries in Continental Europe, Austria can be characterised as offering high levels of affordable access both to digital devices and to Internet connections in households with children. The probability of being digitally deprived in the family context only appears significant in families living in poverty or other severe material deprivation, being of immigrant origin or in families with parents with low educational level. However, compared to Eastern European or Baltic countries, in general the prevalence of material and severe material deprivation is relatively low in Austria: the digitally deprived population is defined by fewer than 30 cases in the EU-SILC 2019 (Ayllón et al., 2021).

For conducting our empirical research in Austria, we tried to reach families and children with different socio-demographic backgrounds. As recruitment procedures had to be adapted to COVID-19 restrictions and therefore were not as systematically implemented as originally planned, we selected families and children especially along the criteria of geographical background, thus in different provinces of Austria and different districts within Austria's capital city of Vienna. By exploiting personal networks of all researchers involved in Austria, we contacted parents and other relevant contacts with the request to spread our information sheets and call for participation among their peer networks. In some cases, this entailed a great level of commitment and some parents supported us in organising a group of children whose parents gave consent for their children's participation in the study, especially in focus groups. In other cases, personal contacts agreed to participate in the family interviews and convinced their child and other family members to also give an interview. During phases of decreased pandemic restrictions, we were also able to visit one kindergarten where the kindergarten manager recruited children for a focus group. Apart from this occasion, all focus groups and family interviews were conducted in private households or in privately organised locations. While all focus groups were conducted face-to-face, some interviews with family members (n=15/32), both with adults and children, had to be carried out with phone or video calls. However, even with kindergarten children, this way of interviewing turned out to work well, both in terms of researcher-child interaction and in terms of content and narrations evoked by this interviewing technique (for more insights see chapter 2.6). Regarding observations of the family background, environment and family communication, these interviews only offered limited insights.

The focus groups also had to be adjusted in their group size. Contrary to what was originally planned, the groups comprised only three to six children. However, with regards to the group dynamic and possibilities to elicit information and evoke discussions among children, this group size turned out to be ideal (for more details see again section D). With regards to family interviews, we had to rely on the first contact of a family to convince other family members who were available and could participate in a convenient way.

For this report, we make use of the following abbreviations: we use 'DT' when we refer to digital technologies in general, that is, devices and apps. We use 'ICT' when we specifically mean technologies for information and communication, that is, specific devices and apps. We employ 'DD' when we only want to address digital devices, without considering apps or other technologies (see list of abbreviations in the beginning of the report). Quotes of respondents are set within quotation marks when included in the text or indented when longer[1] .

1 Abbreviations to quotes: I = Interviewer; M = Moderator (in focus groups); B = Boy (with numbers if there were more: B1, B2, etc.); G = Girl (with numbers if there were more: G1, G2, etc.).

The report is structured as follows: In section 2.2, we focus on children's perspectives on DT in their everyday lives, whereas section 2.3 addresses questions regarding family life and family practices with a focus on parents' and adults' perspectives together with children's perspectives on family life. Section 2.4 summarises and analyses aspects of diversity with regard to DT, mainly for the children in their daily lives. Section 2.5 focuses on the aspect of vulnerability as well as on beneficial and harmful effects of DT. Afterwards, section 2.6 reports on methodological results, thus focusing on the researchers' experiences and perspectives on the methodological approaches employed in this qualitative study. Finally, section 2.7 provides a summary and conclusions from the researchers' perspectives, focusing on harmful and beneficial aspects of DT in children's everyday family lives. Based on this, we formulate conclusions and policy recommendations.

2.1 Sample and Data

Our data comprises focus groups with children on the one hand, and individual interviews with children and at least two other family members ('family interviews') on the other hand. As concerns the focus group data, we approached children's perspectives in conversing with kindergarten children in six focus groups, while we conducted focus groups with primary school children in five groups. In total, we were able to converse with 24 kindergarten children (12 girls and 12 boys) and 18 children attending primary school (7 girls and 11 boys). All groups were gender-mixed groups, except two groups, one with four boys only at kindergarten age and one with four boys only who already attended primary school. The groups comprised between three and six children each, a size that turned out to be ideal as it offered enough room for discussion and did not require too much of the children's attention time. Most of the focus groups with the younger children took place in urban areas, except one that was conducted in a suburban region. The focus groups with children aged between 8 and 10 also comprised more children from urban backgrounds, although one focus group took place in a rural and another one in a suburban area. The locations in general varied and ranged from private households or places to publicly rentable rooms to public places like kindergarten. They lasted between 45 and 70 minutes.

Regarding the families who participated in our study, we were able to recruit a total of five six-year-old children, of which three were girls and two were boys. Among the older children who already attended primary school, we were able to talk to one eight-year-old girl and four boys of 8, 9 and 10 years of age. We further interviewed two to three family members of each child. In all 10 families except one we also interviewed the child's mother; in seven families we also interviewed the child's father. The child's older sibling was interviewed in three cases, the child's grandmother in two cases among primary school children. In one case, the child's aunt agreed to be interviewed. Thus, in total, the family interviews comprised of interviews with 10 children and with a further 22 family members. As we also asked the child's parents to fill out a short questionnaire in the case of family interviews, we can provide more background information on our sample of families: the parents' educational backgrounds reflect great variance and range from lower education to academic education with a doctoral degree. The families' living environment comprises both urban areas and rural or suburban areas in different regions of Austria. Further, our sample involves families with diverse size, structure and family form: we interviewed families who live in multi-generational households (with grandparents in the house); children living in two households after their parents had divorced; families with three or more children; and families representing the nuclear type, with one main caregiver (mostly the mother, except in one case with the father as main caregiver) and one main breadwinner.

In sum, the sample's variance and breadth allows conducting an in-depth analysis of specific contexts and circumstances that shape the children's lives and growth. Furthermore, the different data sources, focus groups on the one hand and interviews on the other, enabled us to

focus on children's collectively shared relevancies and orientations in their peer groups but also on their individual experiences and assessment regarding our research interests. As concerns the family interviews, we were able to integrate different perspectives within one family context in the analysis of the relevance of DT for a family's everyday life and family practices. Results regarding both research aims are to be presented in the following sections.

2.2. Children's perspectives on digital technologies in their everyday lives

This first section of the Austrian country report focuses on children as important actors in the field of digital technologies, both as users and as observers. In this chapter, we focus on our results regarding the questions as to how children use and subjectively assess digital technologies in their everyday life. We therefore rely on the analysis of the focus groups we conducted with five- to six- and 8- to 10-year-old children, but also on individual interviews with children of these age groups from the families that were incorporated in our sample. However, children's perspectives on family life and family practices will be addressed in section 2.3.

Children are confronted with digital technologies in their everyday lives, in their families, in their peer groups, in the institutions they attend and in the public sphere in very different ways. They develop a different extent of knowledge and different ways of assessment, are involved in different types of activities and DT gain different levels of relevance for children before and after the transition to primary school. In the following, these differences are described.

2.2.1 Children's knowledge about and subjective assessment of DT

When children grow up and encounter digital technologies in their everyday lives, they develop a specific understanding of DT and DT gain a certain level of relevance for them. This part of Austria's country report focuses on these relevancies and children's ways of assessing DT and how this differs between children in kindergarten and children in primary school.

2.2.2.1. Knowledge and relevance

The focus group discussions among children as well as the individual interviews in families revealed great **differences in what children know** about DT, how experienced they are with DT and how integrated and taken-for-granted DT are in their daily lives. These differences originate in the two age groups involved in this study, but also appear within one age group before or after the transition to primary school.

The data further illustrate that children's **knowledge about DT does not depend on owning DD**. In the setting of the focus groups, children tend to discuss DT in an intense and lively way and are keen on sharing their knowledge about it. They like talking about DT, not necessarily with indicating who owns all the devices or uses the apps they talk about. Thus, for children of both age groups it does not seem to be highly relevant or a marker of distinction or even inclusion or exclusion if one possesses DT or not, if he or she owns it personally or as part of the family. Moreover, in the course of the discussions, it becomes clear that they have gained extensive knowledge, not necessarily because they have it in their family's households, but also through experiences in other households (e.g., of friends or relatives), by talking about it with or watching other children using it in the private or public realm, or by reading or watching series about certain DT or watching videos with people playing certain games, for example, in books, magazines, YouTube videos or TV series.

We observed that kindergarten children are **familiar with numerous terminologies, functionalities, devices and technologies,** and even if they might not fully understand their use, meaning or functionality they are fascinated by the digital world and interested in DT. They present and talk about most of the devices very naturally, and are familiar with their use (e.g., how to handle and turn on the music box, where to put the figure, even showing how to use a laptop's keyboard, where to turn it on, etc.) and what one can do with them. Children of this age group gain large parts of their knowledge predominantly by watching other family members using devices, talking with other family members about the devices and borrowing and being allowed to use others' devices. Furthermore, they complement their knowledge by seeing and watching other people who use them, in their homes or friends' homes or in videos about certain games or devices (e.g., about robots' functionalities). Through these observations they are able to learn how to use DT and how to have fun with specific DT, for example, Alexa.

In contrast, the options and possibilities to have one's own experiences or even to own devices seem to be generally limited and restricted for children in this age group, although the differences within this group are great and are highly contingent on their environment and family life, for example, if they have older siblings, how their parents assess and use DT themselves and how much contact they have with other families. The group discussions in this age group reveal that it does not seem to be a status symbol or important for these children to own a certain DD, app or game, neither to own it as a child nor as part of the family. Nevertheless, it is emphasised and mentioned with pride if a child has their own devices at home.

These devices might not necessarily be digital ones; the kindergarten children also mentioned the alarm clock (e.g., AT_FG3_KG), earphones, toy smartphone or certain game they own. The children possibly also wanted to have something to present in front of the others or understood the question as focusing on technologies in general. Furthermore, it also appeared to be highly exceptional if a kindergarten child had a smartphone of their own (like G1 states in the discussion AT_FG1_KG, with the boy not believing it), although the kindergarten children expected to own digital devices in the future. In contrast, it is exceptional and unbelievable to the children that a child not be familiar with a smartphone and that the parents not have one, as the following intense section reflects, evoked by the respective show card the moderator had presented:

G1: Mobile phone.
G2: Mobile phone.
B: Mobile.
G2: I also have this at home.
M: You have this also at home?
B: Everybody has such a thing at home.
M: You too?
G1: No.
B: But her parents do. But your parents do, don't they?
G1: No.
G2: I have a mobile phone; my parents have a mobile phone. Mobile phone! You know? Hey!
B: My parents also have one! (AT_FG1_KG)

In general, it is not always clear if kindergarten children know of certain things because they have them at home, know it from other households (AT_FG2_KG: 'I know this, but I don't have this, I only have seen it in your home') or if they only have heard about it or seen it in advertisements or heard about experiences with it from other children. Further, it was not always immediately clear if children had the device they were talking about in their family's household or if they mentioned it because they wanted to agree with or relate to another child's statement in order to be part of the discussion. Furthermore, having certain devices at home does not automatically mean that children are allowed to or use these devices regularly.

For the kindergarten children, in general, the children's family (e.g., parents', older siblings' or 'family' devices), or other family members who do not necessarily live in the same household often own the devices they talk about, rather than the children themselves (e.g., own smartphone). This way, they know about most of the devices and apps, for example, TikTok, from older siblings. In particular, if children have older siblings, their knowledge tends to be more extensive.

However, DT are **highly relevant in and part of their everyday lives and positively assessed**. In the group discussions, they were very engaged and enthusiastic, especially when they recognised a device on the presented show cards. They were keen to share their knowledge, trying to surpass each other, with their voices (who is louder and faster in recognising it?) or with the number of different devices they have at home (who has more?). Thus, it was not always clear what was the child's fantasy and what was reality—an ambiguity that might be a developmental aspect or a group dynamic issue in general. Imagining a world without DT also evoked strong reactions that reflected the relevance of DT in their daily lives, for example, in AT_FG4_KG: 'Without screens I die', or in AT_FG5_KG: 'I would move out then, of the world. I would not like such a world', or in AT_FG1_KG: 'This would be boring. Because I love watching TV'.

Particularly for kindergarten children, **knowledge and relevance of digital devices is connected to its availability for them**, the devices' functionality for them and possibilities given by circumstances and allowed by parents. If a child is allowed to use a device regularly, he or she also knows about restrictions, their respective possibilities and thus about games content and related options that he or she can access (e.g., AT_F8_child). Activities with DT might be of higher relevance when family life, parents and peers do not offer enough alternatives for the child. However, findings are ambiguous: if devices are not available at all in the household, they also do not have much relevance for the child (e.g., AT_F7_child); if devices are accessible but only under certain rules, relevance seems to be greater (e.g., AT_F8_child), but if devices are available without strict rules or control (like AT_F5_child, AT_F9_child or children in AT_FG2_KG), they might be less relevant again. These children forget to use them and are busy with alternatives, that is, offline or analogue devices and games.

Owning a device is also only relevant when it offers satisfactory possibilities to use it, that is, only when equipped with games, enough battery power and a Wi-Fi connection. AT_F8_child for example has her own smartphone but this is useless for her as she cannot use it for playing. It is widely anticipated among kindergarten children that owning a device is automatically connected to restricted use, for example, having to ask parents before using it, having time limits and only being able to use specific apps. Often, children's own devices (smartphones, tablets, digital cameras) are parents' used ones or from older siblings. When they are using devices from other family members (mother's smartphone, brother's new tablet), they perceive this as something special.

In general, **parents shape and orchestrate the availability DT for children**, thus having great agency regarding DT's relevance and balance with other activities for kindergarten children. For example, child8 is allowed to use her tablet on her own and parents do not offer many analogue activities; thus digital activities are highly relevant for her. In contrast, child5 has contact with many peers and is involved in many analogue activities as well; thus, the tablet he is able to use together with his brother is not very relevant for him in his daily life. Kindergarten children are highly aware of their different position compared to their parents (or adults); for example, AT_F10_child assesses YouTube as something for adults although they are allowed to watch videos on YouTube Kids. However, they also start to voice critique regarding this inequality, for example, assessing it as unfair that adults are allowed more. When imagining an ideal world, they talk about ideal rules like being allowed to play with DT longer, without any restrictions or bans (e.g., AT_FG6_KG).

For primary school children, **the relevance of DT is even more and significantly connected to their access and their possibilities**, experiences and ways of using them. Generally, DT are widely integrated in their daily lives; children are used to them, which makes a life without DT unthinkable. Imagining a world without DT evokes very reflected statements like that of child1: 'Well, if there weren't such devices on the world, then it would be, that one would get by, when one would not know that such devices exist', or a boy in AT_FG1_PS: 'I wouldn't cry, because I wouldn't know that this exists', or like the girl in AT_FG4_PS: 'If we wouldn't know that smartphones exist, we would do ok for longer, but because we now use it more often, it would be difficult to cope.' With regards to the relevance of DT, children also assess this world as very negative, like child1: 'In this case, the world wouldn't have sense for me anymore', or a boy in FG4_PS: 'Then my life wouldn't be very nice.' AT_F9_child states that it might be 'strange and also daft somehow' and girl in FG5_PS would 'find it awful'.

If they already **have devices on their own**, the possibilities of how they are able to use them influence their relevance in their daily lives clearly. If children, like for example AT_F4_child, AT_F1_child or some children in AT_FG5_PS, have their own smartphones but are only allowed or able to make phone calls, these devices thus are not really relevant for them. In contrast, for children like AT_FG4_PS who use their smartphones intensively for gaming, Internet access and apps, these devices have gained much more relevance in their daily lives and interaction with peers. Thus, in this age group, the **difference between knowledge about and ownership of DT** occurs in a slightly different way than for kindergarten children. **Having and presenting knowledge is much more important** for primary school children. This is much more based on real experiences with DT in their own or in other households, with their own or others' devices, but it is also based on videos they watch, on watching others or listening to others about their experiences. There are **great differences in what devices these children already own** (own computer like AT_F6_child and AT_FG4_PS, own smartphones like AT_FG4_PS, own tablet like AT_F1_child or nothing at all like AT_F2_child and AT_FG3_PS) and also regarding their relevance. High relevance only appears if possible activities are satisfying and beneficial for the children, for example, if a smartphone is used for communicating and playing with friends, watching videos or gaming, it becomes highly relevant for them. Their knowledge is presented as being much more contingent on parental mediation and assessment: if a child's activities and use are monitored only unregularly, it is more likely that DT gain a high relevance for children as they do not think of alternatives and do not learn critical assessment (e.g., AT_F6_child, AT_F1_child, AT_FG4_PS).

Consequently, in this age group, the **difference between knowledge about DT** on the one hand **and the competence regarding the use of DT** on the other hand is much more crucial when analysing primary school children's everyday lives around DT. Regarding the first aspect, these children already have increased skills regarding DT and detailed knowledge about DT's functions, specific devices, games and functional principles of social media apps (e.g., how many followers needed to get for my own YouTube channel, what I have to do to be a YouTuber), other apps and the Internet in general (e.g., data protection issues, where to buy games and apps, how to evade age limits for games, how to steal information and hack devices). They also share secret knowledge, for example, knowledge on how to outwit adults within their family (e.g., turning off the alarm clock before it signals the end of time limit, like in AT_FG5_PS, or evading bans for certain apps, like in AT_FG1_PS) but also as to how to evade officially formalised rules (e.g., age limits for certain games, like in AT_FG4_PS).

> B2: [Brother] sometimes also watches with me secretly, plays with the console secretly and he is used to that so much, because he does this very often and then he hides it immediately and pretends that there's nothing, and speaks like there's nothing when somebody approaches. (AT_FG1_PS)

> G: I saw TikTok on the tablet; my mother explained to me what it is.

B2: And then she deleted it.
G: (Laughs) because she didn't want it.
B2: Yes, but you can scroll down on your tablet and then there are still a lot of apps! (AT_FG1_PS)
B2: You would like to have a gun license.
B1: Yes, for GTA. This is a shooter game.
B2: For above 18 years.
B1: (Smiling) 18 years, but you have it yourself and are 10 years.
B2: So what? I and my brother are even more than 18 years old together.
B1: I and my father are also above 18.
B2: And there are other games, when they recognise that you have downloaded it illegally, you are penalised, and you cannot defeat the chief, even if you use hacks. (AT_FG4_PS)

However, on the other hand, an empathetic, insightful, analytical, differentiated and also critical assessment and, consequently, a competent use might not be established to an extent that it is similar to their level of knowledge yet. Competence regards reflections on and critical assessment of one's own and others' digital activities and behaviour, for example, when children develop a sense of added value in some games, of the necessity and quality of friends' calls and messages or of a sufficient or already unhealthy duration of screen time. Competence further regards awareness of DT in terms of social well-being and social inclusion and comprises consideration of potential harms or risks that are weighed against potential benefits. For example, like B1 in AT_FG1_PS or the girl in AT_FG4_PS, children with competence represented an empathetic understanding of how people feel when using DT or when they are confronted with harmful things like hate comments, being exposed or embarrassed, social exclusion or data theft. Digital competence in this age group seems to be connected to the respective family's educational background and to family practices. When parents have a higher education, are informed and reflective users themselves, and when family practices are characterised by children's participation in negotiations and use of DT, children appear to be more competent in integrating DT in their daily lives. In this regard, the parent-child relationship is also highly relevant for the development of digital competence, for example, the closer and more trustful these relationships are, the greater children's digital competence. Furthermore, family structure is relevant for establishing digital competence, for example, when children have older siblings, but peer group dynamics and the family's peers also shape digital competence, as parental assessment might also be adjusted to children's friends and their parents. Digital competence is also more likely when relevance of digital activities for the children is similar to activities without DT like sports, hobbies, interaction/communication or other games. This similarity is reflected in the data through factors like fun, fascination, potential of addiction and also negative emotions (like being annoyed or frustrated when losing or when wishing for additional content in a game, e.g., AT_FG3_PS).

M: What are people doing with their laptops?
B2: Hacking. Yes, it is best to hack other systems and to do some things there. M: What can you do there?
B2: Stealing data. Stupid question.
B1: Well, my brother plays Fortnite there. He also plays other games, and I have an account myself on his laptop. (AT_FG2_PS)

To sum up: Knowledge and relevance of DT

Focus groups and interviews with children aged 5 to 10 years reveal great variation in what children know about DT, how experienced they are and how natural DT are in their everyday life and in their families. Moreover, there is a great difference between children's knowledge about DT and owning DT themselves.

For 5- to 6-year-old **kindergarten children** DT is highly relevant in their everyday life, positively assessed and naturally integrated into everyday life. They are familiar with diverse vocabulary, functionalities, different devices and technologies. Even if they do not fully understand its use and functionality, they are fascinated by the digital world. They gain a large part of their knowledge predominantly by watching others use devices. Among children of this age group, own experiences and own devices are rather uncommon; thus knowledge about and relevance of digital devices is based on their availability to them. Parents shape and orchestrate this availability, thus having great agency regarding DT's relevance and balance with other activities for kindergarten children.

For **primary school children** at the age of 8 to 10, the relevance of DT is even more and significantly connected to their access and their capabilities. DT is also widely integrated in their daily lives, and for them, a life without DT is unthinkable. Some children in this age group already have their own devices. Thus, having and presenting knowledge is more relevant for primary school children than for kindergarten children. On the one hand, they have increased skills regarding DT and detailed knowledge. On the other hand, apart from their level of knowledge, they might not establish a similar level of digital competence, that is, an empathetic, insightful, analytic, differentiated and also critical assessment and, consequently, competent use.

2.2.1.2. Children's assessment of DT

Generally, children positively assess DT. Benefits range from gaining knowledge, having fun (with games, with Alexa, with watching or making small videos), passing time, staying in contact with friends or finding friends, calling for help when in danger in real life, to being able to learn and be taught remotely during COVID-19 school shutdown. Simultaneously, children also shared **negative assessment** of DT that mainly concern health risks, specifically for the eyes, the brain, the danger of addiction, of 'getting dumb', the lack of exercise and fresh air, and the risk of forgetting to eat or sleep. Children are also aware of dangers for social interaction, like losing contact with friends and with real life. Children might also be aware of or already had experiences with violence, hate, mobbing/bullying, chain letters or unpleasant videos when using DT. They also express negative emotions that might occur when using DT, like frustration or anger about low battery status (AT_F8_child), interrupted Wi-Fi, boring games (AT_F6_child) or being annoyed by friends' calls and messages (AT_F3_child, AT_FG4_PS).

Especially among kindergarten children, children's **perspectives and attitudes reflect parents' assessment** and their way of media education but also the respective parent-child-relationship. AT_F8_child for example explains:

> I like the tablet, I like it, but actually I don't like it so much, because of course I don't want to get bad eyes. But I also eat carrots, so, it is somehow medium. (I: Ah, then the eyes won't get bad.) Yes, bad, well lazy, like rotten milk or cheese. Yes, lazy eyes. Like my dad.

The risk to one's eyes is especially reflected in many accounts among kindergarten children, as well as during the discussions in the focus groups. Regarding positive aspects, kindergarten children mostly refer to their parents' or their own favourite activities, like being able to make phone calls, watching cooking tutorials or being able to watch their favourite videos or TV series. Additionally, kindergarten children's personal attitudes are often connected to emotions, feelings and senses they express during the discussions or interviews, like being annoyed when a video stops because of problems with the Wi-Fi or talking about how they 'love' certain TV series, so much so that they 'would die' without screens. However, for some it is hard to explain why they like to play certain games and what exactly makes it fun, as in AT_FG4_KG:

> M: What do you like about the TV, the smartphone and so on?

B1: Everything, everything. On the Wii, I like the game Skylanders the best.
B2: Me too, me too.

For primary school children, the use of DT is restricted, which is not explicitly challenged. For example, a boy in AT_FG2_PS explained that he does not have much experience with certain devices: 'partly, we are simply not allowed to'. In AT_FG3_PS, two children who are brothers stated—confidently and without complaint—that they 'generally' do not have smartphones, 'you know why, because our parents do not allow it'. However, parents' permissions and assessment are also reflected in the discussions among primary school children but seem to be increasingly **replaced by children's evaluation based on their own experiences and increasing knowledge**. Thus, the influence of parents' assessment seems to decrease with the increasing age of the children.

Children's competences in assessing and using DT independently is not only shaped by their family context but also **by their peers and their interactions with friends**, both in the private realm and in school contexts. Generally, primary school children **still tend to value personal contact and analogue games more** than using DT together with friends, even though it appears as a social norm, as an issue of ought-to in this age group. Digital gaming and interaction are at least equally integrated into their life as real-life games and interactions. However, children are fascinated by DT and like sharing their fascination or using it together with friends. With regards to children's competencies in assessing beneficial and harmful aspects of DT, they are influenced by their families as well, but they also **compare their own use with that of other children, friends and relatives**, are competent in assessing the differences and partly also adapt their own preferences to it, for example AT_F3_child, who owns a smartphone like 'nearly everybody' in his class. He sends messages to his mother, his stepfather and his best friend, although sometimes he is annoyed by his best friend who contacts him too often: 'My friend calls me 1,000 times, but I don't answer the phone because he's already a pain in my neck.' In AT_FG5_PS, one boy also stated that it is strange when friends meet and just look at their phones. He tries to avoid this when he meets friends, although they sometimes watch movies together.

Generally, there is **great awareness and understanding regarding potential risks and dangers** among primary school children. These children, for example, discuss potential harms when spending too much time in front of screens:

B2: Well, one can play some parts of the day, a certain time; half an hour is harmless. But, as soon as one plays around two, three hours, it harms.
B1: My brother plays for seven hours.
B3: My friend, she has her own phone and her mum has installed this extra app that counts one hour or two hours and then the alarm rings. Then she has to stop. (AT_FG2_PS)

Their awareness is based on some negative experiences and relates to health risk, that is, potential harms for their eyes and brain by not getting enough fresh air or exercise. Furthermore, they discuss the danger of addiction, for example, in AT_FG1_PS:

M: And why did your mum delete it?
G: Because TikTok makes you addicted. That you cannot stop anymore (all talk simultaneously). When one cannot do anything except watch videos, then you cannot stop. You do it secretly.
B1: This is simply bad.
G: Because of this, this is bad then. That's why we all do not want this. […] It's cool, but it is.
B2: It is addictive.
G: But it is simply addictive. I will not get addicted.

B2: He is already addicted (points to B1).
B1: No. I'm not.
B2: Yes, you are. He is addicted to this YouTuber.
B1: Hey. This is a YouTuber, he's kind of, he makes real videos, from himself, yes, well, he doesn't play with his computer. And he (B2) likes it as well. (AT_FG1_PS)

There are additional **potential disadvantages** they mention because they might have heard about it from others or in the media, like the danger of 'getting dumb', experiencing too much distraction from school-related work, not being able to think of alternative activities, forgetting to sleep and eat and of being tired during the day. It does not seem that they are only replicating the parents' opinions regarding rules, but rather they understand its necessity and the problem behind it. They also mention issues of addiction in relation to other games or topics they love to play or are interested in (e.g., Pokémon cards, Beyblade, other hobbies).

With regard to digital activities, primary school children also **talk about social risks** they see, for example losing contact with reality, not being able to focus on learning properly, loosing contact with friends or losing interest in analogue games with friends. In assessing their own experiences with DT, they also critically discuss surveillance issues (e.g., with regard to smart speakers as in AT_FG1_PS), fake friends, hate comments on social media like YouTube or direct game chat communication, perverse videos or chain letters. They also experienced being annoyed by too many advertisements (AT_FG5_PS) or by friends calling too often or writing too many messages (AT_FG4_PS, AT_F3_child).

However, primary school children also to point to **positive aspects** in their assessment, for example, gaining knowledge, having fun (with games, with Alexa, with watching or making small videos), passing time through watching TV or listening to music (e.g., the boy in AT_FG5_PS), staying in contact with friends, finding friends and calling for help when in danger (AT_FG4_PS). Furthermore, they express uncertainties when they have no (clear) personal assessment, no experiences or no knowledge about certain digital technologies, for example, with regards to Facebook, Twitter, TikTok, etc. In the discussions, some children also reflected upon and actively questioned the (practical) necessity of some devices such as Alexa, smartwatches and PlayStation. They assess it as rather being for the purpose of having fun or comfort, although possibly not absolutely necessary in their daily lives, for example, in AT_FG5_PS:

G2: Some in my class have smartwatches, also a friend; she is also 7 years. I find it strange, why she needs such a thing, although her sister has a smartphone anyway.
G1: I got such a watch with eight years, because I didn't have a smartphone for calling. Was kind of a smartphone substitute. (AT_FG5_PS)

G1: Actually, you don't need an Alexa.
G2: If you don't know something, if your parents don't know it either, you can also ask Alexa.
G1: It's kind of a Google. But more comfortable this way. (AT_FG5_PS)

To sum up: Children's positive and negative assessment

Children aged 5 to 10 years see many positive aspects of DT, but they also mention negative sides of DT. The perspectives of **kindergarten children** often mirror their parents' attitudes and assessment.

Primary school children's use of DT is restricted by their parents. Children do not object to rules and parents' assessment and the parents' attitude towards DT shapes the children's assessment. However, their parents' assessment is increasingly complemented by their children's, based on

their experiences and increasing knowledge with age. Moreover, their proficiency in using DT on their own is not only shaped by their family context and parents' assessment but also by their peers' attitudes and their interactions with friends. Primary school children show great awareness and understanding regarding positive effects but also regarding potential risks and dangers of DT. Both contribute to evolving digital competence.

2.2.2. Children's type of activities, use of DT and online behaviour

Digital technologies and their use are integral parts of children's lives. However, there is great variation as to how intensively children are active in the digital and online realm and use DT themselves.

In general, children use DT themselves mainly for leisure and entertainment, like watching videos, playing games, listening to music or stories, but also for education purposes when it has come to distance learning during COVID-19-related school lockdowns, writing texts or stories on laptops or when they aim to search for information. However, compared to adults, respondents in our study use DT less for interaction or communication with peers or relatives. They prefer analogue communication and interaction, even when an increasing share of children have their own DD in primary school.

In particular, kindergarten children can be characterised as **passive users**. Their way of using DT is generally **strongly related to other family members**, in the sense of using digital devices together with other family members rather than as an individual activity of the child: watching parents or other family members using their smartphones or other devices, using other family members' devices or wishing to be seen and accompanied by parents or other adult family members during DT use themselves. Certain activities (making calls, listening to music) might be connected to specific people of relevance in their life (e.g., listening to music only on their mother's smartphone, playing a certain game only when their father is present). Generally, digital activities are very familiar to them because they **like watching others using DT**. When they own a device themselves (e.g., a tablet available only to them as with AT_F8_child or a camera like AT_F7_child), it is often not used for digital activities only, but also strongly integrated in real-life play, for example, when child9 is playing a school role play with friends and uses the tablet for the difficult calculations of played home work. Playing games digitally with friends over the Internet does not seem to be relevant for children that age. However, when discussing situation cards in the focus groups, they define certain rules or ideals for integrating DT in their everyday lives with peers, for example, that friends should share DT when they have access and allow others to join and watch their activities, or that friends should play exciting things together and talk to each other rather than using only digital devices individually. Furthermore, friends should ideally have the same access to devices and the same kind of device. Thus, in **their daily lives they rather focus on analogue interaction and games together with friends**, particularly when not all are used to DT and using DT to the same extent—an aspect which is very likely for children of that age.

Their contact and their **DT activities are highly contingent upon their family background**, that is, on their parents' attitudes, use, permissions and presence of older family members who shape DT's integration in the family's everyday lives and thus the children's lives. All digital activities are restricted to a certain extent, by circumstances or on purpose, and kindergarten children do not problematise or question this fact in general. As already outlined, they rather **accept restrictions and regulations** they are facing in their everyday lives. However, they differ considerably across family backgrounds. This ranges from keeping the children away from DT and avoiding using DT as a parent as much as possible (like in AT_F7), enabling children to use DT in a regulated and controlled way (like AT_F8) and handling DT in a very relaxed way as

technologies or games are integrated in their children's lives and played together with other family members (like AT_F9). In such cases, for example, children are given agency in asking for devices and games, while parents assess their claims first and then might restrict or allow it. In other cases, the child's use is restricted technically. Some children then are fascinated by trying to evade the technically controlled possibilities (e.g., cracking the code).

Activities with DT of primary school children differ in some respects to those of the younger age group. Their everyday lives are **much more pervaded by digital technologies and activities** than those of kindergarten children. It is more likely that they are already using their own devices (mostly tablets, but also smartphones or computers) and sharing devices with siblings or use the devices of other family members for certain activities. Their activities with DT mainly revolve around leisure, pleasure, fun and entertainment activities on different devices they are using, ranging from watching or making videos, watching their favourite series using diverse apps and regular TV channels, taking photos, playing various games alone and with friends, being creative such as with drawing apps, writing stories, listening to music or stories, to doing silly things with smart speakers or making fun videos. Moreover, their **activities also increasingly focus on educational purposes**: searching the Internet for specific information (e.g., FG2_PS), gaining new knowledge (e.g., child4), preparing presentations for school, but also using DT for distance learning during school lockdowns. It is much more unlikely (but also popular with children) that primary school children use DT for communication or social media activities, especially without access or permission by parents (e.g., AT_FG5_PS). In some friendship groups, however, it seems that it has already been established to interact, communicate and be in contact through digital channels, mainly because devices and apps are available to all children in the group (like in AT_FG4_PS, AT_F3_child and his friend) or because it was evoked by COVID-19-related lockdown (e.g., AT_F9_child). Communicating with friends digitally does not necessarily happen on the children's own smartphones but also with their parents' devices (e.g., for the brothers in AT_FG3_PS).

Their ways of using DT in their everyday lives, however, is also **strongly dependent on and in accordance with the rules in their families**. For example, they are aware that their digital activities are only possible at certain times of the day (e.g., after lunch, in the evening, at weekends, in the mornings) or are connected to certain activities (e.g., after they have completed all tasks, have done everything for school, have practiced with their instrument). In case there are no strict rules, and they can independently decide when they use DT, their activities happen in accordance with their own needs and desires, for example, when they have to pass time, are not able to do or find anything else to do, when they are bored or when they feel like doing it or have a certain purpose for using it such as needing information or having a play date.

> G: We always have media time after lunch.
> B2: We always have to practice our instruments, then we're allowed to have our phone.
> G: We always, no matter what happens, eat lunch first. In the mornings we don't have media; that's a big rule, that's for 1000 per cent. We have to comply with this; my brother sometimes watches something on his phone, but this also counts as media time, then they reduce his media time later, as long as he—
> B2: He (B1) sometimes also watches with me secretly, plays with the console secretly and he is used to that so much, because he does this very often and then he hides it immediately and pretends that there's nothing, and speaks like there's nothing when somebody approaches.
> M: And what happens if someone finds out?
> G: Then he's scolded. Yes, and then his media time is reduced. (AT_FG1_PS)

To sum up: Children's type of digital activities

Children between 5 and 10 years of age use DT mainly for leisure and entertainment activities, and less for communication with peers and/or relatives.

Kindergarten children especially are rather passive users, and their DT activities are highly contingent on their family background. They accept most restrictions and regulations they face in their everyday lives. Their use of DT is strongly linked to the use of other family members rather than being an individual activity. They like watching others doing something with DT. In their daily life, kindergarten children rather focus on analogue interactions and playing with friends than on digital activities.

The everyday life of **primary school children** is much more pervaded by DT and respective activities. However, these also mainly evolve around leisure, pleasure, fun and entertainment activities. After their transition to primary school, their activities increasingly focus on educational purposes. It is less likely that primary school children use DT for communication or social media activities even though these activities are popular to a certain degree. Primary school children often use their own devices. However, using DT often strongly depends on the rules of the families, even though in some families there are no strict rules and primary school children can use DT independently and whenever they like.

2.3. Family life and family practices

In this section of Austria's country report, we focus on families' daily lives, on families' rules regarding DT and on family practices from the perspective of various family members, particularly children before and after the transition to primary school, that is, five- to six-year-old kindergarten children and 8- to 10-year-old school children. Although all families participating in our study can be described as mediatised (Lange, 2020), we found a great variation in their practices of integrating and using DT in their family lives. This variation ranges from practices of integrating DT that are oriented strongly towards the subjective and individual family members' needs and desires to practices that are rather oriented towards objective and restrictive rules and certain timing, especially for the children in these families. Within this scope and along this continuum of possible ways of integrating DT, families are using, assessing and negotiating DT in their everyday lives differently. These practices of course are fluid and may vary over time. In this study, we tried to grasp this fluidity and these developments by integrating different family members' perspectives and also their retrospective views on the topic of interest.

Families in our study use a wide range of different DT. However, these families can be differentiated by the level of **integration of a certain device** in their daily family practice, as the following examples demonstrate. The first example concerns the TV. In some families the TV seems to play a special role, ranging from running almost all day including meal times (like in AT_F6), to being used according to individual preferences (like in AT_F4, AT_F9), as 'babysitter' (like in AT_F2, AT_F10), to not existing in the family's household at all (like in AT_F8, AT_F7). As another example, tablets often are the first device children use. However, in some families, children already have their own tablet before primary school (like in AT_F1, AT_F8, AT_F9), while in other families it is generally available for all family members but prepared specifically to be used by the children (e.g., having a specific password for children only, or containing only child-safe apps and games). While in some families, one tablet is used as a family tablet (like in AT_F2, or like in the boys in AT_FG5_PS or the brothers' family in AT_FG3_PS), in others it is not used regularly at all or the family does not have one (like in AT_F6, AT_F7).

Additionally, families can be characterised by both complementary and diverging perspectives among family members with regard to digital activities, devices and technologies in general. Single family members—and their assessment of DT—often play a specific role within the family system. One parent or family member often takes and is ascribed a **leading role in introducing,**

assessing and integrating DT in family life. This family member is either the one who has the most knowledge, most interest, clearest standpoint or most agency, for example, as the primary caregiver. In AT_F2, for example, this leading role is taken by and ascribed to the grandmother as her highly critical assessment and way of monitoring other family members' use of DT is reflected in all other family members' accounts as well. In F7, the mother can be characterised as the leader, as her clear standpoint is based on comprehensive knowledge regarding DT. She and her husband are also aware of this role.

> Actually, my husband had a different view before, as far as I remember. He realised it through my perspective, I guess. And I said to him, I do not want this. (AT_F7_mother). I am also happy that she introduces more from her side and I like to be convinced by her of that. (AT_F7 father)

In other families (e.g., AT_F1, AT_F5, AT_F6), the father can be seen as the leader in initiating and also in monitoring the use of DT in daily family life. All interviewed family members construct this role in a convergent way. However, in some families, family members' perspectives diverge regarding specific family members' roles. The greater they diverge, the more negotiations arise and are needed and shape subsequent family practices (see chapter 2.3.2).

For enhancing the understanding of how daily life and family practices are shaped by DT in contemporary families in Austria, we adopted a constructivist approach and praxeological concept — the **'doing family'** approach (Jurczyk, 2014, 2020). This concept suggests that family is produced by and displayed as daily common practices within families. Family is, for example, produced through practices of managing balance in the family, through the construction of commonalities like intimacy and closeness ('we-ness'), and through practices of care or of displaying the family.

This chapter will focus on the (a) contribution of DT for processes of 'doing family' (chapter 2.3.1) and (b) on rules and negotiations within the family (chapter 2.3.2) and to sum up, (c) a typology of families along the question as to how DT is organised in family life and daily family practices are introduced (chapter 2.3.3).

2.3.1. Contributions of DT for 'doing family'

The analysis of the interview and focus group data revealed differences in how families are handling and integrating DT in their daily lives. We identified the following family practices that contribute to ways of 'doing family', that is, how a family is produced on a daily basis, and will describe these aspects in detail in the following chapters:

a. Online and offline activities in families (chapter 2.3.1.1)
b. Management of balance in the family (chapter 2.3.1.2)
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2.3.1.1. Online and offline activities in families

In the 'doing family' approach, activities in the family play an important part in creating or in maintaining a family identity, understood as a feeling of 'we-ness' in the family. These activities can be manifold and include analogue or offline as well as online and digital activities. As already pointed out in chapter 2.2.1 of this report, **digital activities** of children aged between 5 and 10 years and also their families often concentrate on and evolve around leisure and fun, like watching or making videos, series or movies, playing games or listening to music or audio books. Using DT for communicating with family members and friends ('to stay in touch with friends')

rather appears as an aspect of organising family and private life from the parents' or adults' perspectives. This aspect is particularly important for families after a divorce or separation, when two households and family lives have to be organised and coordinated. With regards to DT and according activities, children also talk about communicating digitally with others, but mostly with parents or adults (e.g., teachers) about practical things, like where to meet (AT_F1_child), when to be picked up from school (AT_F3_child), which game they would like to download (AT_F1_child, AT_F6_child) or which learning tasks have to be completed (like children in AT_FG4_PS). Parents also use DT to control their children's digital activities. For this purpose, they use tracking apps and screen-time monitoring apps for their children's entire digital activities or for permitting download requests from their children. Parents' individual digital activities seem to revolve around their paid work. Parents and children share this observation. Parents also read news, play games, watch their favourite series, communicate with friends and family members or shop online.

Both children and parents also mention **offline activities** they are involved in as a family. Parents or adults seem to value these activities more in the sense of activities contributing to a family life/identity or at least think these have to balance digital activities. Parents often do not consider online activities as 'family time'. As a family activity, thus contributing to doing family, they prefer offline and analogue activities like going for a walk and being 'out in nature' (e.g., AT_F2, AT_F8, AT_F3). Accordingly, in families like these, DT is constructed as restricting and decreasing these kinds of analogue family activities. Children emphasise, regardless of their age, that they also like or enjoy offline or analogue activities more than online or digital activities. In this regard, they mention sports (e.g., soccer, biking, tennis, judo), playing instruments and playing games with others outdoors.

In some families, however, digital family activities have the potential to **create a feeling of we-ness**, for example, when family members are watching a movie or series together (e.g., AT_F7, AT_F9), like playing digital games together (AT_F1) or each individually but interested in others' advancement (e.g., AT_F9). In particular, showing interest in and understanding the desire for online activities of children (and vice-versa) seems to evoke strong feelings of we-ness as well (e.g., AT_F9, AT_F4, AT_F6). Thus, doing family is not necessarily reflected in the co-activities of family members or sharing the same interests and attitudes, but also in ways of mutual understanding of interests, needs, desires and attitudes and accepting different roles of each family member (for example the one who likes technical subjects, the one who understands digital craving, the one who monitors digital activities or the one who is not interested). Doing family might not revolve around digital activities, even if a family uses DT heavily individually. For example, in AT_F6, there is no shared attitude or understanding of DT and the family hardly uses DT together, but DT is still central for each member in a very specific way.

2.3.1.2. Mangagement of balance in the family

Doing family can also be reflected in practices of managing balance within the family, whereby managing not only addresses organisational aspects of family life, but also the management of emotions and the distribution of rights and obligations/duties for example (Jurczyk, 2014). The analysis of interview data revealed **different levels of managing the balance**. Besides DT's function for the management and organisation of family life, needs for balancing conflicts, thus creating harmony and balancing emotions within the family, contributes to doing family as well. Some families create a harmonic feeling of we-ness, for example, by ignoring differences in perspectives, use and attitudes in order to avoid conflicts (AT_F6). Others create feelings of we-ness by sharing and discussing differences openly and transparently. In these families, parents value children's opinion in the same way as their own (AT_F4, AT_F5); thus all family members participate in the practices of managing balance to the same extent. However, these differences in family practices of managing conflicts lead to different outcomes. While in some

families the members deal with conflicts openly (e.g., AT_F4, AT_F5), in other families, conflicts might be repressed, which can be seen as a rather destructive family practice (e.g., AT_F6, AT_F8).

If families are characterised by highly **divergent attitudes towards and interest in DT**, there arises a need for balancing these different views within one family. For example, in F3 the father's and the grandmother's attitudes are opposed to the mother's view: while father and grandmother try to avoid using DT when children are present, the mother is much more permissive and integrates DD to a greater extent in daily family life. In F6 the mother's perspective is contrary to the father's and son's attitude toward DT: while father and son are passionately gaming on their computers and PlayStation, the mother would prefer e-books and offline activities outdoors. In F8, the children's interests in and demands for digital activities are opposed to their parents' ideas and aims of handling DT. In multi-generational families like in F10, the perspective of the mother—who is the primary caregiver and restricts using DT for her children to a great extent—diverges from the attitude of the father and grandparents, who tend to allow many more activities with DT when they care for the children.

When families strongly differentiate between **online and offline activities**, they also have to find a balance between these two. These families mostly aim for offline activities as a family, for example, being out in nature or trying to avoid DT or using it as little as possible. They are convinced that a balance between online and offline activities is necessary for a satisfactory family life. As F8 mother puts it: 'the dose determines the poison'. Parents then also try to find a balance for their own online and digital activities, especially when these are a crucial part of their working life and they are forced to set boundaries between being available for their paid work and being available and responsible as a parent.

A good way to manage balance within families seems to be **establishing rules** regarding their use of DT. These rules might be balanced and adjusted to individual needs or specific situations. They might be defined and balanced in negotiation processes among all family members, by establishing a mutual understanding about the individual use of and desire for DT (e.g., AT_F4, AT_F5) and adjusting rules accordingly (for more on rules and negotiations, see chapter 2.3.2).

2.3.1.3. Caring for family members, to secure and enhance wellbeing

Families' members are often involved in doing family practices by specific forms of **caring for other family members** and their own and others' well-being and safety. Several practices can be subsumed under this aspect, for example when parents or children support each other in obtaining specific media competencies (e.g., self-awareness and self-management, capacity to use social media or other apps or devices appropriately, responsible decision making, careful and critical assessment and reflections about DT, integration and alternation of digital and analogue activities). Caring practices also involve parents who try to protect their children by establishing certain rules or talk to them about negative and positive aspects of DT. In monitoring rules, they might rely on DT themselves (like tracking and checking activities or using control apps). Some digital devices also occur in a specific caretaking or 'babysitter' function, for example when parents transfer their childcare responsibility to the TV or the tablet during times they are working from home or preparing meals or when they want to sleep longer on weekends (e.g., AT_F2, AT_F3, AT_F9, AT_F10). The aspect of keeping up communication within the family and showing interest in each other is another aspect of care by DT. It opens up the general possibility to stay in contact (e.g., calling for help via smart watch or tracking the child), which brings up a feeling of being cared for and of security (AT_F1, AT_F3, AT_F4, AT_F9).

Another form of care in the family is the consequent **co-presence** of parents while their children are in contact with digital devices, particularly children in kindergarten (e.g., in AT_F7 where at

least one parent is always present while their children watch TV series, or in AT_F9 where the mother watches and instructs her daughter in playing a specific game). Parents want to monitor and limit their children's DT activities, but also want to be available when children need help in their digital activities or want to share something they experience. Children might on the one hand demand parents' or other adult family members' presence while they are digitally active and, on the other hand, want to be co-present themselves while their parents or older family members are digitally active or doing something online. The child in AT_F10, for example, wants to be present and observe the father's gaming and mother's working activities, and the child in AT_F9 wants to be present and watch her mother when she is gaming. In families, where DT's use and content are controlled digitally or beforehand (through specific passcodes or permission apps), parents are not present intentionally and do not take part in their children's digital activities directly (e.g., AT_F5, AT_F8, AT_F10). Generally, parents partly wish to be present but also aim to not be forced to be present and to be enabled to do something else (e.g., paid work at home office, house work, own digital activities).

In contrast to co-presence, doing family and its care aspect occurs in **co-activities** within the family, both within one generation and across generations, for example, when siblings are playing together, when older children teach younger ones or when they use DT with other children, but also when children teach parents or older family members (e.g., grandparents). Another occasion for digital co-activities occurs when children and parents use DT together, for example when watching a movie or TV series (AT_F8, AT_F6), playing games together (AT_F1, AT_F6) or making photos or videos together (AT_FG4_PS). Generally, in a family's digital everyday life, there are often differences between each family member's individual use (e.g., how children, parents or other family members use smart watches, laptops or smartphones) and families' co-activities with DT (e.g., using gaming consoles together, switching on the TV or projector to watch something together). In particular, younger children rather wish to share DT activities with adult family members and initiate DT co-activities. Often, these are not limited to DT use but entail offline co-activities afterwards.

2.3.1.4 Displaying family

Another form of doing family can be subsumed under single family members' activities of **displaying family**. In this context, family members (e.g., the mother in AT_F10), for example, share insights from their family life (pictures, videos) with a specific or wider public. In other families, family members proudly share with or present to other families (or friends and peers) how they handle, are allowed, allow themselves or restrict DT in their family, for example, when children invite friends for gaming or parents talk to friends about their rules and tracking apps they use. Through this activity, they create a certain feeling of we-ness and present their own family identity as 'this is how we are, how we do it'. For example, in AT_F6, the father asks his online gaming community for their advice, in AT_F8 the father talks to friends about games content, in AT_F2 the child talks to cousins and friends about their rules regarding DT and in AT_FG3_PS the children present their family and the restrictive rules and how they identify with it.

2.3.1.5. Assessment and attitude of parents and children towards DT

The assessment of DT by parents and children is understood as a basis for handling and integrating DT in families. These attitudes shape family practices and thus are also part of 'doing family'. However, parents' and children's assessment and attitude might differ within one family to a certain extent and might influence doing family as well (see chapter 2.3.1.2 on managing balance).

Parents' assessment of DT develops along different pathways in the families in this study; all families develop different convictions and knowledge on how to assess DT in family life. Some

parents' assessment is based on the one hand on their manifold enquiries on the Internet and on contact with experts or literature and is oriented towards a great degree of knowledge. However, on the other hand, some parents base their assessment rather on a gut feeling, their own use, their own or their children's peer group (other parents, friends), children's wishes and friends or on expert knowledge they happen upon. Most parents from both groups see specific advantages with regards to their children's DT use in the easy access to content, information and knowledge and in the possibility to stay connected to their peers, independent from physical location. They value extended educational offers, games that trigger creativity or apps that ease communication processes. However, these practical and advantageous social aspects are seen as only becoming imminent when a child gets older. Parents' perspectives, regardless of how they have developed their assessment, tend to revolve rather around diverse disadvantages, for example, losing creativity, losing contact with real life and losing contact to others when only using DT alone. Their main fears regarding their children's DT use comprise many different aspects: their related lack of movement, being confronted with 'stupid' content or content that is not appropriate for their age or stage of cognitive development, the lack of reading (e.g., books), their potential loss of focus or attention span, the information overflow, the potential danger of developing a skewed picture of reality or the loss of or insufficient development of the ability to speak proper German. In addition, their assessment often comprises the fear that children cannot handle everything they experience and see digitally and online, for example, when watching videos on YouTube. Some fears also relate to future developments in their children's use of DT. The mother in AT_F9 for example hopes that smartphones will not become too important to her daughters, as she experiences older children 'taking photos in every situation instead of enjoying the situation'. Parents recognise and criticise older children's practices of constantly looking at the smartphone on the streets (AT_F9, AT_F6, AT_F2) or families who 'cannot even communicate during lunch time'. These observations might be the basis for family rules of not using DT during lunch or dinner (see chapter 2.3.2 on family rules).

Slightly different but partly congruent, **children's perspectives** (for more details see chapter 2.2.1.2) on specific positive aspects of DT comprise activities like gaining knowledge, having fun (with games, with Alexa, with watching or making small videos), passing their time ('killing time'), staying in contact with friends, finding friends or being able to call for help when in need of it in real life (e.g., when getting kidnapped or observing dangerous situations). From children's perspective, negative aspects resemble their parents' or adults' assessment: they reflect health dangers like potential harms to their eyes or brain, especially when using small screens (e.g., AT_F2). Moreover, they express the danger of addiction, of 'getting dumb', of lack of exercise and fresh air and forgetting to eat and sleep. They also address dangers to social interaction, like losing contact with friends and real life. With regard to negative aspects of using DT, children's accounts often comprise negative emotions, for example, when they express frustration or anger about a low battery or interrupted Wi-Fi, about boring games or about being annoyed by the quantity and content of friends' calls and messages. Children who regularly use DT online, by adopting social media, have already experienced forms of violence, hate, mobbing or chain letters.

2.3.2 Family rules

As already indicated in the previous chapters, rules play a central role in organising family life and 'doing family' with DT. Generally, we can state that rules, being in force within one family context, strongly depend on respective parents' assessment that they in turn are based on their own interest, their own experiences, knowledge and competence, their fears and subjective benefits. In addition, the establishment and implementation of these rules is connected to the parenting style. If this style tends to be participative, families and their enforcement of rules appear relaxed, understanding and situative, that is, depending on the circumstances and situational conditions (e.g., in the families AT_F5 or AT_F9). If their parenting style is more

restrictive and hierarchical, rules are constructed in a very concrete and also highly restrictive way (e.g., in AT_F7 or AT_F1). However, regarding the definition and implementation of rules, there is great potential of parents being unsatisfied, uncertain and frustrated (e.g., in family AT_F2 or AT_F8) and of ongoing negotiations and conflicts that also affect parent-child relationships. In what follows, we demonstrate in detail different (a) types, ways of development and control of rules in families (chapter 2.3.2.1); report on (b) parents' and children's roles and perspectives on rules (chapter 2.3.2.2); and present results regarding (c) negotiations and conflicts regarding the use of DT and respective rules (chapter 2.3.2.3).

2.3.2.1. Types, development and control of rules in the family

The analysis of both the focus groups and the family interviews revealed various rules, with different content, design and clarity. Rules can generally range between the two poles of (1) precise and clear rules to (2) vague and changeable rules. Additionally, rules can be differentiated regarding the question of (3) how rules evolve and are implemented in families.

With regards to (1): Clear rules, on the one hand, comprise several aspects of organising the use of DT in daily family life:

- **Rule often regulate the time span** children are allowed to spend with DD. For example, they define 15 minutes' screen time at once, or one to several hours per day. These rules differ with regard to certain phases during the day, for example, not in the morning but only in the evening (e.g., AT_F9, AT_F6, AT_FG1_PS) or generally, only after lunch (e.g., AT_F10). There exist different rules for weekdays and weekends, e.g., when DT is a fixed activity during weekends (in families with very restricted integration of DT, for example, AT_F7, AT_FG3_PS) or when during weekdays boundaries of digital and analogue co-activities become rather blurred (in families, like F5, with no fixed rules, and a mutual understanding, trust and sense of responsibility). In many families that participated in our study, weekends are structured predominantly by analogue family activities, whereas digital activities play a minor role.
- Furthermore, some devices might be **banned at certain places** or in specific situations, for example while eating, in bed or at night.
- Rules might not concern **all DD similarly** (like the difference between rules regarding the children's own tablet and the TV in AT_F9, the difference between using the e-reader and the child's own computer in AT_F6). Some children might be allowed to use only devices of their parents or to use these not at all, or only allowed to use the tablet that has a special 'family configuration'.
- Another rule might include that **new software or games have to be approved** by parents to be installed. Their approval might be based on certain content of games or apps and explicitly preclude games that contain sex, violence or insults from the outset (e.g., AT_F6, AT_F8).
- In some families, rules **define some exceptions** or—as AT_F8_father puts it— 'compromises', for example when listening to audiobooks does not count as digital activity (AT_F8, AT_F7, AT_F10) and is regimented separately. Additionally, reading e-books might also be assessed differently (AT_F6) and more positively than, for example, watching videos on a tablet. Rules might also be adjusted or suspended in exceptional circumstances, like when parents are occupied with something, or during long travels where screen time is extended (e.g., in AT_F8).

With regards to (2): No fixed rules, on the other hand, characterise families where all digital activities are covered by one main and broad rule or to individual desires and adapted to specific situations.

- For example, DT use is **aimed at being balanced with other activities**. This kind of balance and, consequently, potential restrictions are then rather based on a gut feeling of parents regarding the question of at what time the limit of too much screen or media is reached.

The mother in AT_F5 for example states: 'As long as this is balanced out, it is fairly good.' In these families, rules are rather vague and not fixed. The ways parents set and enforce rules or restrictions are rather situational or pragmatic, like the child in AT_F9 experiences it: 'I am always allowed to play [on her phone], but when my mother is in a phone call, I simply cannot play.' In another family, AT_F8, rules are adapted to daily family life. Thus, the mother assesses if it was a busy day for her children at school, estimates their need for sleep and the time for it together as a family. Based on this assessment, DT time has to be adapted accordingly.

- Particularly in families with no fixed regulations, both children and parents experience rules as often being **connected to certain tasks or behaviours**, for example, tidying up first like in F10, dressing and brushing teeth first like in F3 or practicing instruments first like AT_FG1_PS reflects. Children are aware and agree that 'good' behaviour, that is, behaving 'well' or doing certain tasks, is rewarded (like the focus group discussions reveal in AT_FG4_KG and AT_FG5_KG or children in AT_F2, AT_F10 and AT_F3 recounted), or that digital activities are prohibited as punishment when children behave badly (e.g., AT_FG4_KG: 'beating, insulting, annoying others') or do not adhere to certain instructions, like in AT_F1 or in AT_F10.
- Very often, regulations of digital activities are negotiable in these families, based on a mutual understanding and **mutual control or adjusted to individual family members' desires**. Furthermore, they appear less hierarchically ordered and established as an intra-familial practice applied in a similar way to everyone's needs and favourite digital activities, regardless if parent or child, if older or younger. This way of integrating DT requires regular and constant negotiations about and checking of existing rules, like the father in AT_F5 puts it: 'It is always kind of a scrutinising.'

With regards to (3): Regarding the **development of rules**, our data reveal that parents pursue different strategies:

- For examples, rules might **evolve in long discussion processes among parents** (e.g., AT_F1, AT_F6, AT_F8). In these families, discussions are often oriented on the DT behaviour or assessment of one parent, mostly the one who is more experienced with DT (e.g., AT_F9, AT_F4, AT_F5), has the most knowledge (AT_F7), has the most interest (AT_F1, AT_F6, AT_F9), has the clearest standpoint or greatest agency (e.g., as primary caregiver, e.g., AT_F2, AT_F10) and can convince his/her partner of his/her perspective.
- Adult family members' view might be **strongly based on the advices of experts** where adults actively obtain information (e.g., grandmother in AT_F2, mother in AT_F7). Their assessment might also be influenced by other families they know or by friends (e.g., fathers in AT_F8, AT_F6). They might agree to their views and orient their own assessment towards their opinions and experiences or establish a perspective in contrast to theirs.
- Very often parents follow a **general gut feeling** for integrating and regimenting DT (e.g., grandmother in AT_F3, mothers in AT_F5 and AT_F9).
- Parents might also negotiate and **develop family rules with their children.** In this process, they integrate specific topics regarding DT use to increase the children's awareness and competence in order to create a mutual understanding. Children thus might be involved and co-create rules with their parents. Their perspective and wishes are often shaped by their peers (e.g., AT_F8, AT_F1, and AT_F5). The mother in F5 relates, for example: 'It was certainly the idea that we together agree on how much time is absolute important for the children. Then we made kind of a family conference'.

Once rules are set, families and parents develop **different strategies for controlling these rules**. It might be **left to one parent**, often the main caregiver in the family, to monitor, enforce and control the adherence to rules. Some parents have decided to leave the monitoring, for example, of their screen time to the **children themselves** (like the child in AT_F6 uses an alarm clock, the children in AT_F9 use their tablets for about 20 minutes that they control themselves). This strategy is strongly based on a mutual understanding, on parents' trust and children's

awareness and digital competence. The conversation with the older daughter in AT_F9, for example, reflects this strategy:

> I: How long do you play normally?
> G1: Uh, well, half an hour, an hour, it depends which game it is.
> I: Is this also a specific rule for you?
> G1: Well, not really, you are allowed to play as long as you want but I do this myself now.
> I: Does this have a specific reason?
> G1: Just because, so I still have time for other things.

Another common strategy is to monitor and limit children's digital activities by **digital means**, for example, parental control services like screen-time blockers, apps to request downloads or setting up child-specific access codes (e.g., in AT_F1 or AT_F8).

2.3.2.2. Parents' and children's roles and perspectives on rules

Within families, perceptions and awareness of existing rules, restrictions and conditions regarding DT differ among family members, generations and children's age groups. In this chapter, we present the differences in the perspectives of (1) children and (2) parents.

With regards to (1): For children, particularly when they are still in kindergarten, it is normal that rules exist and have to be obeyed. Among kindergarten children, there are tendencies of perceptions of unfairness, like children AT_FG6_KG discussed: 'It is unfair that only adults should have such things.' However, children this age generally do not mention conflicts. Parents or other adults, like the kindergarten teacher for example, are generally accepted as authorities setting and enforcing rules, sometimes explaining rules and assessing DT. However, children's knowledge about specific rules is rather vague in this age group.

In contrast, **primary school children** show greater awareness, level of reflection and understanding, but also a probability of questioning existing rules and also parents' assessment and roles in the process of defining and controlling rules. Children tend to observe, to question and to criticise parents' use and behaviour and different rules. In AT_FG5_PS, for example, they criticised the lack of understanding from their parents for their desire to finish a game or a story. Similarly, they discussed in AT_FG4_PS the situation when mothers count to three until they take the DD away or children put it away. However, they might not only assess their parents' behaviour as unfair but also might point to their parents' harmful DT use (see more details in chapter 2.2.1.2).

Regardless of age group, children **like to share their experiences of outwitting parents or adults**, and like to share their secret knowledge, for example, how to manipulate devices in order to get access to content their parents have restricted by rules or technically. These aspects are mainly discussed in FGs, for example when they mention how they recognised the pin code in AT_FG5_PS, are able to use apps once deleted in AT_FG1_PS, are able to extend age limits in AT_FG4_PS, etc. The discussions in focus groups evoked insights into children's perceptions and stories about these experiences, for example in AT_FG4_KG but also in AT_FG6_KG:

> I take it secretly, because we have this emergency call with the number of my grandma and of my aunt and we always call then, when our grandma visits us, we grab the phone and can call grandma in the bathroom or somewhere else and talk to each other.

During interviews with kindergarten children, these stories were shared less often. However, the interviewed child in AT_F8 for example mentioned her experience when she took the tablet secretly to bed without permission: 'I hid it under my pillow and then we cuddled up together

and read and then he went and then I have watched something.' Especially among primary school children and during the discussions with peers in FGs, secret knowledge or experiences of outwitting rules and using DT secretly or contrary to existing rules were presented more often, even if not experienced by themselves but from watching others.
Children's perspective on and **knowledge about rules generally seem to depend on the parent-child relationship**. While younger children have a rather vague knowledge and accept rules regardless of their relationship to their parents, older ones who were able to co-construct family rules and to participate in the development and negotiation of rules due to a trustful and anti-hierarchical relational bond rather understood rules and presented them in a compliant way. For example, in AT_F2, the daughter accepts and understands the rules, considering them as necessary and appropriate. In contrast, in families where children cannot participate in constructing and defining regimentations and their relationship to their parents is rather based on hierarchy, conflict, distrust or misunderstanding, rules are rather ignored and actively opposed (e.g., AT_FG4_PS). These children perceive rules as unfair and not fully comprehensible in their content and necessity.

Children's perception and reaction to rules in their family also relates to the extent they **compare rules** in their family with rules of friends and their families. They are aware that children and friends in other families have other rules and other possibilities. In AT_FG1_PS, one boy mentioned his brother who was even visiting friends to increase his screen time and possibilities of using DT. Children might also be aware that rules might differ with each parent and how each of them enforces rules differently. For example, the child in AT_F10 knows that her father allows longer screen time and also to watch videos on his smartphone before she gets to sleep in the evening, in contrast to her mother.

With regards to (2): In the same vein as some children criticise their parents' more extensive or excessive use of DT, some **parents** themselves strive for being role models. They limit their personal screen time as well, especially when children are present, at least they say they try to. This endeavour might concern their leisure time they spend with DT but also the blurred boundaries between using DT for leisure and work, when parents avoid using their smartphone for example to keep distance from job messages or emails during leisure time. Most parents are aware of their function as a role model, for example as the father in AT_F3 puts it: 'a fish also rots from the head down'. In some families, where rules are based on mutual control, mutual critique and mutual understanding, parents even ask their children to help them controlling their screen time as well, for example, the mother in AT_F4 who says: 'Once I am honest to them and admit my own weakness, it works and we have less conflicts.' Parents also report using DT as a source for rewarding their children (e.g., for not arguing, for helping, for doing housework, for completing given tasks) or for punishing their children or at least threaten with it in conflict situations, for example when parents in AT_F6 talk about a 'computer ban' and when children discuss a 'phone ban' or limited screen time in focus groups and interviews.

2.3.2.3. Negotiations and conflicts regarding the use of DT and rules

In some families, the interviewed members **do not mention conflicts** regarding rules, but rather report on intense processes of negotiating and explaining rules. In AT_F4, for example, these negotiation processes comprise many explanations and arguments by both the parents (e.g., that they are sitting in front of the computer because of work, or that they want to play a smartphone game but want to be stopped after 10 minutes) and the children who are able to explain why they like to do something on a digital device or online, who feel taken seriously and are listened to. The families AT_F5 and AT_F9 can also be characterised by a mutual understanding within the family and no necessity of strict rules. Conflicts are thus not integral part of these families' use of DT. However, from the older children's perspective, conflicts only occur with their siblings.

Even when children are asked explicitly, they might ignore the occurrence of conflicts with parents, like in AT_F2, AT_F6, AT_F9, AT_F10 or AT_F4. Some mention arguments with parents when being explicitly asked, but talk about them in a very relaxed way. In the conversation with the interviewer, the boy from F3 for example says:

I: Are there conflicts sometimes? (About DT)
B: Yes. With my mum or with my brother, or with my stepfather.
I: What happens then?
B: Nothing. Then I have to go into my room.
I: And how does conflict start then?
B: When I don't behave well.

During the discussions in the focus groups, children mention specific situations, for example, that parents shouted at them when they grabbed the phone (in AT_FG1_KG) or they are imitating conflicts when they are taking over parents' role during the role play (where the moderator plays a child secretly taking a smartphone into bed to keep playing on it). Children rather talk about their feelings (being sad, being annoyed or being angry) that appear in connection to DT use, for example the younger daughter in AT_F9:

> Yes, I am sometimes sad when we watch TV, then we ask my dad, then we want to watch another episode, but we are not allowed then. And sometimes I get angry. Mum does not grant; she only says that it's very late already.

Reports from parents on **negotiations about use and content** between children and parents often regard the rules that are connected to DT. For example, parents from AT_F5 mention negotiations that are necessary sometimes regarding the time limits and new games. In AT_F1, the older son negotiated with his parents about the necessity of rules in general. Some children might already have developed negotiation strategies to convince parents about their aims, perspectives and wishes for apps or games. In AT_FG3_PS, for example, the boys assessed certain games very positively by legitimising the prominence of the game and trying to assure and finding arguments why the game is positive.

Generally, **conflicts and challenges rather appear in parents' interviews**, while conflicts mentioned **by children rather refer to arguments with siblings** than with parents (AT_F1, AT_F2 and AT_F5). These arguments often concern certain devices and their use or joint decisions regarding content, for example, in AT_F9 regarding specific TV series or in AT_F10 regarding using each other's Tonie Box (a child friendly audio system). In AT_F2, the older daughter has conflicts with her brother because she takes the view and is worried—mirroring her mother's and grandmother's view—that he misuses digital devices and is likely to get addicted.
From the parents' perspective, there are many situations where conflicts arise. Conflicts, however, are of a different shape. Conflicts among adults are often about content, devices generally and time limits. Particularly, when one parent has a different role within the family and a different attitude towards DT, they tend to arise. One would then allow longer screen time or more and other games and apps. In AT_F10, AT_F1 and AT_F6, for example, mothers get exasperated about their partners who allow more or suggest gaming or are not of the same opinion regarding access to certain devices. Uncertainty and divergence between the parents regarding the aim and ideal way to use DT and different perceptions thus increases the chances of conflicts. Conflicts might also involve parents and grandparents and their divergent assessment or rules (e.g., AT_F1, AT_F3, AT_F2 or AT_F10).

Conflicts **between parents and their children** are often a consequence of parents insisting on rules, for example, when children have to stop or are interrupted during playing or other digital

activities, when opinions regarding the necessary or available length of screen time or regarding preferred contents differ, when children have highly different attitudes towards DT than their parents and like spending time with DT, while parents rather dislike or demonise it. Reports on conflicts also make evident the difference between clear rules and the subsequent challenge to enforce these, making children adhere to them and restricting the use of DT. These situations entail conflicts between children and parents, for example, when children try to extend limits and parents have to enforce and explain rules, for example, in AT_F7 or when the father in AT_F5 relates:

> There are certainly outbursts sometimes, when I say it's enough. […] But that's why I know this so well, this thing is kind of a part of you sometime, where you lose yourself in it and when somebody takes it from you, this hurts.

However, in general, when rules are based on mutual control, mutual critique and mutual understanding within families, the occurrence of conflicts seems to be less likely even though the necessity of explanations, discussions and negotiations is much higher.

If arguments and discussions with children occur regularly and parents perceive them as a **constant challenge to act against the children's craving to use DT**, they often articulate their frustration in the interviews (e.g., mother and grandmother in AT_F2, mother in AT_F8 or father in AT_F3). Furthermore, their reports reflect their insecurity, ambivalence or inconsequence—as inner conflicts on the one hand, like for example the mother in AT_F7 or the mother in AT_F2, but on the other hand also as ambiguities between statements and behaviour during interviews, like for example, the father and the grandmother in AT_F3. Particularly in a reconstituted family system and complex family situation, for example in patchwork families, challenges and conflicts might be shaped by the relationship between the biological parents or the relationships between child and biological parents who might handle DT use in daily lives differently or who have a daily life with their child(ren) to a very different extent, like for example in F3, where rules have to be constantly negotiated at the weekends when the children are together with the biological father. Some parents develop **strategies to avoid conflicts** with their children especially when they do not have time or energy, like for example the mother in F8, or when they do not like this role of controlling or enforcing rules, like for example the father in F6 who does not want to be designated as 'control freak' or 'surveillance freak'. Additionally, in conflict situations with grandparents, these might also rather be avoided, even though they seem to occur much more often between different generations in intergenerational family relations, like for example in AT_F1, AT_F3, AT_F10 or AT_F7, due to differences in assessment and use of DT.

2.3.3. Typology of Families handling DT

The great variation across families can be captured by **three distinct types of how families assess and integrate DT**. These types illustrate how the role of DT differs in 'doing family':

Type 1) The first type comprises families whose members are comparatively **heavy users** of DT, who are proud about their way of using them and, in sum, appreciate DT. Some families even **glorify** these technologies as part of ensuring family members' well-being. In this type of family (AT_F1, AT_F6), all family members, at least those who were interviewed, express what they like about using DT in manifold ways, mentioning many advantages they see and benefits they draw from integrating DT into most of their everyday life activities. By sharing these positive attitudes convergently across multiple perspectives, they are all involved in doing family processes and practices.

Family 1 for example owns many digital devices. The mother, father and nine-year-old son

have smartphones, and the parents have laptops. All family members have their own tablets, including the younger 6-year-old son. In addition, they have two PlayStations, all wear smart watches and have smart speakers in three rooms. The mother admits: 'Yes, this is actually the only thing that we don't have anymore, the personal computers. Apart from that (laughs) we are very well equipped, yes (laughs).' Their family life revolves around DT; everyone has and is proud of his or her own device and they are connected digitally with each other. Their digital activities are very central in their daily lives, thus a central part for doing family: they focus on leisure and fun (e.g., watching and creating videos, games, shopping, drawing, 'playing' with smart speakers), but also on education and work (e.g., school, learning apps, university, mails), and family organisation (e.g., control apps, calendar, tracking son, safety through smart home). In contrast, communication activities do not appear very central (e.g., messages or phone calls), at least not for children. The children play digital games with each other, and the father plays with the children. In contrast, the mother is rather watching them and interested in what they are doing. The interviewed boy explains his perspective imagining a world without DT: 'Well […] if I knew that such devices exist, […] then the world wouldn't make sense for me any longer.' Leisure time activities without DT are not mentioned, even though the mother and the interviewed aunt stress that children also should do other activities than digital ones.

In their very positive and glorifying assessment of DT, there is a high level of convergence, dominated by advantages, while disadvantages (and also conflicts) appear as a side issue. However, the mother wants to be informed and up-to-date to be able to assess her child's use adequately as she fears that strangers might contact or influence children on the Internet: 'Well, I give him a feeling of, that he has freedom. But I, I control everything, certainly (laughs).' The mother thus takes on a managing and monitoring role, while the father obtains a leading part in initiating and introducing DT to the family. From the son's perspective, both mother and father are monitoring and restricting his digital activities and screen time. According to the mother, the parents' perspectives have converged over time, and still are different in some respects, occasionally entailing arguments regarding DT's use.

Type 2) The second type comprises families with a **neutral and relaxed way of using DT** compared to the other families. Families of this type (AT_F4, AT_F5, AT_F9) are very calm about DT in their daily lives and construct their relevance similar to other media and games. DT appear as a natural but not central part in their daily family life: all family members value digital activities and games similarly to analogue ones and are involved in doing family by using DT together, sharing interests, emotions and devices, but also by sharing many experiences and activities apart from the digital world. The children in these families might even forget about DT. Family members share and explain their differentiated assessment to each other, including both negative and positive aspects; the relationships between children and adult family members can be characterised as being strong and trustful. Parents in these families are generally satisfied how DT are integrated in family life, similar to the family type 1. Unlike type 1, families are not proud of their equipment or way of using DT or enjoying digital activities that much; they are not necessarily technophilic and value DT only as an addition to other technologies and activities.

An example representing this type is Family 5. Using and owning DT is very present in this family, beside or in parallel to analogue and offline devices, activities and interactions. All family members use DT similarly for both work/education and leisure time (gaming, videos, TV); however, digital activities do not appear as a central topic in their daily lives. During the week, DT are part of family life, in the sense of being present more naturally and connected to both work or education and leisure or free time with less (self-)control, albeit to an individual and different extent. On weekends, in contrast, devices are put away intentionally by and for all family members or used rather in a focused way or together as a family. Offline and analogue interactions and shared activities as a family are paramount during weekends and during the

family's free time. Convergently, the father is displayed as the one who owns and uses most of the DT and has the most knowledge about it, for example, as the mother puts it: 'My husband is a technician. He is perfectly equipped anyway by his company, but I don't interfere at all with that.' The older son is also constructed as being very interested and proficient in using devices on his own, which has developed with age as his mother explains: 'The older one is at an age now where he can use those things autonomously but needed much more help before. So, use has intensified over time for the child.' DT is also an issue in his peer group. He brings home ideas for new games, but is not gaming online with his friends. The mother is not particularly interested in using DT herself apart from work: she calls herself 'technical illiterate, not technophilic at all'. However, she is interested in instructing her children how to use DD in their daily lives. In integrating DT in family life, she follows the father's advice. Similarly, the younger son is constructed as being not particularly interested, rather watching his older brother when he uses it. He himself responds to how often he uses the devices:

> B: Don't know, not daily. […] Sometimes I don't watch TV at all for one week.
> I: Because you're not allowed or because you don't feel like it, or why?
> B: Because we have forgotten about doing it (laughs).

His older brother also describes it like this: 'Well, my brother doesn't play that often.' The father also presents his younger son as not being able to keep attention and concentration, being interested in other things:

> The younger one is still too young, clearly. He likes playing some of the games, running away from a monster, a skill game, he's able to do that okay, keeps playing it, but then it is not that interesting and doesn't attract him that much yet. You recognise that he still has this natural distance.

Each interviewed family member presented a certain individual way of how he/she uses or assesses DT. Adults explain gaining a lot from DT, professionally and for leisure time. Children — depending on their age—present themselves as being successful in digital gaming and profiting from digital devices (e.g., gaming, interaction, education). However, all are aware (or try to make others aware) of the attractive power of DT and intend to handle the devices accordingly. This awareness is based on self-assessment and continuous negotiations and communication, but not through rigid rules. However, there seems to be a strong bond between family members, a harmonic way of doing family and integrating DT in everyday family life, particularly through many discussions around DT. Parents take time for explaining things, making decisions together or at least sharing and supporting certain decisions (e.g., which game to download, which app to use, which film to watch, when not to use DT). There also seems to be a way of mutual control between parents and children, where children also criticise parents' smartphone use; thus parents appear as important role models.

Type 3) The third type of family can be characterised as comparatively **anxious, insecure, frustrated and highly sceptical users**. As these families tend to avoid using DT or even demonise its use, these attitudes result either in very limited use (e.g., AT_F7, AT_F2, AT_F10), vague rules and divergent assessment (e.g., AT_F3) or heavy and rather uncontrolled DT use (e.g., AT_F8). Through intense discussion and negotiation processes, family life in these families also evolves around DT. However, these negotiations entail sources of conflict and contest, regardless of whether the family can be characterised by convergent negative attitudes towards DT (e.g., AT_F2, AT_F7, AT_F10) or whether their attitudes rather diverge and evoke conflicts (e.g., AT_F3, AT_F8).

Family 2 exemplifies these **convergent negative attitudes** and sharing of anxious and sceptical views. In this family, the way DT are demonised is intergenerationally transmitted from

grandmother to mother and eight-year-old daughter. The family members' general attitude is reflected in explicitly displaying their lack of interest in DT, which they at least aim for in their daily lives, particularly the grandmother and the daughter. Similarly, the mother admits to using DT but simultaneously stresses that she tries to reduce it as much as possible; moreover, she is worried and not satisfied with the children's ongoing desire to use TV, smartphones and tablets and tries to restrict it as well. The family's integration of DT in daily life is based on clear rules, experts' advice and opinions, and based on comparisons with other families, other children, relatives and friends. Even though rules are constantly challenged by the children and negotiated within the family, the daughter assesses DT to be potentially dangerous, values strict rules in comparison with rules that exist in other families and criticises DT behaviour she observes from other children ('they only adhere to their phones', 'don't recognise their environment and don't care for nature', 'their pets starve while they care for app-pets', 'they bring their phone to school secretly and this is disturbing during lessons'). All three family members interviewed convergently consider the youngest child (six years old) almost 'addicted' to DT due to his desire to play more on the smartphone than the strict rules would allow. Through this way of sharing negative attitudes towards DT, this family creates a 'we-ness' as well and establishes a specific way of doing family.

Slightly different for Type 3, Family 8 represents an example for divergent attitudes and uncertain and frustrated ways of integrating DT in their daily lives. In this family, all members have their own devices (e.g., 6-year-old-girl has her own tablet; her brother (nine) seems to have a smartphone, computer, smartwatch and tablet). While children are using them mainly for leisure activities, their parents have laptops and smartphones, which they both use heavily and predominantly for work. They do not have a TV but a beamer for watching streaming content, sometimes also together in so-called 'cinema' evenings. According to the parents, children use DT often and often longer than originally regulated, especially when both parents are very busy with their jobs. In assessing and regimenting the use of DT, parents are rather insecure, following their gut feeling and their children's interests and adjust rules to specific circumstances in their everyday life. However, awareness of risks when using DT extensively and too much unites the interviewed family members. The nine-year-old son especially is convergently constructed by all three family members as the one who is using DT too heavily and also evokes the most conflicts with his demands and behaviour. Both parents strive for a balance of DT use and physical or outdoor activities, while at the same time they construct themselves as not being able to control rules or to offer children alternative activities and do not blame the children at all. Generally, the parents are annoyed and frustrated by the necessity to handle DT with their children. This is how the mother and the father put it:

> Simply, it is this attractive power to the digital device that bugs me. That you simply don't know what to do. […] And this is what bugs me. And that I have less time, depending on how much work I have, or have, feel too busy to be really consequent. That's it, yes […]. It costs energy. More than simply saying, 'yes, do it, just do it'. (AT_mother)

> Listening to audiobooks is kind of a compromise. They can do that, are allowed to be entertained by the tablet. Something we don't restrict. That's why they spend a lot of time listening to stories. Additionally, it is always a fight with the kids, again and again. That they don't watch random videos the whole day or play video games. When we have to work a lot, then we don't manage to follow the rules, that they limit their use. (AT_father)

In sum, we found different ways of doing family. By triangulating different family members' perspectives, the family profiles reflect different ways of how families share attitudes and values towards DT that might result in an intergenerational transmission of positive or negative attitudes towards DT. The practices of sharing attitudes can be understood as ways of doing family, as creating a 'family identity' and a feeling of 'we-ness' within a family and show great

variation among all families in our sample.

2.4. Aspects of diversity and inequalities

When analysing the data collected in WP3, we were able to detect the following aspects of diversity and inequalities: (1) differences in access, knowledge and use among peer groups or friends, (2) children experiencing themselves as less privileged compared to adults, (3) inequalities shaped by parental styles rather than by their socio-economic status, and (4) vulnerability by a lack of digital competencies (for vulnerability see also chapter 2.5).

With regards to (1): As it has become clear as shown in the previous chapters, **differences in access, knowledge and use** among children and their families are great in both age groups of interest. However, how relevant this diversity is for children and how they react and handle existing differences among them varies between children in kindergarten and children in primary school. Kindergarten children have specific ways of dealing with aspects of unequal access when these aspects are mentioned and discussed in the focus groups. They proudly presented their own family as well-equipped and tried to surpass each other. However, first, this might be a general age-specific issue, reflecting, secondly, why quantities should not be in the focus but rather children's practices with DT and the relevance of DT to them. Moreover, boundaries between reality and fantasy might become blurred when it comes to this kind of competition in the group discussions, for example:

> G1: I have two tablets.
> B2: I have forty. (AT_FG6_KG)
>
> B1: We have two at home.
> B3: We have ten. (AT_FG4_KG)

However, in assessing the situation cards, aspects of unfairness are discussed intensively when one child is excluded or only one is allowed to use a device (e.g., in AT_FG6_KG). Thus, among kindergarten children, differences in use among peers and friends is assessed negatively. In their perspectives, all children should join equally, either in digital or in analogue activities. Further, the discussions among the children show that analogue interaction and personal contact seem to be valued higher, even if digital devices are integrated in their everyday lives. In their families, kindergarten children rather take inequalities in access and availabilities for granted and do not actively question the fact that family members of different ages are allowed to use DT in a different way and to a different extent. However, they also express their assessment of unfairness regarding these different possibilities for older family members or parents.

In comparison, aspects of inequalities are more important and assessed as more differentiated among primary school children. Generally, expressing their interest in and knowledge about apps, games or functionalities is more prominent in the discussions with children of this age group than emphasising their regular experiences with specific devices or having them on their own—as the latter appears to be much more diverse and shaped by greater inequalities than the first aspect. The existence of differences generally seems to be natural for primary school children; at least, this diversity does not necessarily affect their friendship, as reflected in some focus groups (e.g., AT_FG3_PS). However, it might be problematic and experienced negatively on an individual level, for example:

> M: Is that important, what you play?
> B: They often talk about games and I just don't know my way around at all.
> G1: Me too, they talk about Fortnite, Roblox or—
> B: I don't have anything to say at all, but I don't think that's so bad.

G1: I just find it annoying sometimes because I don't have anything to contribute. (AT_FG5_PS)
I wanted to play with my friends, but they only looked on their smartphones and ignored me. And I don't have a smartphone. And they didn't allow me to watch them play. (AT_FG3_PS)

These children employ **different strategies of dealing with these differences**. On the one hand, they might be giving in to the peer pressure. This is reflected in the strategy of concealing their lack of knowledge or their limited possibilities, like the girl in AT_FG4_PS who was not contributing to the discussions about specific games while the boy tried to contribute with his basic knowledge but obviously was not as experienced in playing these games as the other boy. Another girl (in AT_FG2_PS) was staying rather quiet during the discussion, portably due to her limited knowledge about certain games and activities they discussed.

On the other hand, children might also confidently take and express a different view, like one boy AT_FG3_PS or the boy in AT_FG5_PS who admitted self-confidently not to be experienced in certain activities the others mentioned during the discussion, and also represented critical and differentiated perspectives. This perspective might reflect their parents' view, but as these children are aware of and comprehend their parents' assessment, they are in this way also enabled to argue with their parents' views and permissions or bans. Again, these two strategies reflect the importance of the children's family background, the respective family rules and family practices, the relevance of the specific parent-child-relationship that—when it is a close and trustful one—might consequently foster their (self-)confidence. Further, these two strategies also reveal the relevance of dynamics and maybe social pressure in their friendship groups, and bubbles in their peer group that frame their assessment and behaviour.

With regards to (2): Primary school children see **differences with adults and parents** as more relevant. They are far more aware that adults are allowed to use DT longer, use other content and apps and make independent decisions on their use. In this way, children experience themselves as underprivileged compared to adults. On the one hand, primary school children frame these differences as unfair, similar to kindergarten children. In some instances, they apply the strategy to not accept these differences and start to observe, monitor and actively criticise their parents' use of DT. Children express this strategy among peers in the group discussions but also to their parents, and the experiences of mutual control also appears in the parents' accounts. On the other hand, however, when these children start to engage in the role play as parents, they sometimes adopted the same strategies as adults or parents, with one boy stating: 'Well, I would not allow this. I would limit his screen time then. Just as an adult it doesn't matter, when he is older than 18, he can decide himself.' (AT_FG1_PS)

With regards to (3): In general, there is great diversity among children and between families in terms of access to technology, devices and modes of connectivity and use. This diversity is reflected in children's knowledge about DT and types of digital activities, in their assessment of and reflection about using DT, but also in the differences of how families are integrating DT in their everyday lives, how they assess digital technologies and activities and how they define and enforce rules accordingly. In the families that participated in our study, the different degrees of access and knowledge are **neither connected to parents' educational status nor to their economic status**. Rather, the combination of their assessment and their parenting style regarding DT shapes their way of mediating and supporting their children in using and assessing DT. Our analysis reveals that the mediating style parents adopt has consequences for diversity among children and for their level of vulnerability in using DT and participating in the online world.

With regards to (4): Children are affected differently by their family background, which in turn has an impact on the extent to which they profit or are negative affected by DT and are pushed

into a vulnerable position. Even if children have comprehensive access, sufficient skills and a broad knowledge about DT, these circumstances do not automatically entail children's sufficient **digital competence**. Our results show that children with very limited access might be vulnerable as they, firstly, are not able to develop digital competence and, secondly, face exclusion in their peer group. Their restricted access however is contingent on the parenting style of their parents and little parental mediation, support and explanation. On the one hand, parents may strictly limit their children's access (e.g., AT_F7, AT_F2) with more or fewer explanations and mediation and therefore might cause vulnerabilities like being excluded in their peer groups or lacking competence in integrating DT in daily life later on. On the other hand, children who are able to access digital and online activities in a highly unrestricted and—particularly—unmediated way (e.g., AT_F1, AT_F6, boy in AT_FG3_PS and AT_FG4_PS) could lack digital competence as well, experience harmful content online and develop risky (online) behaviour, even though they might have gained extensive skills and knowledge. We found both mechanisms in families where parents are highly educated and informed as well as in families where parents are not informed and not sufficiently competent themselves and have lower educational background. Conversely, we also detected higher levels of digital competencies and thus lower risks of vulnerabilities among children of both highly educated parents and parents with lower education, and from both well-equipped families and families having access to only selected DT. In these families, parents adopted a parenting style that involved many negotiations, explanations and mediated co-use of DT with their children that consequently could develop digital competence beside being digitally skilled and informed.

Digital competence thus comprises the ability of children to assess and carefully reflect on positive and negative aspects of DT, and on their own ways of using DT and integrating them into their everyday lives in their family and peer group. If children are able to critically and carefully reflect on questions of, for example, where to get reliable information, whether their own use can be limited, why they have to do this, how they can assess and handle potential dangers in the digital and online world and how they can cope with peer pressure, they increase their confidence, maturity and safety in using DT. Digital competence thus is relevant to avoid children's vulnerability, to decrease risky digital and online activities sufficient parental mediation that is reflected in accompanying and monitoring their digital activities, which takes place in co-activities and is manifested in explanations and differentiated engagement in their digital lives. By these means, children are able to achieve digital competence and to reduce potential vulnerabilities.

2.5. Vulnerability and beneficial and harmful effects of DT use

As outlined in the Grand Agreement (GA), one of the overall goals of the DigiGen project is to identify at-risk groups with regard to health, wellbeing and social participation and to enhance the understanding of beneficial and harmful effects for children and young people using DT. DigiGen also wants to better understand why and how some children and young people benefit from using DT while others seem to be impacted negatively. Based on our data, we could identify effects of DT in families on the general vulnerability of individuals (see chapter 2.5.1), and further we could specify beneficial and harmful effects on children and families (see chapter 2.5.2). In what follows, we describe the findings on vulnerability as well as on beneficial and harmful effects in connections with theoretical discussions.

2.5.1. Effects on children's vulnerability

Although children are generally vulnerable, they also have agency (e.g., Andresen et al., 2018;

Lotz, 2014). The results in this project reflect a wide range of different practices and activities children are involved in, different circumstances and realities children face and, accordingly, different outcomes and effects on children's well-being and on being vulnerable and/or having agency. Our analysis of potential effects of DT in children's everyday lives on their state of being vulnerable or capable to act is based on the **following theoretical framework** that connects vulnerabilities, resilience and digital competence and children's well-being.

When positioning children as both being capable of acting and being vulnerable, we do not consider the latter—vulnerability—as an exceptional or even regrettable status of being human; rather, we draw on Fineman's (2008) definition of vulnerability as being 'a universal, inevitable, enduring aspect of the human condition'. Human beings in this sense are understood as social beings who are fundamentally embodied. As we cannot escape our bodies or our social dependence on other persons, we can be characterised as being ontologically vulnerable (Lotz, 2016; Mackenzie et al., 2014; Fineman, 2008; MacIntyre, 1999). Human beings thus are always vulnerable to or dependent upon other individuals and groups. The concepts of 'vulnerability' and 'dependency' can thus be considered as interchangeable and relational characteristics of human beings in general (Goodin, 1985). On the one hand, vulnerability thus points to a universal ontological condition, while on the other hand, the term vulnerability can be used to describe how people vary in their exposure to risk and in their resources for countering such risks (Rogers et al., 2012). Following this conceptualisation, vulnerability arises from many sources: biological, social, political, environmental and cultural.

To grasp vulnerability within DigiGen's WP3 focus on pre- and primary school children and families, we employed a conceptualisation that comprises different but partly overlapping kinds of vulnerabilities. First, our analytical perspective was informed by the taxonomy proposed by Roger et al. (2012, see also Mackenzie et al., 2014), including inherent, situational and pathogenic vulnerability. Lotz (2016) added a further category that points to the possibility of human beings to actively avoid or counter vulnerabilities: subsumed under the term 'discretionary' vulnerability, the author describes two distinct subcategories: (a) imposed and (b) assumed vulnerability. With this categorisation, Lotz wants to introduce a distinct class of moral obligations arising from vulnerability and wants to point to the autonomy and agency of vulnerable persons.

- While the first term, proposed by Rogers et al. (2012, see also Mackenzie et al., 2014), refers to being **inherent** to the human condition, arising from our corporeality, our neediness, our general dependence on and from others, as well as our affective and social nature,
- **situational** vulnerability is context-specific and is caused or exacerbated by personal, social, political, economic or environmental circumstances and situations of a person or social group.
- The proposed taxonomy of Rogers et al. (Mackenzie et al. 2014) Our taxonomy identifies a subset of situational vulnerabilities that are particularly ethically troubling, which they refer to as **pathogenic** vulnerabilities. These vulnerabilities arise from the exacerbation or compounding of existing vulnerability or generation of new vulnerabilities. Sources can vary, from morally dysfunctional interpersonal and societal relationships characterised for example by disrespect or abuse, or by socio-political situations characterised for example by oppression, domination or injustice. For example, children, who are apparently vulnerable due to their need for care, are susceptible to pathogenic forms of vulnerability, like the risk of being a victim of sexual abuse in the family or care institutions. "A key feature of pathogenic vulnerability is the way that it undermines autonomy or exacerbates the sense of powerlessness engendered by vulnerability in general" (Mackenzie et al., 2014: 9).
- Further, **discretionary** vulnerability, proposed by Lotz (2016), includes two subcategories:
  - **Imposed** vulnerability occurs when agents are intentionally placed through a decision of a third party into conditions in which new vulnerabilities will occur or existing vulnerabilities

will be deepened and/or extended. These conditions either enable or inhibit agents' resilience.

- **Assumed** vulnerability describes knowingly and in some sense willingly accepted vulnerabilities. However, 'willingly' should not be understood as 'happily', but points to those situations where we put ourselves into positions and conditions that we know will make us more vulnerable. In that sense, we accept this increased vulnerability.

Furthermore, vulnerability is a basic concept for a central ethical principal in European bioethics and biolaw. This principal is framed by two basic ideas: (1) It defines vulnerability as reflecting the finitude and fragility of life in general, but also as being context-dependent. More importantly, (2) it entails a moral and ethical responsibility to care for vulnerable others whose autonomy, dignity or integrity is threatened (Rendtorff, 2002).

Due to their dependency on others and their need for care, we thus conceive children as a vulnerable group per se, representing 'inherent' vulnerability and, compared to adults, a higher risk of exposure to 'situational' and 'pathogenic' vulnerabilities. The fact of vulnerability gives rise to specific moral and political obligations to support vulnerable individuals and groups and to reduce the risk of avoidable vulnerabilities (Rogers et al., 2012). A central aim in supporting families and children is to maintain their well-being under adversity or stress and/or help them to recover. To maintain well-being or to re-establish well-being, resilience of individuals plays an important role. Even if there is no single agreed-on operational definition of resilience, based on a literature review, Fisher and Ragsdale suggest following the definition: 'the process by which individuals are able to positively adapt to substantial difficulties, adversity, or hardship' (2019, p. 592). Similarly, Lotz proposed a definition that does not restrict resilience to the overcoming of significant adversity or trauma, but sees it as essential for every human agent, being 'a capacity to confront, absorb, withstand, accommodate, reconcile, and/or adjust to conditions of adversity, setback, and challenge in the pursuit of desired or desirable goals and states […] not a single trait or attribute but, rather, a suit or cluster of skills, attitudes, and resources, the possession of which constitutes a general kind of disposition and orientation towards the world and one's place and condition within it' (Lotz, 2016, p. 50).

Resilience cannot be understood as a unidimensional construct, rather, according to Robertson and Cooper's (2013) psychobiological perspective, it can be described by key attitudinal and behavioural factors like positive attitude (optimism and sense of humour), active coping, cognitive flexibility, moral compass, physical exercise and social support and role models. Resilience further comprises four components: adaptability, confidence, social support and purposefulness and is not understood as a fixed trait or a 'fixed personal characteristic'. Rather, it can be changed and developed and its origins lay in both experiences as well as in underlying psychological make-up (Robertson & Cooper, 2013). Consequently, resilience is a central part in maintaining well-being. Thus, building up digital competencies within children, young people and families can contribute to resilience and well-being.

In the course of analysing the state of research with regard to the impact of DT on different dimensions of well-being, we merged the well-being framework by the OECD (2019) with the Digital Competence Framework of the European Commission (2019). As a result, we created a well-being framework with five dimensions: DT access, information and data literacy, communication and collaboration, new skills and content creation, and safety. Some broader dimensions include sub-dimensions, for example the dimension 'communication and collaboration', including the following sub-dimensions: interacting through digital technologies, collaborating through digital technologies and developing and managing identity (for more details see Lorenz & Kapella, 2020).
Informed by the theoretical elements presented above, we analysed which practices of and circumstances when using DT in might contribute to increasing or creating vulnerabilities of

children and which might contribute to mitigating or decreasing their vulnerability. From our researcher's perspective, we could detect an impact of DT on vulnerability of children and can draw the following conclusions.

We can conclude that the way children, parents and families handle DT has a clear effect on children's vulnerability. The central aspect of the question of whether using DT tends to create further vulnerability or to reduce vulnerability of children can be located in the level of digital competence they have or are able to gain. This competence enables maintaining or raising children's resilience and their well-being. Children can be characterised as digitally competent, when they, for example, are aware of certain risks (e.g., surveillance, hate comments, fake friends, data protection) and when they, in turn, value aspects they can profit from. As already mentioned, having access and knowledge does not automatically contribute to children's digital competences. A lack of digital competences particularly has harmful consequences for children and tends to manifest children's as vulnerable status and/or increases the risk of further vulnerability. If children are empowered, learn how to handle risk and know where to get help, the risk of facing further vulnerability even decreases as this empowerment and competence contributes to the resilience of children in a positive way. In order to illustrate these effects on vulnerability, we draw on some examples discussed below:

Specific contexts or experiences in children's everyday lives might cause situational or pathogenic and/or discretionary vulnerabilities. Certain circumstances thus can entail and create new kinds of vulnerabilities for children, for example, when children have experienced specific harms and had no support from others to develop resilience or competent strategies in dealing with such harms or even risks. They, for example, might be exposed to content that frightens them, might provide too much personal information on the Internet, be exposed to harmful content, be contacted by strangers or not be able to stop computer gaming.

For children in this study, differences among their peers in access to digital devices and in digital activities on the one hand seem to be natural for them and do not necessarily affect friendship or entail social exclusion, as long as they share other interests or children with lower access have at least sufficient knowledge about and interest in DT. On the other hand, children in this study, especially those in primary school, considered inequal access as increasingly relevant and problematic, as they already reported negative experiences with social exclusion due to these inequalities.

Specific challenges in families might increase potential new and further vulnerabilities, for example, when children in their families are able to use DT in a way and to an extent that harms them, without being supported in establishing enough digital competence and resilience to control and manage the use of DT. Further vulnerability might arise when conflicts regarding the integration and handling of DT occur and cannot be solved in a fruitful way. These conflicts might involve different family members, for example conflicts between siblings or between parents, or intergenerational conflicts, for example, between one or both parents and child(ren) or between grandparents and parents. Our data also indicated that vulnerability might potentially be exacerbated when parents engage in overprotection, have a non-transparent, non-participatory and hierarchical parenting style or when children have negative attitudes towards DT, or, in contrast, towards parents' lack of protection, interest and care, which may be interpreted as a kind of pathogenic vulnerability. Parents' way of caring or not caring about—or monitoring or not monitoring—their children's DT use, or of actively negotiating or rather avoiding conflicts, can be seen as tipping points regarding the development or lack of digital competence among children. Consequently, parents' ways of introducing, carefully monitoring and mediating how children use and deal with DT is decisive for questions as to whether children's vulnerability is increased or new vulnerabilities are created, or if children's vulnerability is weakened by lack of resilience and digital competence.

2.5.2. Beneficial and harmful effects of DT

We suggest discussing potential beneficial and/or harmful effects on children's well-being by adopting mechanism-based concepts of analysis and explanations. By focusing on mechanisms, we move away from mono-causal explanations based on single factors or specific parental practices towards a more nuanced understanding of underlying mechanisms and relations that shape outcomes of a specific phenomenon in children's lives, similar to research on violence on children in families (see Kindler, 2017).

As DigiGen explicitly takes a life-course perspective, risks and benefits as well as children's vulnerability and well-being are conceptualised as being exposed to change. We analysed this change by focusing on children's perspectives of two age groups and by also including adults' or older family members' perspectives (see chapter 2.2). Although children's and their family members' explanations in our data often included positive and negative sides of DT from their perspectives, we will now apply an analytical and holistic lens to harmful and beneficial aspects of DT. We do this by concentrating on mechanisms that facilitate specific effects and outcomes. Whether outcomes of using and integrating DT in children's and family's lives are more harmful or beneficial cannot be explained comprehensively by single factors but by focusing on mechanisms and relations that shape specific outcomes.

In order to understand why DT has more harmful effects on some children than on others, we analyse this phenomenon by considering the mechanism that leads to these different outcomes. Similar to other researchers, Hedström suggests introducing social mechanisms to social theory. By approaching social phenomena by focusing on mechanisms that create changes in social entities rather than on statistical regularities between variables, powerful explanations for social phenomena can be established (Hedström, 2005, p. 24). The essence of the approach is a special style of theorising rather than offering one specific deterministic explanation (Hedström & Swedberg, 2005; see also Hedström & Ylikoski, 2010). The core idea is not to explain social phenomena 'by evoking universal laws, or by identifying statistically relevant factors, but by specifying the mechanisms that show how phenomena are brought out' (Hedström, 2005, p. 25). Thus, the mechanisms approach goes beyond mono-causal explanations, typologies or models. Based on the work of Machamer et al. (2000), Hedström and Bearman define the social mechanism as

[consisting] of entities (with their properties) and the activities that these entities engage in, either by themselves or in concert with other entities. These activities bring about change, and the type of change brought about depends upon the properties and activities of the entities and the relations between them. A mechanism, thus defined, refers to a constellation of entities and activities that are organised such that they regularly bring about a particular type of outcome, and we explain an observed outcome by referring to the mechanism by which such outcomes are regularly brought about. (Hedström & Bearman, 2009, p. 5)

As the results of this Austrian case study illustrate, children and parents mentioned diverse effects of DT in their families and children's lives. In analysing these effects and outcomes, we identified several aspects and contexts that contributed to these outcomes and established an understanding of possible underlying mechanisms. Such mechanisms consist of several **entities**, for example, children's developmental stage, their digital competences and level of resilience, the family background like economic possibilities, living environment, available digital devices, parents' educational level, family size and structure (e.g., siblings, multi-generational or multiple households), parents' attitudes, their own experiences and own interest, the child's and parents' peer group, teachers and school context and regional or cultural contexts. Further, we looked at the **activities** that these entities are part of and engage in, either by themselves

or in concert with other entities. A mechanism, thus defined, refers to a constellation of entities and activities that are organised such that they regularly bring about a particular type of outcome, and we explain an observed outcome by referring to the mechanism by which such outcomes are regularly brought about (Hedström & Bearman, 2009, p. 5). These activities can bring about change, but they themselves depend upon the properties of the entities and the relations between them. Differences between mechanisms are in turn evoked by changes in the entities, either in their properties or activities or in their relations to each other. We want to illustrate this analytical concept by three examples that differ in regard to their outcomes, that is, harmful or beneficial effects through the integration of DT.

Example 1: For the nine-year-old girl in F2, the integration of DT entails rather harmful effects and increases her inherent vulnerability. F2 can be characterised by a highly restricted use of DT, although rules in the family are rather vague. Consequently, these circumstances evoke uncertainty for the child and her brother and room for conflicts between the mother and the children, but also between the parents themselves. The family shows a convergent negative and sceptical attitude towards DT that is shared and transmitted from the grandmother to the mother and also reflected in the daughter's accounts. This biographical imprint is sustained by several experts who support this view and who are referenced by the family members. Anticipated harms are experienced by the family members like self-fulfilling prophecies or selected observations that confirm their negative attitude, for example, the daughter's unhealthy eyes, the brother's borderline addiction and peers who use DT far too much. These entities contribute to a specific mechanism that has the potential to increase the child's vulnerability or create new vulnerabilities. Her vulnerability is evoked by the relations of all included entities and respective properties as described above. This child, consequently, is not able to develop a competent understanding and use of DT, not empowered to assess negative and also positive aspects of DT and not able to develop resilient capabilities. She might even be at risk of further vulnerabilities amongst prevalent negative attitudes.

Example 2: The ten-year-old boy in F6 uses DT to a comparatively large extent, mainly by playing games on the computer in his bedroom. The child himself monitors the rules that the family has defined. Most of the time this boy is left alone in his room while he plays the games, although his parents mention monitoring with DT what games he is playing and for how long. However, the parents have a very divergent assessment of using DT while they at the same time avoid arguments about it. The father, who is the main caregiver and a video gamer himself, understands and supports the son's desire for playing digital games and avoids monitoring his activities. In contrast, the mother is sceptical, tries to offer her son alternatives to gaming and observes his growing and self-inflicted social isolation. According to the mother, this view is supported by the child's teacher, who also perceives this risk. Additionally, the boy has a two-year-old younger brother who needs much attention. The parents are thus relieved when the older son is able to be occupied with his games in his room. However, the son admits that he likes not being forced to meet his peers in person anymore, being able to contact them via DT. All these entities, properties and relations evoke a specific mechanism that increases the child's vulnerability as, firstly, he is left alone and confronted with harmful content, has contact to strangers in games' chat rooms, but also, secondly, is frequently bored by certain games and demands new ones, preferring to stay in front of the computer rather than go outside and see friends. This mechanism contributes to the risk of increasing vulnerabilities as it entails social isolation that the child already prefers but from which he ought to be protected by his parents. His behaviour might furthermore entail a higher risk of addiction, adding another layer of vulnerability to his already vulnerable status. Although this boy has much knowledge and skills in regard to DT, his vulnerability is high and his well-being endangered.

Example 3: In the family F4, the nine-year-old boy is used to having access and experiencing much of DT in his well-equipped environment and daily life. DT are an integral part of his social

reality. The parents convergently recognise digital and online activities as valuable both for them as a family and as individual family members. At the same time, they offer and enable their children various offline and analogue activities that they are also partly involved in. These co-activities are complemented by other alternatives the child has through the multigenerational household, outdoor possibilities in the family's garden and surroundings and friends nearby. Each family member has developed an understanding and interest in each other's desires and digital activities. Furthermore, the child is involved in the co-creation, control and situational adjustment of rules. The resulting specific mechanism entails the child's reduced vulnerability. By being empowered and able to gain digital competences, the child's risk of being exposed to further vulnerabilities is very low. The child is able to control and reflect on his digital behaviour, to assess DT carefully and to include aspects he experiences as beneficial for himself and others he classifies as dangerous. Therefore, he has developed competence in using DT and continuously strengthens his resilience against potential harms.

2.6. Results related to the methodological approach

In this chapter, experiences and insights regarding the methodological approach will be discussed and reflected on. The presentation is organised by discussing aspects of the methodological procedure first (chapter 2.6.1). Second, lessons learnt and some practical suggestions for the moderation of focus groups with children are summarised (chapter 2.6.2).

2.6.1. Reflections on aspects of the methodological approach

2.6.1.1. Recruitment

The COVID-19 restrictions demanded even more flexibility on researchers' behalf than usual in qualitative research. Recruitment and field work had to be adjusted to the specific context and local requirements/restrictions and changed continuously over time. We had to secure the safety of both participants and members of staff. We now briefly describe the impact of the COVID-19 pandemic on our research plan and execution in family interviews and focus group discussions.

Initially, we had planned for a multi-level selection and recruitment process with the selection of institutions in a first step and children therein in a second. Unfortunately, institutions were not accessible during our fieldwork. Researchers were not allowed on school or kindergarten premises and social distancing measures hampered face-to-face encounters. Thus, we explored our personal networks for potential participants and instigated snowball sampling using these contacts. A well-known problem of snowball sampling is a tendency for homogeneous samples. Nevertheless, as our substantive results show, we had a diverse sample of families regarding their ICT practices as well as regional and socio-demographic background.

For the focus groups, once a contact was established, we asked for recommendations and contact details for further participants. Generally, parents were very helpful, encouraging friends of their child (and their parents) to participate and helping to organise the interviews by collecting consent forms, opening their home for us or delivering the children to a focus group location. Using parents as gatekeepers—rather than institutions—allowed us to talk to some parents before and after the focus groups, which gave us additional context information. It is important to mention that these small talks were not meant to validate or double-check anything the children told us. Most of the time the conversations were very general, but insightful for the family context. In a school or kindergarten setting this would not have been the case.

Recruitment for family interviews was simpler in this sense because we only had to find one family at a time with a child in the respective age group.
Due to the pandemic, we could not hold preliminary meetings with children or parents and information on the project had to be conveyed mostly via telephone and information sheets. Establishing trust is more difficult this way but social ties helped to compensate for this. Institutions as gatekeepers might have reassured parents and less effort on parents' behalf would have been necessary.

In sum, recruitment was difficult—not because parents did not value our study but because the circumstances were obstructive. Social distancing measures were prohibitive, appointments had to be postponed because a family member or someone else was sick and parents had to try to either open their home for data collection purposes or deliver their child to a place in the vicinity.

2.6.1.2. Setting

With these restrictions, we had to find alternative rooms and digital formats to conduct interviews. Whenever possible, we tried to find a setting that allowed for face-to-face, offline conversation. The family's home was the natural place for the interviews. We visited seven families in their homes and conducted individual interviews with all or only some family members on site. Only one family preferred to come to our offices for the interviewing of their child and in five families some or all family members preferred being interviewed online via video call. The experiences with online interviewing were mixed: sometimes the connection was poor and strong dialects were even more difficult to comprehend via online platforms. The advantage of online interviews is that children can stay in their familiar home environment and can also show their toys and other items or rooms that are referred to in the interview, similar to face-to-face interviews in the child's home. Furthermore, especially when children are used to video calls, video interviews give children and parents a sense of safety and are not difficult to organise, although some children did not say much and had difficulty focusing on the interviewer. In some cases, it seemed more difficult to maintain focus and motivation if the interviewer was not physically present. The interviewer could talk about some general topics in the beginning (e.g., where the child is sitting now, if he/she is used to making such video calls, if he/she wants to show his/her favourite toy to the camera) and could use material like show cards (see chapter 6) via a shared screen or by holding a picture to the camera. In some cases, parents were listening in the background and referred to some statements their child had made in their own interview afterwards. To summarise, online interviews are a good but not complete substitute for face-to-face interviews—particularly with children. Furthermore, children should be encouraged to put the device for the video call somewhere stable and not hold it in their hands.

For focus groups, we also used private homes but we did not conduct any focus groups with children online. Using family homes for interviews and focus groups allowed for insights into living conditions and ICT equipment in the home. This is valuable contextual information. However, the family home or child's bedroom as a location for interviews or focus groups has several methodological implications as follows.

For individual interviews, the familiar setting in the child's bedroom could be comforting and gives the opportunity to show the interviewer things. In a focus group, however, the visiting children do not have this advantage. Further, conducting focus groups in this setting often comes with space restrictions but also a power imbalance between participants: the host is on home ground and has more say in a sense. At the same time, the bedroom is often a play zone. Thus, it might be difficult or unappealing to concentrate on the focus group when toys are present. Friendship pairs can easily dominate focus group discussions and this effect seems

to be even more pronounced when focus groups are conducted in a child's home. At the same time, friends might discuss in more detail about using DD at home. Furthermore, in a few interviews, younger siblings created a serious distraction and disturbance to the interview, while, in contrast, when participating in a focus group, they were marginalised. However, it is impossible to send the siblings away, particularly when the children are sharing a bedroom or when parents are interviewed simultaneously.

Another implication of conducting field work outside schools and kindergartens was that parents were either present or nearby. This had mixed implications. On the one hand, for younger children it was sometimes reassuring to have parents nearby and some children preferred their parents to stay during the individual interview or focus group. Furthermore, the chance to also informally talk to the parents or observe the parent-child interactions and family dynamics before and after the interview or focus group can be very informative. In one focus group, for example, the participants' mothers had gathered for prosecco and coffee while their children participated in the focus group and stayed in that apartment afterwards. The participant of the house wanted to play on a DD after the focus group, but his mother did not allow it. This resulted in an argument and ended in doors slamming. This gave us interesting insights into family dynamics and practices around the use of DDs.

On the other hand, when the interviewer talks too much to the parents it might undermine the expert status we want to assign children. The child should always be the centre of attention. Parents have an influence on what is said and how—sometimes directly by saying something but also by their mere presence. Furthermore, parents being present makes confidentiality impossible. Thus, sensitive or controversial issues were raised more rarely when parents listened to children's interviews. Further, it can be tempting to ask or refer to parents when they are present during the interview. However, this would undermine the expert status we try to assign to the child participant. Either way, parents had positive and negative effects on the course of the interviews and focus groups: they gave confidence to and encouraged the children, but they also might have influenced what children said and how they behaved.

2.6.1.3. Participation of children

In terms of their participation, most children were very cooperative, and they became acquainted with the interviewer/moderator and the interview/focus group setting very quickly. Underlining the expert status of the children verbally and non-verbally helped to engage them. They felt appreciated and taken seriously. However, there is a (natural) difference between children in how talkative and outspoken they are. Children were generally very proud to have a voice in research and contribute to an international study. Further, the research topic and methods used (show cards, role play) evoked enthusiastic discussions and were fun for the children.

2.6.1.4. Interviewer and moderator behaviour

What is communicated is not only an expression of attitudes and beliefs but also a result of the dynamic of the situation. Interviews and focus groups are interactions and shaped by the societal and situational context as well as the interactional partners. This is particularly relevant when children are participants in research. Power imbalances and generational hierarchies come into play and demand well trained interviewers/moderators and reflective and flexible behaviour. Thus, demands on interviewers/moderators in child interviews or focus groups with children are amplified. Empathy, flexibility and sensitivity are crucial and experience in working with young children is helpful—but not, strictly speaking, necessary.

We also found that during the interview or focus group itself, more interpretive work is necessary.

The interviewer/moderator constantly needs to question his/her understanding and be very attentive to potential contradictions. This is crucial for asking and reassuring comprehension because equivalence of meaning cannot be taken for granted, for example, a child referred to a hearing aid but meant headphones. The semantic and pragmatic meaning of words is not necessarily equivalent between an adult interviewer/moderator and child participant.
In addition to the moderator, an assistant was present in all focus groups. This had the advantage of having someone else experiencing the focus group and allowing for joint reflection. Furthermore, the assistant helped when a child needed to be taken to a toilet (it also happened that all of the children needed a toilet). Of course, the assistant can feel free to ask questions, however, we found that it was better if one person led the focus group. This avoids mixing up the children and requires coordination effort between moderator and assistant. Managing and facilitating the group can be challenging enough.

2.6.1.5. Analysis and reflection of moderator and assistant

After each interview or focus group, the interviewer, moderator and assistant individually completed memos on the field work experience. In focus groups, moderator and assistant discussed their experience and completed the memos in a further step. Afterwards, the data were analysed together with members of the research team who were not involved in the field work. For the family interviews, we held interpretation meetings where three team members participated. Each person had either conducted one or more of the interviews or had listened to the recording and taken notes. Thus, each member of the research team took one interviewee's perspective and we then discussed the findings about the respective family from these three perspectives. This practice always enhanced the nuanced understanding of the family and the dynamics therein. In the process of fieldwork, these discussions became more abstract and we were able to distil patterns and make meta-inferences across cases.

This practice is highly recommended because it allows for a more nuanced understanding by triangulating different researchers' perspectives. Our different disciplinary backgrounds were also valuable for diverse readings. We strongly recommend this strategy because it created new insights and led to communicative validation of interpretations.

2.6.1.6. Family interviews and interviews with children

The **family interviews** aimed for insights into individual experiences and views but also family practices regarding the challenges, advantages and impacts of DT generally and specifically on family life, negotiation of practices and use of DT, as well as (retrospective) changes across time. From a methodological stance, we were interested in potential threats to data quality in interviews with children, demands on interviewer behaviour and specificities in the interaction with young children, children's perceptions of interviews, question formats and tasks, but also reflected on ethical considerations of interviewing children and other family members and practicalities of triangulating perspectives in family research. We decided against joint family interviews to ensure confidentiality and give every family member an equal say.

Although the data collection was based on individual interviews, the unit of analysis was the family. This was achieved by triangulating perspectives of family members. Triangulating perspectives does not serve purposes of validation but of gaining a wider understanding of the constructive nature of family reality and dynamics. By triangulating different family members' perspectives, we could analyse how families are sharing attitudes and values towards DT and how they converge or differ in their perceptions and assessment of DT in their family life and doing family.

Interviews with children are more balanced in terms of word-share than qualitative interviews with adults. This also implies that the interviewer has to be more active and thus potentially directive and suggestive. Sometimes questions have to be repeated. However, repeating the question about potential conflicts regarding DT use in the family and phrasing it differently several times might suggest that the interviewer keeps asking until he/she gets the expected answer or does not believe the child.

It is also important to clarify the purpose of the interview and the expectation to reduce anxiety. Some children were slightly nervous at the beginning and had to warm up. Starting with the show cards was helpful to start the conversation and provide the children with something to look at other than the interviewer. Constant eye contact can increase insecurity. However, while most children engaged well with the show cards, we found that we had too many of them. Overall, the time we spent on the first topic (knowledge about different devices and software) in the interview guidelines was too much and took too much concentration. Thus, subsequent topics were often handled only briefly. For some children, the show cards were not necessary, and they preferred talking about ICTs freely. Others were totally fixated on the pictures and did not want to talk about anything else.

Longer narrations are unlikely with young children. However, children sometimes follow their own agenda and tell stories that are not related to the interview topic. As a sign of appreciation, interviewers should still give room for these narrations even though they might not be directly relevant for the research, at least not at first glance.

Despite the presence of other family members, we sometimes got the impression of socially desirable answers. We heard the parents' voices behind what the children said. Some children seemed to replicate what they had heard, rather than having their own opinion. However, it is very difficult to determine whether this really constitutes social desirability. In fact, we think it does not: it is a normal developmental stage in which the attitudes and norms of significant others are internalised and not a mere repetition of what they have heard from their parents because it seems an acceptable answer. Furthermore, to have an idea of what is socially acceptable or desirable, someone needs to be well socialised within a society and well versed in perspective taking. Both are questionable at such a young age. Often, children do not only repeat adults' words one by one but add their own interpretation, perception and reflection. To contextualise the children's statements and views, interviewing other (adult) family members has great potential, like for all members of the family. However, it is not necessary to validate or confirm what children say. If we are interested in children's perspectives, we have to take them seriously as informants in their own right. Parents or other adults can add their perception of the child, but this does not mean that the adult's view out rules the child's. Having another perspective simply gives the opportunity for better understanding the family system from a more holistic point of view.

2.6.1.7. Focus Groups

The focus groups aim to elicit collective orientations (rather than individual experiences) within a peer group setting. Thus, unlike the family interviews, where the family is the unit of analysis, focus groups elicit children's perspectives on DT and their family in a peer group setting. The aim is to better understand children's interactions with and through digital devices and for what type of activities they are using them, their assessment of DT and relevance of DT in everyday and family life as well as diversity and social inequality in access to DT. From a methodological point of view, we investigated specifics of group composition and group dynamics when children participate in focus groups, threats to data quality and specificities of moderator involvement and interaction with children as well as ethical considerations.

In brief, some assumptions on the methodological approach for the focus groups follow. Generally, focus groups create a peer environment and are similar to the types of settings children are familiar with from school and kindergarten. Thus, focus groups replicate a real-life setting and offer insights into meaning making in situ amongst peers. Participants know each other beforehand and form a so-called real-life group. The aim of the focus groups is to elicit different viewpoints on an issue (Kvale, 2009, p. 72). Peer interaction may generate more spontaneous expressive and emotional views than in individual interviews. 'Children may also be encouraged to give their opinions when they hear others and their memories may be triggered by the contributions of the other children' (Lange & Mierendorff, 2011, p. 87). Thus, the breadth and depth of information increases.

From a methodological point of view, interaction among participants is the strength of focus group research because it can generate a wider spectrum of opinions, explore topics and generate hypotheses, and warrants external validity. However, the interaction among participants can also be a weakness: the specific communication process and group dynamic can be a potential threat to validity or inhibit communication. Furthermore, the group dynamic can become more important than the content.

Focus groups are characterised by a non-directive style of interviewing, where the primary concern is to encourage a variety of viewpoints on the topic. Peer support can soften the power imbalance between adult and child that exists in one-to-one interviews. Due to the age and status difference and the need to structure the focus group, it was not possible to minimise power imbalance. However, underlining the expert status of children and sitting on cushions was important and successful in empowering children to participate.

We found that direct cooperation among participants was limited, particularly in the younger age group (five- to six-year-olds). The communication was rather moderator-centred, which makes insights into peer orientation processes in situ questionable.

Sometimes we could detect some tension among participants, for example about who was right, which basically is about a desire to dominate others. Further, for some children it was important to impress the moderator and they boasted for example about the number of devices they have at home or how long they can use them. Generally, children were very moderator-centred, competing for her attention and recognition. Thus, the moderator was (unintentionally) very central and even more so with younger children.

For both age groups, there was only limited direct discussion among participants: statements were often complementary without an argumentative exchange about the exact meaning of the word that brought in different and new arguments to support one's view. However, this does not mean that participants did not refer to each other. To be complementary, the other person's position has to be heard first. Adult standards about debating a topic might fail with young children but the group setting and the other participants' contributions elicit further thoughts and statements, and this is the added value of the group setting. Thus, adult standards of a 'discussion' as a debate with an exchange of arguments might be difficult to meet with young children. However, even for the younger age group (five to six years) the other children had important impulses and thus the insights methodologically differ from individual interviews. Furthermore, we could see more interaction and direct reference to other participants in the older age group (9 to 11 years) and also more statements of opinions.

At the same time, children often had their own agenda: they contributed off-topic information or explored the facilities, played on a piano in the room, etc. and became distracted easily—particularly at pre-school age. The moderator did not only have to monitor the progress of the focus group discussion but also sometimes reprimand participants and encourage silent

members that hardly had a chance to contribute when other members were too dominant. However, there is a fine line between putting pressure on members to contribute and giving everyone an equal chance to contribute. This requires sensitivity and empathy, a good understanding of children, but also flexibility to give room for children's agendas and at the same time find a way back to the topic.

Like in individual interviews, the presence of (younger) siblings can be problematic: they can disturb, be marginalised, or the dynamic between the siblings can dominate the focus groups. Nevertheless, for younger siblings this is probably a familiar experience. They know the other children and are in a sense also part of the real-life group. Relationships among peers shape focus group interaction but also continue after and thus the focus group discussion has an impact on social relations. Disclosures by participants are shared with all group members and not just the researcher. Intense discussions may give rise to stress or distress individual participants. However, perhaps because we had recruited almost exclusively friendship groups and did not ask sensitive questions, we could not detect any distress from participants.

2.6.2. Practicalities of interviews and focus groups: Lessons learnt regarding the different techniques we used, we have learnt the following:

We used **show cards** of DTs for warming up. Generally, these visual aids were well suited in this respect, but they often took too much time and thus concentration. Depending on the situation, we flexibly used more or fewer show cards. We also tried grouping the show cards and discussing a set of three to four cards at once. This can also be an option to not spend too much time on each single card. Again, flexibility and adapting proceedings is a requirement for moderators/interviewers.

The **role play** was particularly well suited for pre-school participants. Even though children might not play a parent, they would still articulate what they think a parent would say, potential consequences, general rules and sanctions. In some instances, and in both age groups, depending on the general setting and assessment of the moderator, we changed the role play with the moderator playing the child to using Playmobil figures. Once, we only used the situation card. However, when children engaged in the human role play, we found more interaction than in the role play with figures. It should also be mentioned that the playing requires some courage by the moderator and not everybody feels comfortable with it, depending on the group. Thus, we recommend preparing the moderator with a backup plan to have the flexibility to change the proceeding. A danger of the role play can also be that it is too abstract, and the children make it into a fictive game that has not much to do with the reality they experience, for example, when the reactions are exaggerated for entertainment. However, the role play is a good way of including a playful element in the focus group and motivating children.

As an alternative to the role play, we also prepared a situation card. Showing the situation card after the role play still generated additional insights. When situation cards—or visual stimuli in general—are employed, we should not only ask 'How do you like the picture?' because it could be misunderstood for 'How do you like the way it has been drawn?' or 'What do you think about the image?' It should also be asked what it is they see and what they like or dislike. This is important to establish a common ground and validate our interpretations. We offered them to put stickers on happy, neutral or sad smileys in order to express their first emotion with the situation they saw. However, they might put a sticker to a happy smiley because they like the way it has been painted rather than what can be seen on the picture. Smileys worked with the school-age children; they were familiar with this way of assessing topics. For pre-school children, putting stickers on smileys is effective but using stickers of different colours for like and dislike and sticking them directly on the situation card worked better.

'What if there were no DT' generated mixed results. For some groups it did not elicit many ideas from the children. Sometimes the concentration span was exhausted, or for some younger children it was too abstract. Some children had very insightful, even philosophical and analytical thoughts about this; for example, 'I would not be sad because I would not know what I am missing' (FG1_PS).

Some additional, practical findings were:

- *Video recordings* are very helpful for the analysis but might not be possible in small rooms. Video recordings make it easier to determine speakers (especially in larger groups) and facilitate analysis. Video recordings offer additional information, capture nonverbal behaviour (common in younger children) and open up the visual level for analysis and interpretation. None of the children seemed to be disturbed or irritated by the recording device. To acquaint children with technical equipment, it can be helpful to let them press the 'record' button and try the device before the actual focus group and listen/watch a short recording they make. This increases the acceptance, and is also good advice for audio recorders.
- *Gender* did not seem to make a difference in the level of participation, although loud and sometimes unruly participants tended to be boys (playing with technical devices, destroying show cards, walking around the room, domineering other children).
- The *duration* of 30 to 40 minutes is the maximum kindergarten children could focus. The older children could handle only slightly longer focus groups, depending on the group size.
- The group size had to be adjusted due to COVID-19 restrictions but three to five turned out to be a good size for a productive focus group.
- Real-life groups in which participants know each other beforehand are helpful. Strong friendship between two participants might imbalance the focus group.

Some **suggestions for moderating focus groups:**

- The moderator had stored all the material in a box and revealed materials step-by-step according to the tasks in the guideline; this way there was a 'story told'. This made the children curious and helped keep their attention. The moderator always came back to the box when she started a new task and this created a red thread. The children were probably particularly attentive when the moderator turned to the box because she had promised there would be little presents (the incentives) at the bottom of the box for everybody.
- Pretending to be ignorant of digital devices to elicit further information by the moderator/interviewer only partly works. If children do not believe it, it can undermine the moderator's credibility and is counterproductive for ascribing an expert status to children.
- Expect the unexpected: Children are often more outspoken than adults. Someone could suddenly say: 'I am bored, I want to go' or all children may need a toilet at the same time. Children can also be unruly and ignore reprimands. One strategy was to ask specific children something and refer to some other child's statement and ask what they thought of it or whether they knew more/something else. This way, the moderator was able to get their attention back, and they started to concentrate on the group discussion and on the other children again.
- Ask for practices with the devices and not for knowledge.
- Do not lecture or judge children. Keep an open mind; take them seriously.
- Avoid school-like interaction. Children should be free to talk (without indicating first) but be prepared to take an active and sometimes directive role.
- For the natural setting, it is also not important that every participant contributes equally. It is only natural that some children are more talkative and more outspoken than others. If the moderator invites individual participants to contribute, it has to be in a sensitive way without pressure.
- The moderator has the responsibility to monitor group dynamics closely and intervene if

individual participants are excluded or somehow 'dismissed'. Everybody should have the opportunity to participate without pressure to do so and without negative consequences.

In sum, what makes focus groups with children special compared to those with adults is the shorter attention span, off-topic contributions and more directive moderator behaviour. The added value of focus groups with pre- or primary school children lies in the inspiration they give each other in talking about certain topics and remembering experiences, but also how they refer to and discuss some aspects with enthusiasm, without necessarily needing moderators' interventions. This is as opposed to building one coherent opinion or conclusion or contradicting each other and discussion topics and arguments. Group dynamics can hamper the communication process; issues of dominating others, unruly behaviour and silent participants are examples.

2.7. Summary and Conclusions

In this country report for Austria, we investigated—along the general research questions in WP3 of DigiGen—the knowledge about, types of activities and use and the subjective assessment of digital technologies by children aged 5 to 10 years, and, consequently, their relevance in their everyday life and within their families. For this purpose, we have analysed collective orientations and interactions among peers in focus groups with children before and after the transition to primary school in order to understand how these two groups navigate the digital world and reflect on the content of and experiences with DT. Furthermore, we focused on the children's family context and on individual perspectives of family members on DT. We pursued the question as to how technological transformation shapes family life. Our main interest in this regard was to examine processes and practices of doing family and negotiations within families in terms of use and outcomes. The analytical focus was on interactions with and through DTs and the integration of DT in everyday family life. Further, considering multiple perspectives within one family (the child and further family members), we analysed the assessment of DTs within families and how attitudes towards DT are constructed from the perspective of children and other individuals in the family in order to understand the challenges, advantages and impacts associated with DT from the perspective of different family members. We were interested in levels of divergence and convergence and in intergenerational dynamics within the family that concern the transmission of values, attitudes, interest and competence. For the family context, we further investigated children's and other family members' experiences and perspectives on negotiations and conflicts about rules concerning DT and its use. As we conducted and analysed retrospective data, we also were able to explore respondents' assessment of change, particularly in terms of children growing up and experiencing certain transitions, but also regarding the COVID-19 crisis. This report further contains methodological results providing insights into how to conduct participatory research within family settings, particularly when it comes to early childhood and concluding remarks for further research. Therefore, we analysed aspects of inclusiveness in recruitment, group composition and group dynamics, aspects of moderator involvement and interaction with young children, as well as aspects like presentation of tasks and question formats. We provided insights on data quality in focus groups with children of the age group of interest and took ethical considerations into account.

These approaches are based on our main theoretical framework considering children and young people as co-constructors and active participants in society. We are interested in children's subjective perspectives and experiences rather than in the 'truth' and perceive children as experts in their own right. We assume that children's life worlds are different from those of adults. Thus, we consider researching children as similar to researching a different culture. This assumption demands openness and flexibility in methodological approaches and sensitivity in

interpretation and analysis.
In the following, we focus on the main conclusions that derive from the results in our study followed by recommendations for policy makers, researchers and stakeholders.
For a better overview, we introduce all conclusions in brief before each of them is presented in more detail and with recommendations:

- Having access to and comprehensive skills and knowledge about DT does not automatically entail children's sufficient digital competence. Conversely, children's digital competence is not necessarily based on access to and use of different DT, but can also be developed in families with restricted access to and limited use of DT.
- Digital technologies contribute to doing family processes, not only in families with intensive use, highly positive assessment and less strict rules regarding DT.
- Parental intervention and mediation in the integration of DT in family life might decrease potential harms of DT when the interventions comprise the participatory co-creation of clear rules, a trustful relationship and an atmosphere of constant communication and negotiation with children.
- Depending on their level of digital competence, resilience and empowerment, children's ways of being confronted with and handling DT might increase their vulnerability, create new vulnerabilities or reduce their vulnerability.
- Whether integration of DT in children's everyday lives causes harmful or beneficial effects is determined by specific mechanisms and various related factors rather than explained by mono-causal dependencies.
- Triangulating perspectives within the family system and also within a multi-disciplinary research team during the research process is highly recommended as it allows for a deeper and more nuanced understanding of shared knowledge and a family's everyday life.
- Regarding focus groups with young children, we recommend flexibly using visual and playful aids.

Having access, comprehensive skills and knowledge about DT does not automatically entail children's sufficient digital competence. Conversely, children's digital competence is not necessarily based on access to and use of different DT, but can also be developed in families with restricted access to and limited use of DT.

Our analysis reveals that, impressively, children report different levels of knowledge and access, but also show differentiated and critical assessment (see chapter 2.2). For five- to six-year-old kindergarten children, owning devices tends to be rare. Thus, knowledge about and relevance of digital devices is strongly related to their accessibility being facilitated and orchestrated by their parents. They gain a large part of their knowledge by watching others using devices (e.g., parents, siblings, peers). In contrast, for primary school children at the ages of 8 to 10, the relevance of DT has increased but is still significantly related to their possibilities within their families and particularly related to the relevance DT have in their peer group. Some children already have their own device and for them it is nearly unthinkable to live without DT. They have more skills regarding DT and detailed knowledge. At the same time, children in this age group differ more regarding their empathetic, insightful, analytic, differentiated and critical assessment and, consequently, their extent of competent use, which is much more crucial than in the age group of five to six years. Children can be characterised as digitally competent, when they, for example, are aware of potential risks (e.g., surveillance, hate comments, fake friends, data protection) and when they, in turn, value aspects they can profit from. Furthermore, digital competence involves an empathetic understanding of how people feel when they, for example, are confronted with harmful experiences like hate comments, being exposed or embarrassed, experiencing social exclusion or being at risk of data theft, etc.

The development of this digital competence is related to several aspects. First and foremost, for

children in the age groups under study, digital competence depends on the parents' background and family practices. When parents have a higher education, are reflective users themselves and generally assess DT positively, children seem to develop a more competent and reflected way of integrating DT into their daily lives. In addition, when children participate in negotiations and use of DT and when family practices of regimenting DT occur in an atmosphere of mutual understanding and interest, it is more likely that children are competent in using DT in their daily lives. In this regard, the parent-child-relationship is also highly relevant for the development of digital competence, in the sense of it being more likely when these relationships are close and trustful. Further, family structure is relevant for establishing digital competence; for example, when children have older siblings or close relatives, they can observe in their competent use and critical and prudent engagement with DT. For children's digital competence, peer group dynamics and the family's peers also shape digital competence, as parental assessment and children's digital activities might also be adjusted to a child's friends and their parents. Other socialisation contexts, like kindergarten, school or other institutions or even the Internet itself, also have impact on the development of digitally competent activities with regard to their ways of integrating, explaining and mediating DT. Digital competence further seems to be developed more easily when relevance of digital activities for the children is similar to offline or analogue activities without DT like sports, hobbies, interaction or communication or other games; that is, when children are fascinated by and have fun with these activities similarly to digital activities and discuss the potential of addiction and also negative emotions.

To **conclude**, offering access to digital devices and enabling children to develop skills and knowledge by using DT does not automatically lead to children's digital competence. Digital competence though is relevant to reduce risks of being vulnerable and of exposing oneself to risk when using DT. Consequently, using DT is more likely to entail beneficial effects for children when they have digital competence.

For families, several challenges occur in this context of competently integrating DT into daily lives. On the one hand, parents are required to ensure access to digital technologies for children and young people in the family. On the other hand, they have to be aware that access alone, and the skills and knowledge children gain by using DT, do not automatically lead to children's digital competence, which in turn is highly relevant to reducing risks of being vulnerable and to being safe in using DT. Thus, we **recommend** that parents need to understand these mechanisms, their capabilities and how to best communicate with their children in order to provide their children with comprehensive mediation and monitoring for achieving digital competence. They further have to be supported, informed and educated by a network that comprises also peers, school and the Internet itself.

Of course, families differ in their need for support. However, parents should be enabled and empowered to ensure a safe and development-promoting atmosphere in the family and to support their children in developing digital competencies. Additionally, this support of parents has to be embedded in strong cooperation with institutional education of children. A further integration of DT in kindergartens and primary school curricula is also recommended. This expansion could offer children further options to experience DT in a safe and mediated way and to develop digital competence.

For children, we recommend offering and establishing an environment where they are accompanied and mediated by peers and adults through monitoring their activities, through co-activities, understanding, interest and explanation, etc. in order to develop competence, resilience and decrease their vulnerability in the context of digital technologies.

Digital technologies contribute to doing family processes, not only in families with intensive use, highly positive assessment and less strict rules regarding DT.

Regarding the family context, our results also focus on the question as to how DT contribute to doing family, that is, the constructivist and praxeological approach considering family as being produced by and displaying as daily practices within the family (Jurczyk et al., 2017, 2020; see chapter 2.3.1 for details). As our **results** show, the following family practices contribute to ways of doing family: digital but also analogue activities in families, management of balance in the family, caring for family members, securing and enhancing wellbeing, displaying family and practices of assessment and expressing attitudes of parents and children towards DT.

We also found types of families that exhibit different forms of doing family. In one type of family (i.e., using DT heavily, assessing DT positively) all family members interviewed expressed in manifold ways what they like about using different kinds of DT, mentioning many advantages and benefits they draw from integrating DT into most of their everyday activities. By expressing these positive attitudes convergently across multiple perspectives, they are all involved in doing family processes and practices. In another type of family, who assess and use DT in a relaxed way, DT is not a crucial part in their daily lives and the family members construct DT's relevance similarly to that of other media and games. All family members join in doing family by using DT together, sharing interests and devices, but also sharing emotions and explaining critical assessment to each other, comprising both negative and positive aspects. Offline activities are also a natural part of family life and family identity is not built around DT. A third type of family is very sceptical and negative towards DT. These families tend to avoid DT or are even demonising it. These attitudes and assessments result either in a very limited use, in vague and unclear rules and divergent assessment or result in heavy and rather uncontrolled DT use. Through intense discussion and negotiation processes, family life in these families also revolves around DT. These negotiations entail sources of conflict and contest, regardless of whether the family can be characterised by convergent negative attitudes towards DT or whether their attitudes rather diverge and evoke conflicts.

Triangulating different family members' perspectives, we can **conclude** that doing family is reflected in and connected to different ways of sharing attitudes and values towards DT, regardless of positive, negative or neutral views on DT. These attitudes and values might even be reflected in an intergenerational transmission of these attitudes. Even ways of sharing negative attitudes towards DT and actively avoiding DT creates a 'we-ness' and establishes a specific way of doing family. Thus, regardless of the family's level of access to, ways of using, assessment of and rules about DT, practices of sharing attitudes can be conceived as a central way of doing family.

Families and their realities in current times can be described as broadly mediatised (Lange, 2020). We thus **recommend** that they should be supported to enable the full development of positive and supportive effects of DT for doing family. For this aim, some families could be motivated to establish more co-activities with DT in their families and value them as family activities as they do with offline activities. However, by still respecting the diversity in families' attitudes towards DT and integration in family life, some families might need encouragement, ideas and support in balancing online and offline (co-)activities (see also the next conclusion on rules).

Parental intervention and mediation in the integration of DT in family life might decrease potential harms of DT when the interventions comprise the participatory co-creation of clear rules, a trustful relationship and atmosphere of constant communication and negotiation with children.

In the participating families, we identified various rules that shape everyday family life and the handling and integration of DT in families (see chapter 2.3.2). These rules vary with regard to their content but also with regard to their structure and clarity. Rules can take the form of

rigid rules, for example, when they strictly regulate the time span for use, when they dictate that devices are banned at certain places, when they clearly define which rule concerns which devices, when it is clear that new software or games have to be approved by parents and when rules clearly define some exceptions. Rules might in contrast also appear as not fixed and rather vague. They merely comprise the ideal, for example, that DT use is aimed at being balanced with other activities. Potential restrictions are then rather based on a gut feeling of parents or situational factors. These vague rules might refer to what is the limit on screen or media time, individual family members' desires or certain tasks that have to be fulfilled before DT use. Rules in this form appear less hierarchically ordered, thus applying to all family members similarly and established as an intra-familial practice, based on a mutual understanding and mutual control.

Parents and children are involved in processes of how rules are developed and controlled in families in various ways. While some rules have been developed in long discussion processes among parents, other families define rules in a communication process where their children participate and continuously adapt them to individual needs. In this process, they integrate specific topics regarding DT use to increase the children's awareness and competence in order to create a mutual understanding. By involving children in a process of co-creating rules together with parents, this also entails an increase in children's awareness about and resilience towards harmful aspects in the digital (e.g., dangerous content) but also offline world (e.g., social exclusion through peers). With regards to the strategies of enforcing and monitoring these rules, results revealed that this task often is left to one parent, for example the main caregiver in the family. Some parents decided to outsource this task to digital technologies in turn, while others left the monitoring even to the children themselves. If this latter strategy is strongly based on a mutual understanding, on parents' trust and children's awareness and digital competence, it might also increase children's competence in handling DT.

To **conclude**, as for parents, their ability to establish an atmosphere of open and comprehensive communication and good relationships within the family can enhance the integration of DT in a most beneficial and advantageous way. When they recognise opportunities, are aware of harms and can successfully handle challenges coming along with DT, parents can monitor, mediate and intervene in children's use of DT in order to increase opportunities and benefits for children's digital life and activities. Parents though have to be aware that these discussions, negotiations and conversations are challenging because they are time consuming and include a wide range of topics, such that parents might find it difficult to talk about, for example, sexuality and/or violence. Thus, this atmosphere requires and also enhances a close relationship between children and parents, thus possibly reducing parents' frequent sceptical and negative attitudes towards the use and integration of DT. However, this atmosphere of mutual interest and understanding, constant communication and negotiation might also lead to conflicts among family members. In addition, attitudes of family members towards DT might change over time, for example, when parents increasingly value online and digital activities as family co-activities together with their children and other family members and integrate DT activities as family activities on a regular basis.

We can **further conclude** that this way of parental mediation and intervention entails several opportunities for the family system. In this sense, good and beneficial practices in handling DT within children's families involve successfully managing the integration of DT beside other technologies, games and activities, thus balancing analogue/offline and digital/online activities. Further, when parents manage to extend possibilities to (re-)produce family (see 'Doing family') through digital technologies, children and young people might benefit from developmental, educational and socialising opportunities. Families might further benefit from extended possibilities of taking care through DT, especially for extended family members, for example, when maintaining contact with grandparents or family members living abroad more easily. When parents manage to negotiate clear rules with children and increase their

awareness and understanding, they might contribute to a greater balance of emotions and each family members' interests regarding DT. Last, but not least, when digital activities and respective rules are based on understanding, transparency and participation, this might entail the easier establishment of anti-hierarchical family relations by intergenerational exchange and understanding, communication and learning.

Our results stress the impressive **agency parents hold** in how children are confronted with, benefit from or are affected by DT in their daily lives. Thus, we **recommend** that families enable access and develop knowledge about DT with their children. Therefore, parents would profit from wide-ranging support and assurance to establish these good practices of integrating DT and good communication with their children by various educational sources (e.g., parents' information in kindergarten, schools, workshops, online, webinars and brochures).

Depending on their level of digital competence, resilience and empowerment, children's ways of being confronted with and handling DT might increase their vulnerability, create new vulnerabilities or reduce their vulnerability.

Because of their dependency of other persons, humans in general can be described as vulnerable, and this is especially true for children. The younger children are, the more dependent they are on the care, help and support of parents or significant others. Informed by this theoretical assumption (see chapter 2.5.1) that perceives children as inherently vulnerable but also agentic and resilient, we analysed which practices of and circumstances of using DT might contribute to increasing or creating vulnerabilities of children and which might contribute to mitigating or decreasing their vulnerability. In **our data**, we saw that the use of DT of children and young people and/or in family has the potential to affect the vulnerability of children in different ways. Specific context or experiences of children's everyday life (e.g., whether they are exposed to content that frightens or harms them, are contacted by strangers or find it hard to balance their online and offline activities) and/or specific challenges in families (e.g., conflicts about the use of DT, monitoring the use of DT, overprotection of parents) can contribute on the one hand to exacerbating the vulnerability of children or can contribute to the emergence of new vulnerabilities. On the other hand, the use of DT by children can also help to reduce the vulnerability of children (see chapter 2.5.1). From our researcher's perspective, we could detect an impact of DT on vulnerability of children and can draw the following conclusions.

First, we can **conclude** that the way children, parents and families handle DT has a clear effect on children's vulnerability, considering other systems the child is living and embedded in as well (e.g., kindergarten, school, peer group). The central aspect for the question of whether using DT tends to create further vulnerability or to reduces vulnerability of children can be located in their level of **digital competence** they have or are able to gain. This competence enables maintaining or raising children's resilience and their well-being. Children can be characterised as digitally competent, when they, for example, are aware of certain risks (e.g., surveillance, hate comments, fake friends, data protection) and when they, in turn, value aspects they can profit from. As already mentioned, having access and knowledge does not automatically contribute to children's digital competences. A lack of digital competences particularly has harmful consequences for children and tends to manifest as children's vulnerable status and/or increases the risk of further vulnerability. If children are empowered, learn how to handle risk and know where to get help, the risk of facing further vulnerability even decreases as this empowerment and competence contributes to the resilience of children in a positive way (see examples in chapter 2.5.1).

Second, we can therefore conclude that children need parents, close adults and peers that are able and willing to support them in building up and maintaining digital competence, consequently

benefiting from DT in their everyday lives and in their well-being. Besides being offered sufficient equipment, they particularly need a safe environment, a trustful communicative atmosphere, (parental) monitoring and interventions in order to be empowered, resilient and competent individuals in the digital world. When children are **empowered** and know how to handle risks and know where to get help when confronted with problematic issues that appear online (e.g., videos containing violence or pornography), the risk of exacerbating children's vulnerability or harming their well-being decreases. In other words, children who are, for example, able to reflect on the necessity of specific devices or apps (like Alexa or Twitter, like some children in our sample) and, in contrast, recognise the beneficial aspects of DT (e.g., to stay in contact with peers, to remain in education despite lockdowns, to gain knowledge through researching on the Internet) profit from DT in a beneficial way and do not remain in a vulnerable position or in danger of developing new vulnerabilities. When children have gained knowledge and experienced DT competently as comprising both positive and negative aspects, they might thus be able to use DT in a beneficial way (e.g., extending their knowledge, searching for specific information, staying in contact with friends and family) rather than in a potentially harmful way (e.g., getting access to content or games provided for and limited to adults only, presenting oneself publicly through videos or photos in social media). This competence enhances both their resilience and their well-being.

Whether integration of DT in children's everyday lives causes harmful or beneficial effects is determined by specific mechanisms and various related factors rather than explained by mono-causal dependencies.

By adopting approaches that analyse and explain social processes as mechanisms (Hedström & Bearman, 2009; see chapter 2.5.2), we applied a holistic view on harmful and beneficial aspects affected by using and integrating DT in family's and children's everyday lives. Whether outcomes of using and integrating DT in children's and family's lives are rather harmful or beneficial cannot be explained comprehensively by single factors but by focusing on mechanisms and relations that shape specific outcomes.

In general, we **observed** many outcomes evoked by the integration of DT in children's life, but at the same time, we observed a high level of contingency and no mono-causal explanations for certain observations. Rather, we are able to understand and explain an observed outcome in one specific family or in one child's use and assessment of DT by referring to an underlying mechanism. Such a mechanism in this case consists of several **entities**, for example, children's developmental stage, their digital competences and level of resilience, the family background like economic possibilities, living environment, available digital devices, parents' educational level, family size and structure (e.g., siblings, multi-generational or multiple households), parents' attitudes, their own experiences and own interest, the child's and parents' peer group, teachers and school context and regional or cultural contexts. Further, we looked at the **activities** that these entities are part of and engage in, either by themselves or in concert with other entities. A mechanism, thus defined, refers to a constellation of entities and activities that are organised such that they regularly bring about a particular type of outcome, and we explain an observed outcome by referring to the mechanism by which such outcomes are regularly brought about (Hedström & Bearman, 2009, p. 5). Change is brought about these activities, which themselves depend upon the **properties** of the entities and the relations between them. Differences between mechanisms are in turn evoked by changes in the entities, either in their properties or activities or in their relations to each other (see examples in chapter 2.5.2).

Based on these insights, we therefore **recommend** putting more emphasis on mechanisms and entities that shape beneficial and harmful effects for the well-being of children when they use and integrate DT in their lives. Causalities are to be questioned when certain outcomes with

regards to DT in children's lives and their vulnerability are proposed. Instead of focusing on single factors, like screen-time or certain kind of games, parents, stakeholders, policymakers and professionals working with families, children and young people should draw their attention much more to the combination of different factors (i.e., entities) that work together interdependently. Among others, several potential factors might contribute to one specific and complex mechanism, like the personality and biographical traits of the child and the parents, communication culture within the family, intergenerational relations within the family, situational context of the country and social-economic conditions of the family, child care and educational institutions, affiliated adults and their imprint, balance between online and offline activities and parental mediation behaviour. Factors or different entities like these have to be considered and reflected on, as one specific mechanism leads to specific outcomes and entails beneficial and harmful effects for children's well-being and vulnerability in its different dimensions. Therefore, adults that live with, are in contact with or work with families, children and young people need to be sensitised to the complexity of different factors, areas and dimensions working together and having the potential of harming the child or being beneficial. Furthermore, they should be supported in their process of self-reflection on their own and in contextual conditions and being enabled to communicate and discuss this complexity in a way appropriate for children at their specific age and in the family. This way, children could be empowered in their self-efficacy, their resilience and their digital competencies and the well-being of children can be sustained and increased and new vulnerability can be prevented.

Triangulating perspectives within the family system and also within a multi-disciplinary research team during the research process is highly recommended as it allows for a deeper and more nuanced understanding of shared knowledge and a family's everyday life.

In this project, we triangulated perspectives during the entire research process and in conducting and analysing interviews. On the one hand, we interviewed several members of one family separately, and on the other hand, several members of the research team participated in the analysis of one family and adopted one interviewee's perspective. This approach allows for a more nuanced understanding of the research phenomenon as it not only triangulates different perspectives of respondents but also different researchers' perspectives with distinct disciplinary backgrounds. These were valuable for diverse readings and enhancing the understanding of the phenomenon of interest and generating new insights and communicative validation of interpretations.

Regarding focus groups with young children, we recommend flexibly using visual and playful aids.

We also conducted focus groups with children from five to six and from 8 to 10 years. Generally, focus groups with children are characterised by children's short attention span. Furthermore, they require more directive moderator behaviour. The added value of focus groups with pre- or primary school children lies in the inspiration they give each other in talking about certain topics and remembering experiences but also in how they refer to some aspects with more enthusiasm and potentially without moderators' interventions. However, researchers should not expect that focus groups with children generate one coherent peer opinion or discussion in terms of exchanging arguments. Furthermore, the group dynamic can hamper the communication process, for example, through issues of dominating others, unruly behaviour or silent participants.

Focus groups were structured along a guideline that integrated diverse visual aids and techniques, for example, **show cards**. Generally, these visual aids were well suited for this age group but should be flexibly used, showing more or fewer show cards. This flexibility in adapting proceedings is required from moderators.

The **role play** was particularly appropriate for the pre-school participants as it is a good way of including a playful element in the focus group and motivates children. However, it requires some courage by the moderator to play the role of being a child who secretly takes a smartphone to bed. Thus, we recommend preparing the moderator with a backup plan to have the flexibility to change the proceeding.

A **duration of 30 to 40 minutes** is ideal for children of both age groups, although older children might be able to concentrate for slightly longer. The group size of three to five turned out to be ideal for a productive focus group. Real-life groups in which participants know each other beforehand are helpful. Strong friendship between two participants might imbalance the focus group.

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3. Case Study: Estonia

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3.1. Sample, recruitment and data

For the current country report on Estonia, two DigiGen WP3 data sets were used: (1) focus group interviews and (2) individual interviews with different family members (hereinafter referred to as family interviews). All interviews for data collection were conducted from December 2020 to March 2021 face-to-face, except some family interviews on Zoom.

In total, 10 focus groups were organised and interviews conducted, five in kindergartens (pre-schoolers aged five-six years) and five in schools (schoolchildren aged 8–10 years). The total number of focus group participants was 52: at kindergartens 21 children (8 girls and 13 boys) and at schools 31 children (15 girls and 16 boys) participated. All focus group interviews were facilitated by two interviewers—moderator and assistant. Altogether, nine persons were involved in conducting focus group interviews, taking different roles (either moderator or assistant) in different interviews. The length of the focus group interviews ranged between 40 and 65 minutes (on average 50 minutes).

In most cases, the focus group interview process started by contacting the head of the kindergarten or school. Although there were some delays in the communication process, eventually all involved kindergartens and schools gave their consent. No problems regarding access to schools and kindergartens were encountered, but personal contacts were crucial and facilitated the process substantially. Informed consent forms from parents were obtained via contact persons at schools and kindergartens. Informed consent forms from children were obtained at the beginning of focus group interviews.

Ten families were involved in family interviews, with reference children aged five–six years (five families) or 8–10 years (five families). In each family the reference child and two more family members were individually interviewed. In all families the mother was one of the respondents. Other respondents were fathers, siblings or grandparents (one grandmother). In total, 30 interviews with different family members were conducted. All together seven persons were involved in conducting family interviews. All members of one family were interviewed by the same person, except one bilingual family where the interviews were conducted by two persons (one fluent in Estonian, another fluent in Russian). The length of the individual family member interviews ranged between 15 and 66 minutes (on average 32 minutes).

In most cases, the families included in the study were personally acquainted with the interviewers. Parents (mostly mothers) were contacted via message or called and briefly introduced to the study, and then, if the parent was interested, additional information about the study was sent either by email or via message. In general, it was found that parents' motivation was probably supported by knowledge or understanding that they would be contributing to an important study. The motivation of one family was clearly related to the fact that they were proud to be chosen for the interview because they live in a remote area in Estonia. Informed consent for the interviews was obtained in most cases at the beginning of each interview.

The aim was to compose a sample where respondents with various socio-economic backgrounds were involved. Both the focus group interviews and family interviews were conducted in geographically different parts of Estonia (urban, sub-urban, rural). Most of the families involved in the interviews were Estonian families. One family was bilingual (Estonian, Russian) and in one

family the father had a migrant background and was interviewed in English. Finally, we ended up with a sample with satisfactory diversity. However, due to the adverse COVID-19 situation we had to use for recruiting personal contacts of the Estonian DigiGen team members and National Stakeholders Committee (NSC) members to ensure trust and safety for interviews, which may have reduced the diversity of the sample.

The COVID-19 pandemic situation in the country led to some restrictions and difficulties in arranging and conducting interviews. At first it was not known whether the interviewers were allowed to go to kindergartens and schools to interview at all. Fortunately, the consent for interviews was obtained, but the interviewers had to wear masks, disinfect their hands and keep their distance. Some interviews were postponed and some children whose parents had previously given consent could not attend for various reasons.

All interviews were audio-recorded and transcribed verbatim. For all interviews, the interviewers compiled analytical memos where the organisational and methodological aspects as well as the core content of the interviews were reflected. For family interviews, one adult respondent per family (mother in all cases) filled out a questionnaire about the socio-economic background of the family.

For the data analysis the qualitative thematic analysis strategy was used and a combination of deductive and inductive (open) approaches to coding was applied. First, the broad themes of agreed structure of the country report were divided between DigiGen team members and within each broad theme open coding was performed. The codes were gathered under sub-themes. Data analysis regarding interviews' content was based on transcriptions of both focus group and family interviews. Data analysis regarding methodological approach was based on analytical memos. For data analysis, the NVivo program was used.

3.2. Children's own use of, access to and relevance of DT

3.2.1. Accessibility and knowledge about DT

Children have knowledge of the use and purpose of DT that are in use in daily life by themselves, their family members, relatives or friends. The most known and accessible DD are smartphones, tablets, smart TV sets, video game consoles (PlayStation-, Xbox-, Nintendo-brand consoles), speakers, laptops and desktop computers. Less common for children is to have their own smartwatch, and only few of them know about such devices as e-readers and drones. At the same time, children are overexcited about the robots, although only some of them have a robotic vacuum cleaner at home, have seen post robots on the street or participate in a robotics hobby group. Most popular apps among children are not only games (e.g., *Minecraft, Among Us, World of Tanks, Fortnite and Roblox* games), but also YouTube and TikTok. However, the latter is mostly schoolgirls' favourite. Some apps (e.g., Spotify) are often familiar to them only by an icon that they saw on their parents' or siblings' phone.

Children usually get their first experience with social media (e.g., TikTok, Facebook, Instagram, Pinterest) and different messaging apps (e.g., SMS, Messenger, WhatsApp, Snapchat, Viber) on their parents' devices and accounts and under their supervision. It is common for a preschool child to have his or her own tablet, and they know how to use the game apps and how to download new ones (e.g., from Google Play). School age children getting their own smartphone and a range of other DD for their own use is also increasing. During the COVID-19

pandemic more schoolchildren got access to computers because it is not comfortable to use communication platform apps (e.g., Zoom Meetings, Teams or Google Classroom) for distance learning on tablets. Children of school age increasingly become more independent DT users, though parents still limit children's screentime, sometimes controlling a range of apps on children's devices or using the Family Link app. Additionally, use of some apps is prohibited for children's use under a certain age, thus upsetting children because those regulations limit their access to their topics of interest.

> The only problem with YouTube right now for me is that Google has done something, well, that I'm under thirteen years old, now makes some 'YouTube Kids'. I have to watch some kids' things if I actually want to watch things on normal YouTube. (ET_FG9_PS)

Children know that DDs are expensive, fragile (especially glass screens) and have limited battery life, and often get damaged by accident. They have also experienced some technical issues with apps and computer systems. In addition, children are aware of the risks of using DT to their physical and mental health. These reflections are described in more detail in sub-chapter 3.4.

3.2.2. Purpose and habits of using DT

Children use DT mostly for playing games, consuming video and audio content, 'liking' it and communicating via messages or phone and video calls. Younger children watch mostly cartoons and films, but schoolchildren also follow some favourite YouTubers and TikTokers. If pre-schoolers use DT for communicating mostly with their parents and relatives, then schoolchildren start using DT more for communicating also with friends, including organising meetings with them, helping each other with homework (or cheating on it) and chatting while playing online games together.

> And I use another app like Discord to talk to friends, to make plans. (ET_F6_child)

DT is also used for communication between educational settings and the family. Children and their parents can receive information about the child's studies, assignments and grades, as well as watch the photos from the events in kindergarten, school or hobby groups. This part of digital life became particularly relevant during the COVID-19 pandemic as parents are often not allowed to be present at the events.

The pandemic also caused increased screentime for schoolchildren because they have to use DT more for distance learning, but they still want to relax while playing video or computer games and watching videos on YouTube. Interestingly, in the family interviews some children said that they started to use less DT during the COVID-19 pandemic, but their parents thought the opposite. There may be different explanations of this phenomenon. It is possible that parents were not aware of the real amount of DT use by their children before the pandemic. At the same time, children may not consider distance learning as DT screentime and answered mainly in regard to their use of DT only in their leisure time.

However, children not only play games and passively consume the content; they also actively create new content by themselves while making and posting videos, stories and photos to social media and streaming on YouTube.

> For example, I did a very funny story, but I don't know if it's still on Facebook. I'll make the next story soon, which is even a funnier picture. (ET_FG10_PS)

DT are sometimes used for digital drawing or typing the stories, but children also use it for

creating something in the real world. For instance, they find and print out colouring pages with the help of parents and colour them with crayons. They also dance or sing with the accompaniment of YouTube or TikTok. At the same time children talk much less about reading something on the Internet, probably because they use mostly YouTube for searching for information, ideas for crafting and lifehacks. Sometimes children use DT in parallel with other devices or real-life activities like cleaning or eating.

> I go to YouTube and watch videos and then I start Roblox and listen to videos and play Roblox at the same time. (ET_FG10_PS)

Although one of the main purposes for buying smartphones for schoolchildren is to make parents less worried for their child, who begin to move independently between home and school, some children also say that they use devices for calming themselves down by listening to a story or turning on music for their crying younger sibling.

Children's DT use represents their leading activity for their developmental age period (from play to learning activity and peer interaction). The transition from kindergarten to pre-school requires heavy engagement of social cognition. Social networks take a central role by providing space where children can get knowledge and feedback of one's status or position among peers and experience a range of emotions and feelings. Here, a 'like' or 'dislike' may reflect the value of a friendship.

3.2.3. Assessment of usefulness and wishes relating to DT

According to children's view, DT is useful not only for playing games, entertainment, relaxing after school, seeking all kinds of information, communication (including family logistics) and as an assistant in everyday family life, but also for safety reasons, because they can use their smartphones or smartwatches for asking their parents for help or calling the police, ambulance or rescue service. Although children do not like when parents control and limit children's smartphone use through apps such as Family Link, they admit these apps are necessary for children's safety, especially in case when a child goes missing or gets lost.

> If a child goes missing and the phone is with him and he has some kind of app that the parent can keep track of where that child is, then like that, I think it's good. (ET_F10_child)

Children value having messaging or video calls as an alternative to phone calls. They can reach their parents or friends through an Internet connection even if they do not have enough money for the phone calls. It seems that despite the above-mentioned dangers and restrictions, the main features of DT that children enjoy the most are unlimited choice of games and content to watch or create and options for communication as well as a sense of control over it. Children also prefer to use high-performance devices with larger screens because they believe it is less harmful for their vision and allows playing more games without technical problems.

> I like to watch like alone, but that's why I sometimes like to watch TV because it doesn't hurt my eyes very much because it has a bigger screen. (ET_FG7_PS)

Thus, they often connect other devices to TVs for playing computer games on the largest screen in their household. Children would like to have their own home video game console, computer, tablet, smartwatch and Facebook account. However, school-age children sometimes wish only for a newer or better version of DT that is already in their own use, which is consistent with their above-mentioned preferences. A smartphone seems to be mostly a dream of pre-school children, which may indicate not only their limited access to such devices and desire for playing

time with less restrictions, but also a symbol of their growing up process. At the same time, some schoolchildren mentioned that they do not want anything regarding DT, because they already have everything they need.

> I don't have smart-hunger. (ET_FG4_KG)

Children's reactions to the situation cards during the focus group demonstrate that using DT with their parents or the whole family is bringing them much joy and they wish to use it more in this way. Moreover, children do not always need computer games for playing, from time to time preferring non-digital options.

> So, it was very exciting for them first couple of days. But yesterday, for example, they didn't touch it at all. (ET_F3_father)

This could mean that children's needs for DT are much lower than they seem at the first glance. They use or would like to have DT just as a topic to talk about with their friends, as something that meets their natural needs for new things, activities and experiences, as leisure time companions, or as an alternative to parents' attention.

> I want such a robot that if dad doesn't play with me, the robot will play with me instead. (ET_FG2_KG)

Many children did not mention DT when they were asked about their wishes for birthday gifts, even if the interviewer asked again specifically about DT. Some schoolchildren said that they do not want anything, because they already have all kinds of DT that they need. Others, however, mostly kindergarten children, just continued to talk about their wishes related to non-digital things: unicorns, ninja costumes, Lego, football goals, the best birthday party ever, a kitten or other pet, a book, a textbook with pencils, a poster of a pony, their own room, mathematics homework and to preserve Estonian nature. Some of pre-schoolers expressed straightforwardly their negative attitude towards DT:

> Answer 1: I don't want smart devices!
> Answer 2: I'll smash my phone. I don't have smart-hunger.
> Answer 3: I'll break my phone.
> Interviewer: Why like that?
> Answer: Because I don't dream about smarty anymore. (ET_FG4_KG)

It is possible, therefore, that use of DT in general is not so much desired by children themselves, but merely became sought as a product (or as a normal part) of their socialisation process into the digital world.

3.2.4. Imagination of life without DT

During the interview, children were asked to imagine that there were no more DT in the world. Children had differing reactions, but three main narratives could be distinguished in the data: (1) 'That would be the end of life'; (2) 'Such life is hard and sad but doable'; (3) 'It's so much fun!' Interestingly, these narratives could not be distinguished by specific groups of children. The same children could at first react very negatively, but after thinking and discussing further for a while they could find several positive or at least neutral aspects in such a life.

The first reaction as reflected in the first narrative—'That would be the end of life'—was that, normally, life without DT is impossible. Children cannot always imagine life without DT, although even pre-schoolers know that such life existed before they were born. Some children said that they would go to sleep. Others said they would actively search for DT still existing somewhere

(e.g., at their grandmother's residence). Quite a few schoolchildren expressed very strong negative feelings or even suicidal thoughts regarding such a life, which is very alarming even if they were speaking allegorically, because they are not even teenagers yet.

> That would be the end of life. (ET_FG10_PS)
>
> Then it would be the end of the world. (ET_F7_child)
>
> I would go outside and die in the cold. (ET_FG10_PS)
>
> This is like love of my life, because if I don't have Internet, I'm going crazy. If I don't have Internet, there's nothing I can do. Then the game is over with me.' (ET_FG6_PS)
>
> Answer 1: I would die.
> Answer 2: Me too.
> Answer 3: I will jump down from the eighth floor. (ET_FG8_PS)

While boys often explained their reaction with addiction to computer games, for girls it was 'love' for social media apps, which may be also interpreted as addiction. For some children it was simply difficult to imagine everyday life logistically without any smartphones.

In the second narrative—such a life is hard and sad but doable—more neutral reactions were given. For some children, especially for pre-schoolers, a life without DT would be emotionally difficult, because they would not have any pictures of memories. They think that they would live without any entertainment, and mention they could not watch YouTube, TikTok videos or cartoons or play computer games.

> Then nothing could be done. Just have to play, so boring. And then nothing-nothing-nothing could be done. (ET_FG4_KG)
>
> Then I wouldn't be able to watch cartoons at all and it would be very sad. (ET_FG2_KG)

Some of them worry more about practical things, such as parents not being able to find their lost child without smartphones and apps, and that there would not be any money in the family because their parents' jobs depend on DT. Others suggest there would be many problems with communications and information. Distance learning would therefore be impossible or very challenging, but also communication between parents and schoolchildren. Communication with relatives and friends, especially those who live at a distance (in another town or abroad), would be rare and mostly by snail mail. Even organising meetings with friends seemed to the children to be more difficult or even impossible in such a case.

> Answer 1: I would miss the fact that I want to invite someone to play outside, but I can't call or write to him.
> Interviewer: What then?
> Answer 1: I don't know.
> Interviewer: If you can't call… [one of the boys continues interviewer's conversation]
> Answer 2: Then you have to go behind his door.
> Interviewer: Yes. Then you have to go behind his door.
> A1: But what if you're afraid of his parents? (ET_FG10_PS)

Thus, DT is now seen as being used for overcoming not only physical but also psychological obstacles in communications as well as substituting children's communication skills, like explaining something only verbally and without any visual support.

> Then there could be no such thing as a screenshot. That you can't send it to your friend and you can't print out pictures, that you have to explain, like you do like… you know, but in fact you can't explain it correctly. (ET_FG10_PS)

Children also realise that they would have to do much more by themselves than they do now: handwrite homework assignments, walk to their friends' houses, solve some problems by themselves without immediate parental help or reinvent DT.

> Some of my friends live far away, and if I didn't have them [DT], I would have to walk to them [friends]. (ET_F5_child)

> I would do so that when I grow up, I would become a scientist and invent a new phone that can do everything. There would be even dreams in it and then you can go into there. (ET_FG9_PS)

> Answer 1: Of course, one chooses to commit suicide, but I become a scientist and investigate what caused the loss of phones and smart devices.
> Answer 2: Maybe that's what I'm doing, I'm a scientist and I'm investigating who stole all the phones in the world. (ET_FG9_PS)

Thus, for some children life without DT could help develop new skills, stimulate their intellectual activity and be a motivator for learning.

In the third narrative—'It's so much fun!'—several positive aspects were reflected on in connection with a good life without DT. Some children thought that without DT, life would be different but not worse. Many of them would go for a walk, play with their siblings, friends and pets, ride a motorcycle or engage in sports activities.

> We start going outside more often and communicating with friends. (ET_FG8_PS)

> I would go outside, run, do sports. (ET_FG8_PS)

> I would just go outside, build a hut or play with my dog. (ET_FG10_PS)

Some children were excited about a possible life without DT. Both pre-schoolers and schoolchildren said that they have a range of different interesting activities without DT use, such as doing arts and craftwork, reading books, doing sports, playing with dolls, cars, Lego, etc.

> Answer 1: Uhuh, it's so much fun /… /
> Answer 2: Then you can draw instead.
> Answer 3: Yes, it's fun to draw, you can do different things. (ET_FG4_KG)

> Answer 1: Yes, then you can do works of art.
> Answer 2: How? [Everyone laughs]
> Answer 3: And think for yourself. I remind myself what that thing is and I'm going to craft. /… /
> Answer 4: The other is that I can think of things myself, not someone else's. (ET_FG7_PS)

> Answer 1: I would go to make dreams come true.
> Interviewer: What would they be, then?
> Answer 2: Playing football. (ET_FG9_PS)

Interestingly, the children not only saw walking and playing with someone as good alternatives to DT, but also creativity, independent thinking and making their dreams come true. Additionally,

the children thought that such a life may save their vision, bring them freedom from digital addiction and in this way make their parents happier.

Children's reactions to a hypothetical life without any DT were extremely different, ranging from suicidal thoughts to excitement. There are many possible explanations of this: they may be at a different stage of digital addiction or just spend different amounts of time per day using DT. There may also be different everyday family life balance between real life and digital life. In some families, children's everyday life activities relate more to DT, so children may live a substantial part of their life in the digital world, playing, learning, communicating and relaxing. Living in the digital world is therefore more natural for them and they simply do not have experience of living more in the non-digital world. Suicidal thoughts may indicate that some children just do not know how to live in another world that differs so much from the world where they live currently. It is therefore expected that they feel that their usual world just falls apart without any DT in the same way that many adults felt at the beginning of the COVID-19 pandemic. These hypotheses require further investigation.

3.3. Family life and family practices

3.3.1. Integration of DT into family life

Family functioning is shaped on the one hand by the individual activities of family members as well as the joint activities together with the family as a whole. For better understanding of the everyday life of families, both functions have an essential role in integrating DT into family life. DT provide an opportunity to do both—for being alone and separated and for close communication and creating 'we-ness'.

Devices and apps have taken a substantial place within family activities and routines. DT is brimming with functions to satisfy primary human needs. Daily life activities are connected to certain devices and apps and correspond to human needs such as physiological (online shopping, ordering food, rest), safety (calling for help, staying informed of the COVID-19 situation), love and belongingness (staying in touch with extended family and sharing life events, getting a certain feeling of satisfaction or safety from knowing one is not alone, preserving history and memories), esteem (posting life pictures) and self-actualisation (learning new things, working from home).

Parents retrieve information from television by watching the news or by searching for information when planning family activities and sharing information about their family using social media channels (e.g., posting family photos, finding a support person, sending necessary information for other parents).

> Yes, and I'm telling you, too, that they've been watching Aktuaalne Kaamera [the popular news program] every night, because they want to know what is happening in the city /... / from the TV. (ET_F2_child)

In connection with the household, parents use DT to order food for the family at home and to buy clothes. Some parents find the broadcasts about cooking inspirational for cooking for their family. Robot vacuum cleaners help families to support home maintenance, and the parent appreciates various 'smart' solutions for home safety.

> Ordering food from the e-shop, that I don't know if it goes exactly like the answer to that question, but that you still get to go to the store as if you don't physically have to go to the store, either like you can order food to your home from your phone or computer, or like that,

> that you go after yourself. For me it is also a great bonus. (ET_F5_father)

> Mom has been watching the cooking shows so that she can learn how to make good new dishes for us. (ET_F2_child)

> Devices and their compatibility, and for that, I am very much, I am very much in favour of this because these are such smart solutions that make life more comfortable, and I find that they also make it safer to some degree […] And to some extent, this thing was also related to the fact that, for example, to leave a child at home alone. Not that you can control them, but well, these things can be configured. (ET_F7_mother)

DT help parents to be informed of the child's life outside the home by enabling them to participate in kindergarten or school activities via Facebook groups or smartphone and to be in contact with other parents. DT also help to know the child's location using a monitoring device or to be familiar with the child's homework.

> Moreover, school staff is all immediately visible and available on the phone so that you can watch at any time […] what the children have at school there. (ET_F8_father)

In many families, DD take over the parent's role, where the parents offer the child a DD in various situations. Examples are situations where the parents cannot take children with them or the child has to wait for a longer time, such as waiting for the parent to go to a shop or while driving longer or travelling, as well as waiting in line for a doctor. Parents may also sometimes need to work from home, to do something else for themselves or for the household or just do things that interest them, and in these situations, they use DD as babysitters. DD are also used as a parent's substitute to tell bedtime stories or to read books. For very demanding children, it may be easier for a parent to give them YouTube than to deny it. The reason for using DD as a babysitter can also be lack of skills for being together, which was mentioned in connection with one grandparent.

> I was waiting for my turn, and then I watched from my dad's phone Paw Patrol cartoon. (ET_F2_child)

> This is what we have been doing from time to time, that well, while you are doing something, it is simply sometimes more convenient if the child is watching a cartoon. (ET_F2_mother).

> Or thinking about kids, well, I say it's indeed a great help and babysitter, if I really, I want this time more for myself, when I have to do something… (ET_F3_mother)

> With a child inevitably is that if you are all here at home and you inevitably have to work, then you will not be able to offer him any activities all the time. And inevitably, I think it's like a TV and the time for this phone went up. (ET_F4_mother)

Parents themselves confess that they probably misuse the smartphone while being engaged in other family activities, such as putting children to bed and drawing with children. They may also listen to something with headphones while they are together with the family. Parents also admit that during family activities, they repeatedly check their smartphones.

> I have such a bad habit that when we go to sleep, we have in that sense like a very united family so that we need to go to bed together, usually me with children, then I have a bad habit of starting to pick up the phone in bed and then my little son is especially nervous about 'why you have to watch it all the time there in the evenings and put this phone away'. (ET_F10_mother)

Both children and parents acquire new knowledge and skills through DT. For example, children learn English and mathematics, obtain writing and reading skills and they are guided by different apps to exercise and dance. Parents may learn tennis game techniques. Several activities take place in collaboration. For example, singing is recorded for school in cooperation between child and parent, and various school assignments are sent to teachers. Parents also practice with children's speech therapy exercises via YouTube or watch educational programs and videos.

> We have a situation now that the child does not go to school; he has not gone to school for four months. In the end, I discovered that his knowledge is fragile and then I started to deal with it myself. I found some videos where these things are beautifully explained, which I can't explain myself, and we look sometimes, not often. (ET_F9_mother)

One kind of joint activity within the family is co-creation. DT help the family to be creative, such as making a birthday present or making videos. Parents and children together draw pictures and print them out, etc. DT help also families to store and share memories by viewing together at home the pictures or videos of joint events and trips. Some families have shared family time for entertainment. They listen to music from a shared list on Spotify and watch cartoons, news, nature programs and movies on TV. There are families where joint movie nights are a beloved family tradition both for children and parents.

> Somehow, I personally think that as it is now, it has given such a pleasant time together. If, for example, we visited Italy in the summer, then we have looked at all these pictures together several times and recalled the memories. (ET_F5_father)

> …on weekends, we do such movie nights, Friday, Saturday. (ET_F6_ mother)

Several other activities within the family using DT shape the family life and relationship dynamics (e.g., daily life planning, staying in touch with family). DT expand boundaries of space and distance in relation to different spheres of family life such as work, study, communication and playing games. These aspects are described in more detail in sub-chapters 3.2 and 3.4.

3.3.2. Roles of family members regarding the use of DT

Adults assign a considerable amount of value to DT within family life. Behind the DD are always adults as role models who demonstrate with their behaviours and attitudes a particular message to their children. Their choices have a direct impact on family communication and relationships. However, children can also obtain a special role and give important messages to their parents. Parents and children can have different roles in families, depending on how the everyday use of DT in family life is described. Below are presented descriptions of more typical situations emerging from the data where family members play a certain role.

Parent as a general role model. Parents themselves try to use smart devices less and take their headphones off in front of their children. Parents prefer the hard copy magazines and books.

> …they see me going around with headphones all the time and I … all the time they realise that I can't hear what they're saying, then I try to stop this behaviour and to be more aware. (ET_F3_mother)

Parent as a guide and supervisor. There are situations where parents guide children to do other things instead of using DT. They also help children to understand instructions for games or to write, draw and print on a computer.

Parent as a supporter. Parents support the use of DT by providing children a suitable environment for it at home. They realise that nowadays everything is related to DT and it is important for children to be competent DT users; it also supports children's social interaction with peers.

> …they need to use these digital instruments, and they need to be digitised like one way or another. Yeah. And all the industries and all the work and future, it depends more into IT-sector. (ET_F3_father)

Parent as a home-teacher and learning facilitator. Parents help their children to learn and do their schoolwork at home, for example, by printing out worksheets or searching for and downloading necessary apps for education. They also take care of balancing time spent online during distance learning.

Parent as an explanator and preparer. Parents explain to children according to their age what the digital world is and how to behave there. They also explain potential effects of DT on health and potential hazards.

Parent as a prohibitor, controller and decision-maker. Parents monitor the use of DT and control almost everything, including children's location. They also may monitor and prohibit the use of certain apps. Parents are the ones who create and remind of the rules.

> We use TikTok. It's more for my child, and it's on my phone so I can check what he's posting, who he's talking to or not, who are the followers, and all that I have not allowed him to put on his own phone. (ET_F10_mother)

Parent as a filter. If parents do not pay attention to 'nonsense' available on the Internet, it probably will not reach the children either.

Parent as a permitter. Parents sometimes give up on the rules, even though they may realise that it may not be good for the child. Parents may also think that restrictions create the opposite effect. Some parents consider DT as an easy choice if parents fail to offer other activities to their children. On the other hand, there are also parents to whom it is not a problem if DT are used after being physically active together with the family; there is a need to find the balance.

> …actually, she shouldn't watch it so late in the evening, but again, it's like she has such a strong routine that I somehow feel that it's as hard for me to start breaking it. (ET_F4_mother)

> …I don't know, if we're giving some TV days or things, well, I see that at the end of the day, the same time comes together, so that on Saturday she just doesn't come [away from the TV], sitting in front of the TV from morning to night, for example. (ET_F4_father)

> Well, having technology made us like less thinking of other options, it's like, you don't need to think of other options, but this is bad. (ET_F3_father)

Child as a parent controller. Children control the use of DT by their parents, especially in the evening or while driving. They draw the attention of the parents to their behaviour if they have been on the phone for too long. However, children learn important lessons from their parents even when they make mistakes.

> …my little son is especially nervous about 'why you have to watch it all the time there in the evenings' and 'put the phone away'. (ET_F10_mother)

> Children check all the time: 'Mom, do not use the phone in the car' or whatever. It's bad. It's very disciplining. (ET_F7_mother)

3.3.3. Family rules and negotiation regarding DT

The technologically advanced world creates new opportunities as well as new rules related to constructing functional social relationships. Managing the social complexity requires sound skills to balance between DT and social relationships. On the one hand, it is required to be a more 'in-person' actor to build healthy family relationships by developing deeper bonds with family members, and on the other hand, it is required to be a more 'digital' actor to gain an effective social network.

Both parents and children believe that, generally speaking, the rules regarding DT are necessary. Parents think they should maintain control over children's use of DT because children themselves do not have control over their behaviour. Children think the rules are necessary to avoid damaging their eyes and brain and to ensure that DT do not interfere too much with family life.

> The bad thing is that these computers still attract, and these games, so much attention, and it still draws so much of the child and I have a husband playing. It is more like a disturbing factor in family life. (ET_F10_mother)

Families respect general principles and everyday routines that may not be specific to DT, but are given as good examples that the DT rules could be similar to (e.g., brushing teeth on a regular basis). There are families where the rules in general are considered important, but the rules related to DT are considered inevitable.

> Firstly, whatever the rules, is it the creation of the day plan, the regime, especially in childhood, are essential, so the rules are necessary. There is a certain amount of time for doing homework, and for some children it takes more time, for some less—it depends on the child—but in general, all the time spent on the computer must be regulated, so the rules must be mandatory, but how strict they are depends on the family. (ET_F9_grandmother)

Some families think that talking to each other is more important than rules. Reaching agreements about rules and only prohibiting DT use will not work. The child is recognised as an independent personality and the rules are reached by mutual agreement.

> No, not the rules, I don't think rules are needed. There doesn't have to be rules at home. I believe you need to talk, you need to understand each other, what your child needs, what do you need, and how do you agree with each other, how it should work. (ET_F9_mother)

Some parents prefer a step-by-step approach to introducing the possibilities and functionalities of DT to their children. They believe younger children do not know yet what they could get from the DT and therefore no negotiations have taken place. If children do not know what to do with DT, they do not need them yet, but they can use the DT that they ask for. Some parents think that the effect of DT is negative, but there is no escape from their use and therefore there is a need to 'set limits'.

> It was seen how it affects the psyche of children—it has a very bad effect—but that is absolutely certain that they have to use them, you never escape from it, this is the future, and the key is rather in it, as for all things, that you can try all things, but there is a limit somewhere. (ET_F10_mother)

Within the family, the agreements about rules are reached either reactively, that is, according to the child's development and emerging situations, or proactively, that is, the agreements exist in advance, but rather they are initiated by parents and not negotiated with children. Often children's increased use of DT (watching TV, playing on the smartphone) has created the need for rules.

> I think my mom thought I was watching it all the time and it's like a bad thing. (ET_F1_child)

> I remember when she got it in the beginning. She didn't have much interest in the phone at all, but when that interest arose and so to speak, it tended to be more, then we had to set some rules. (ET_F5_father)

The parents point out and the children agree that parents are the ones who normally have set the rules. However, there are some families where rules are created together and the need for establishing the rules is explained to the child.

> Rather, we still try to explain what comes with it, that you can see that if we took things away before, do you remember how angry you became? And then we actually put in place more common rules, so that you don't have to watch the time, that you have a clock and you know that everything will be locked and time is up, that you can still make a call, but just like other functions you can't use there. (ET_F10_mother)

When the need for establishing the rules is explained, the rules are often justified by the need to protect the child's health (e.g., eyes) or to prevent them from seeing violent or otherwise inappropriate content. Some parents do not allow children to use DT on their own, but rather together with the parent. In some families, important rules are related to security, for example for opening unknown links or downloading apps.

Most of the rules within family are about time limits. Children can use DT for a certain time period, which may vary from device to device. For example, four hours on a computer and two on the smartphone, two hours on both or a maximum of one hour or a few hours in total are allowed (assessed subjectively by parents). It is also ensured that the TV does not play in the background. In some families the time limit is even more strict.

> There is no such thing as sitting for an hour at a time. Rather, some 15–30 minutes and then we go to the next activity. (ET_F2_father)

In some families, the time limit applies to all children and in others to only those children who cannot control their use of DT themselves. There is also such a pattern where joint time is divided equally between siblings.

However, some children do not feel that the rules exist at all and feel they can use DT as much as they want. Some children say they regulate their timing themselves and put DT aside when they no longer want to use it. Some parents say they do not need to set time limits because children stop using DT after a while anyway.

> And in fact, even now, because I don't put a time limit on them, I'm not looking specifically at the time you started and that it can only last so long. If I do my own things, I know they've played some other games before, then I don't have such a panic need to control that now they can only be used for so long or for so little. And then I see that they even finish themselves after a while. (ET_F3_mother)

The restriction may also be related to the time limit for a specific activity or for a specific DD.

For example, playing on the smartphone is limited to 30 minutes, but there is no limit on other devices (tablet, TV). The rationale behind this rule is that small screens are more damaging for the eyes. Further, when a child is chatting on the smartphone for a long time, the mother may remind them that they need to stop chatting.

> We just keep track of time. Sometimes when I play games, they look more closely, and that's it. When I'm studying, there's a few hours off, well, that's all. (ET_F9_child)

Time limit restriction may be related to the time period during the day (or during the week) when DT is used. For example, it has been agreed that cartoons can be viewed at certain times: in the morning and sometimes in the evening. Restrictions on activities in the evening are stricter and mentioned by parents more often. Parents tend to monitor evening activities more closely or the rules are set concerning the ending time of the activities in DD before going to bed (e.g., two hours before bed or before 8 p.m.). In some families, children can use DT more on the weekends and in other families they have to do one DD-free day per week.

Some real-life activities are more favoured by parents than the use of DT, and this is reflected in the rules of using DT. For example, children have to first do physical activities or eat their lunch and after that they can use DT. Children may have the opportunity to trade with their parents for more time to use DT, for example, if they have exercised or read a book to the end, they can 'redeem' more time.

> We had one extra rule that gave you more time, if you did something, in the meantime, some workout or something... (ET_F5_child)

The methods taken by parents for setting the rules (and exceptions) and checking compliance are different, which is additionally described in sub-chapter 3.3.4. One of the most prevalent methods for setting time limits is physical intervention. For example, after two hours of use the screen locks automatically or the usage time is monitored manually with a timer. If the child tends to use DT secretly at night, the rule is that the smartphone is left in another room before bedtime.

> As I also mentioned, we have both the computer and the phone screens locked, that, for example, if you have two hours with the phone, you actually have two hours with the computer, but maybe if you haven't used the phone so much, for example, you can play more with your computer on the big screen and then you get more time. (ET_F10_mother)

Some parents have set very strict rules and they also follow the rules strictly, so the children feel that nothing can be used.

> I have a limit on everything, even on that I don't use. (ET_F10_child)

Other parents say that they do not have rules in the family because they are not the kind of person themselves who likes discipline. They think things should be balanced in the family and until the use of DT is a problem, no rules are needed. However, some parents would appreciate if the world would not be so easily accessible for children and they would have to work harder to discover it than just to use DT.

Interestingly, children also mentioned how to cheat their parents to avoid following the rules. The most common strategies are to hide DD and secretly use it at the dining table or in bed; to wake up during the night to play on a smartphone or computer; and to use acting skills to fake studying, ask extremely politely or, in contrast, whine until parents expand children's screen-time or Wi-Fi time.

> I always have a problem that when I have a computer, I have two choices: either I have to do my homework or I do fake homework. Maybe I do a face like I do my homework, but I actually play. ET_FG9_PS)

> Then I just wake up at night and go to the computer and then go back to sleep. (ET_FG10_PS)

Focus group participants started to enthusiastically teach each other these strategies in detail, which may mean that they value these skills and information as very useful.

3.3.4. Conflicts in family life regarding DT

Disagreements are a normal part of everyday life in a family. With the increasing use of DT, many disagreements and conflicts are related to the use of DT, although there are also families where disagreements or disputes do not arise or are rather short-lived. For some families, the digital world itself is a constantly changing and evolving field, which itself creates new conflicts in family life.

> Let's say that we do not have long disputes, but I see such a displeasure and sadness on behalf of children that it still affects emotions. But fortunately, children are used to listening to the word; they understand the explanation. (ET_F1_mother)

> Rather I would say that these conflicts arise, like not, rather from the constantly new situations that the digital world somehow creates. (ET_F7_mother)

There are several DT-related situations in family life that can lead to conflicts. Many conflicts arise because the family members have different understandings about how much is a reasonable amount of time to spend in different DDs or how many cartoons or games could be watched or played in a row. This conflict often escalates in a moment when one of the parties (usually a parent) finds it is time to quit and the other party (usually a child) cannot quit immediately (because quitting suddenly disrupts some games) or simply wants to prolong their use.

> It depends on what game you are playing. For example, if there is a more important game, such as a competitive game, that is, like a good quality game, against someone, then it is rather difficult to quit, as you don't want to give up. (ET_F6_child)

Sharing devices with other family members can lead to conflict if they want to do different things with the devices at the same time (e.g., watch shows or cartoons, watch or create on YouTube). It may be difficult to agree on usage (e.g., who can use it first) or who can use a better or newer device. A situation where children are not yet independent users and need parental support in using a computer can also lead to conflict, because parents may feel a so-called internal time deficit conflict. Using a smartphone secretly is not considered as a good behaviour within the family context.

Expectations as to activities that DT is used for can also cause misunderstandings in the family. For example, playing games is considered by parents as an unimportant activity while communicating with friends is acceptable. Gaming is also an activity that cannot be stopped and is considered as the main cause of developing addiction.

> If there were no time, then he [the brother] would just play games all day and he gets phone-poisoning /… / That like he never puts, that as he is a phone addict, that all the time when he gets a phone, he immediately takes it and starts playing. (ET_F1_child)

It is a bad habit for an adult to use the smartphone while driving, which also causes disputes

within the family, both between parents and between children and a parent.

Conflicts within the family are prevented and solved in different ways. Some families prevent their occurrence by giving extra time for finishing the ongoing activities in the DD or making agreements with the child before they use the DD. In some families, the use of DD (e.g., watching cartoons in the morning or using the smartphone at bedtime) is a part of a family routine that is agreed and followed without conflicts.

Within the family, the conflicts are more often solved by the initiative of an adult family member. One possibility is that the adult intervenes physically, either by removing DD or the Internet, hiding DD or restricting the use through the application settings.

> Two options. You can take the phones from children when they have this limit full, it can be an hour and a half to two. But if it's still there, they start hacking all the time, it still doesn't work, then I've just switched off the router. (ET_F6_mother)

Sometimes taking away the DD is connected with solving another real-life conflict (as punishment) or 'home-arrest' can also mean a ban on the use of DD. Some conflicts end with shouting by parents and the conflict ends only due to the adult's physical superiority. Parents tend to be quite consistent and inflexible in conflict situations.

> It actually ends, in principle, 70 percent wins the father [laughs]. Only because he is big and strong. (ET_F9_mother)

There are also situations where siblings are quarrelling over the use of DD, but parents do not intervene.

> Well ... daddy doesn't say ... daddy doesn't say anything and mom doesn't either... (ET_F10_child)

Conflicts may be also solved by parents using milder strategies, for example by directing attention or action from DT to something else. One possibility for the parent is to suggest some joint activities and ask the child what he or she would like to do together. Alternatively, just before going to bed, the parent can pat and hug the child or read or sing to comfort the child who did not want to put the phone away.

> If I offer something interesting instead, either with or without me, it will definitely be much easier. (ET_F9_mother)

Children demonstrate initiative to solve disagreements in the situations where siblings have to solve conflicts themselves. For example, for agreeing who is the first user of DD, it is possible to play a lottery. Or when listening to music while driving with family, it is agreed whose list is playing first and whose later. However, often siblings want to watch the same cartoons and there is no conflict.

3.4. Harmful and beneficial effects of DT

The current sub-chapter brings together topics related to harmful and beneficial effects of DT that concern not only children but also adults and, above all, the whole family. In the course of the data analysis, themes were detected that comprise harmful and beneficial effects on security, everyday life of the family (joint activities, individual activities), relationships (including intergenerational communication), well-being and health.

3.4.1. Security

Under the first topic, the thematic analysis focused on codes related to security, and the interviewees talked mostly about how DT can pose a risk to security. Only one code—creator of security, observer—reflected beneficial effects of DT.

Both children and adults talked about the **bad things on the Internet**. This topic includes general adverse effects, security threats, as well as things that are simply meaningless according to the respondent's subjective assessment.

> My mom doesn't particularly allow me to go... Well, because she says there are all kinds of stupid things on YouTube. (ET_F1_child)

> For me TikTok is kind of nonsense and all those things like, complete nonsense. Well really. And then, well, all these, with modern word—influencer—the content of which is still completely not understandable to me, what that 'influencing' really means. (ET_F2_mother)

It was pointed out that some user groups like children and the elderly may be more vulnerable to threats and fraud, especially due to lack of knowledge and experience in the digital world. Children were also aware of the possibility of fraud.

> ... certainly the threats that exist on the Internet. You may be able to avoid these threats yourself, but maybe those who are not so familiar with the digital world, children in particular, the elderly, there are a lot of cases where people are then deceived in various ways through the Internet. (ET_F1_mother)

The things called 'nonsense' were referred to by parents, especially in connection with social media (e.g., TikTok, influencers) and also news that may not be 'real' but 'fake'. Good parental behaviour in the digital world was pointed out as an important factor in avoiding meaningless things by the child. At the same time, it was admitted that it is very easy for a child to accidentally get into an inappropriate information field while using the Internet.

> A little bullshit, I don't understand why this [TikTok] is necessary. (ET_F2_father)

> This all nonsense and meaningless on the Internet passes me with a big arc. And if it passes me by a big arc, then at the beginning it also passes my children, I think, by a big arc. (ET_F2_mother)

The topic of **bullying and especially cyber-bullying** did not come out very strongly in the interviews. While it was mentioned as a well-known fact, very few mentioned it as a personal experience.

> ... up to mental bullying, you know, which is also very common on the Internet. (ET_F10_mother)

The DD was mentioned as a symbol of the child's status and that children compare each other's smartphones at school. In a focus group of schoolchildren (girls) (ET_FG6_PS), the children pointed out that the moderator has a very small smartphone, indicating that they keep an eye on such status symbols. Such an attitude towards DD can become a reason for bullying at school.

> ... I understand that it is already a big problem nowadays that they already assess each other's phones [at school] and whatever, you know. (ET_F4_mother)

In the same girls' focus group (ET_FG6_PS), the schoolchildren also discussed deeply how TikTok is used for 'hating' and for posting derogatory comments. They also knew that they can prevent cyber-bullying by using TikTok only for watching videos without posting any content.

> … Some people are bad and can hate you there. (ET_FG6_PS)

> … It [hating] means you will be told bad things there. This 'hating' means you're being told badly. (ET_FG6_PS)

In one focus group of schoolboys (ET_FG9_PS), **provoking suicides** through dangerous games were highlighted as an extremely serious safety threat to children. Although this issue was not widely covered in the data, it still seems to be a very important harmful effect of the Internet that should be highlighted in this report.

> … One person is wanted in England and in America. He's very bad. He tells the children to jump under a train, otherwise the family will die. (ET_FG9_PS)

> … Just like this MOMO kind, MOMO writes at night at 12:00, writes: 'Jump off the roof!' or 'Jump into the whale's mouth!' … Then you tell your mother, father… they can at least call the police. (ET_FG9_PS)

One of the participants even lost his friend because of a challenge similar to MOMO[2] .

> I wanted to say one thing: that my friend died because in TikTok, the same boy who is wanted wrote to him, wrote that you have to do it or you will die, I will come to you and kill your family members, you will be all alone, then I will set also your house on fire, and then he did it to save his family and now he's gone. (ET_FG9_PS)

Schoolchildren who participated in the focus group also know that in those extreme cases they must ask for immediate help from their parents or from the police.

An interesting topic of safety was mentioned in some interviews—the use of a smartphone in traffic, either as an activity **disturbing car driving** or as a general distraction in traffic. Criticism was targeted both by the parents towards themselves and by the children towards the parent.

> Because, I try to control myself, but, but still, as soon as I feel like something is going on there, then I, my hand wants to take it and watch. And then when I see that my wife writes, then I know I can't take it, because when I'll get home … [laughs]. (ET_F8_father)

> Kids check all the time: 'Mom, don't pick the phone in the car' or whatever, you know. It disciplines a lot. (ET_F7_mother)

> Yes, in that sense, it can sometimes be a bad situation. When you talk on the phone, you don't see cars. (ET_F8_child)

Parents raised in the interviews the issue of **privacy**—the need to keep it and the risk of losing it. The privacy issues concern both themselves and their families. Privacy was mentioned at first in connection with the need to keep personal and work-related topics separate on DD. However, it was also mentioned in connection with the need to leave less traces of oneself on the Internet and, in particular, on social media.

2 MOMO challenge is a game that has gone viral and encourages children to perform a series of dangerous tasks (including to commit suicide)

> I just don't wish and I don't want that kind of personal attention to myself, and I don't like it either. Basically, maintaining privacy is important. (ET_F1_mother)
> But well, because like well, everything that goes up like to the web stays there forever. We do then rather less than more. (ET_F2_father)

The question of digital hygiene was also related to the issue of privacy—the need to keep things in order in the digital world, similar to everyday life outside the digital world.

> … keeping your own things separate from your computer is actually very important nowadays, so that you know exactly where you have what and no one else is acting out there. (ET_F1_mother)

Under the topic of security, there was only one code that highlighted the beneficial effects of DT on family life. Both children and adult family members spoke in a positive way about the **opportunity to observe with DT the child's journey** between home, school and hobby groups and thus create a secure feeling, in addition to the opportunity to call while in trouble.

> That, for example, if you have a child and a father, when the child goes missing and the phone is with him and he has some kind of app that the father can, like, to keep track of where that child is, then like this, I think it's good. (ET_F10_child)

> Rather, I can reach the children by phone, if necessary, you know, I do not know if there are digital phones, and we can monitor them, you know, that we have this family app, for example, in the case of the child, that we can see where he is… (ET_F10_mother)

This was mentioned in the interviews from the perspective of different generations—the child, the parent and the grandparent. In addition, smart home solutions (such as a fire alarm on a smartphone) give a sense of security to family life.

> I am very much in favour of this. These are such kind of smart solutions that make life comfortable and I find that they also make it, well, safer to some degree. (ET_F7_mother)

3.4.2. Everyday life

The second topic comprised codes related to the family's daily activities using digital tools. Most of what was being said under this topic demonstrates the beneficial effects of digital tools.

Firstly, there was a prevailing opinion, which can be classified as rather neutral, that in family life in general and in each family member's life there is a need to find a balance between 'real-life' activities and being in the digital world.

> … but it would be good if we would be more outdoors and do more active things, like we wouldn't just be on the phone. (ET_F10_child)

> So, in conclusion, I can't even say whether it all has more pros or cons; I think it just has to be so balanced. (ET_F4_mother)

Using DT is nowadays such a normal part of life and they have come to stay. Life cannot be imagined without the use of DT; both children and adults have to get used to living together with them. Parents spoke more than children about the need to **find a balance** and about the need for parents to give a good role model and take an active role in balancing the family activities between real life and the digital world.

> Obviously, this will be the future of children, too, so they need to understand what the phone allows you to do and what the computer allows you to do, but step-by-step, in a way that they do not get stucked and that the touch with real life doesn't disappear. Somehow, we are trying to guide them down this path. (ET_F1_mother)

> But what is important to me, perhaps, is that I know that I also knowingly take the time to play with them and do things with them. Then I find that there is some balance, that I definitely don't feel like I'm just leaving them drowning there... (ET_F3_mother)

The possibility to **obtain information quickly and to find the necessary content on the Internet** was one of the most highlighted topics in the interviews about the beneficial effects of DT on families' everyday life. The information is searched by parents rather than by children. They mentioned searching for information for planning a trip, viewing the opening hours of places of interest and planning a route using GPS. Messenger and Facebook groups are used to quickly exchange practical information with family members and other people. A popular platform for finding practical tutorials is YouTube (e.g., tennis techniques, board game guides, repairment tutorials).

> In fact, the main thing that is needed is rapid availability of information. It is the number one thing and other things come after that. (ET_F10_mother)

> [Information searching is done] rather alone or with a spouse. The children do not yet have a say in this matter, and the children do not Google yet. (ET_G10_mother)

> The huge advantages, first of all, it is development, information, the speed of decision-making, plus the fact that if a decision needs to be made, you can read, immediately put in the search engine and decide. Well, it's a comparison, it's easier to choose. It used to be hard to find information, now it's easier... (ET_F9_mother)

The **opportunity to learn** with the help of DT and **playing educational games** were clearly highlighted as beneficial effects for children. Among activities that can be developed with the help of DT, simple things were mentioned, such as learning letters from the keyboard and watching nature films, as well as more complex things, such as mathematics, robotics, video making and language learning. Primarily, strategy games were considered as developing and thereby beneficial for children.

> Then they learn, they learn English from there as well. (ET_F3_mother)

> [The child] has a game that we downloaded for her just when we went on a trip. And there are just only math and logic tasks, but very playful, and to me it seems like it's like insanely much developed her and her mathematical things. (ET_F4_mother)

> Here is the strategy and the player grows with the game, going through different levels, he acquires different skills, you know. And he must be able to use those skills in order to, well, like to evolve in this game. (ET_F7_mother)

A number of DT opportunities were highlighted as supporting of the family's **practical everyday activities**. One of the more mentioned activities was ordering food and e-shopping, which saves both time and nerves and was almost the only way to shop during the COVID-19 lockdown period.

> Yes, we went less to the store. We ordered a lot, we ordered food. I thought it was very positive because I don't like going to the grocery store. (ET_F4_father)

> I've actually made quite a few purchases over the phone or, well, in a small town, look, there's nowhere to go for shopping anyway. (ET_F2_mother)

On a daily basis, GPS was also used and e-books ordered from the library. In addition, robots were mentioned to help with homework (vacuum cleaners). Adults were also satisfied with e-services in Estonia.

> Yes, it's just that it's very convenient to actually borrow these e-books for yourself, and really, well, find the content that interests you. That this availability is much, much better. (ET_F3_mother)

> It's about robots, because if a person can't do something on their own and has a robot, then like a robot can help him. (ET_F10_child)

> In addition to placing any orders online, making a purchase, buying a car, previously it was necessary to stand at ARK [Estonian car register] for five hours, but here the agreement is made in five minutes and everything is done, everything is ready. You can also declare taxes online, well, it's interesting how we used to live without it all. (ET_F9_grandmother)

Both children and adults mentioned positively that parents have the opportunity to work at home and from a distance using DT. This allows spending more time at home and still doing the necessary work.

> … you can work in the computer when you can't go to work. And if your mom or dad is sick, they can work on the computer. (ET_F2_child)

> And it's actually that, well, it all allows parents to be more at home. If the employer is reasonable, especially if you're an employer yourself, you do these things at home, you work at home, you're up to date, and you get everything done. (ET_F2_mother)

As a harmful effect of DT on everyday life, it was mentioned that it can **distort the perception of reality** or compromise contact with reality, both in children and adults. For example, strange ideas obtained from online courses or comparing oneself to what one sees on social media.

> And she doesn't come out with ideas just from her brain. I mean, she thinks she sees people and she all the time is like registering for new online courses with this kind of topic… So, she pays money for this course and she follows it and that takes her from us more time. And she comes even out with crazy ideas that I really don't understand why she's doing this. (ET_F3_father)

> … you are looking at someone else who is all right on social media all the time and you're starting to invent some problems for yourself, that it's definitely like a negative. (ET_FG4_mother)

3.4.3. Use of time

Under the topic of time use, the observations of how DT relate to time use were gathered, and this topic was mostly discussed in a negative light.

DT at home and in family life was reflected on as a **robber of time and attention**. This was mostly talked about by adults, but a child of one focus group (ET_FG9_PS) also interpreted the situation seen in the situation card, where the adult is sitting at the computer, as time lost for the family.

This was seen as a rather harmful effect.

> Well, this time of course goes for using these devices, perhaps too much even. (ET_F8_father)

> In addition, a lot more time had to be sat on these DDs, a lot more time. It is a lost time away from the family, frankly speaking, a loss of free time. (ET_F9_grandmother)

> I wanted to talk [to the father]. He says, 'I'll deal with you soon', but this 'soon' is about ten hours. (ET_FG9_PS)

DT were also seen as an opportunity to **simply kill time and ward off boredom**. In most cases, this was reflected on with a negative undertone.

> … and I go there to my bed, I feel like now I have this time for myself, then I can sometimes be there pointlessly for an hour like doing something on a mobile phone, watching things or news, that I understand really creates me there no value. (ET_F3_mother)

However, for example, listening to good music for **entertainment** and playing a good night story to children were found as very positive things. The possibility to provide entertainment for children with DD (cartoons, games) during a long drive was also highlighted as positive.

> And there is music, and I don't know, I think it's a very good solution. In my opinion, this thing has brought a lot of positive things into my life. (ET_F7_mother)

> … my mother plays me some fairy tales at bedtime, like about a hedgehog. (ET_F9_child)

At the same time, it was interpreted negatively that children and young people may have difficulty being alone with their boredom, and can no longer think of anything to do without DD to ward off boredom.

> Because with this boredom, this phone tends to come up so easily. I think it is also a problem for young people in the future. We'll see if they can be in their boredom simply. That if they're like that, every moment you get bored, it's immediately like the smart world. (ET_F4_mother)

3.4.4. Relationships

This topic comprised sub-topics concerning the impact of DT on relationships, both family relationships and other meaningful relationships in life. In this regard many positive and negative points were highlighted.

The beneficial effects of DT were pointed out primarily as the **sustainer and facilitator of already-existing relationships**, but also as the **creator of new relationships**. Communication between children and parents is easier and closer with DT. For example, when parents are at work or on a longer trip, it keeps the family much closer.

> And then you can talk, when your mother or father is far away, you can talk to him on the phone and make video calls like that. (ET_F10_child)

> I don't know, sometimes it seems to me that this communication is so much closer, if someone, for example, is somewhere away, it's much easier to make a video call, it holds

like somehow much more together. (ET_F4_mother)

Examples were given on how DT (video calls, family groups on social media, use of digital tools with grandmothers) have facilitated family communication and keeping up to date about each other's activities over several generations.

> And sending something to grandparents about ourselves, for example, so that they would also be aware of what we are doing. (ET_F2_mother)

> Well, for example, if there was corona, I was not allowed be in contact. Then our cat had a birthday, for example, then we made a video call… with grandma and grandpa. (ET_FG7_PS)

> Well, on the other hand, it is also a positive example that my husband who used to call his grandmother a couple of times a year and we met once a year, you know, then now since corona he has the habit to make a video call every week. (ET_F4_mother)

The possibility of being connected with old friends through social media was referred to as a positive experience alleviating loneliness, even if there is no active communication either with real contacts or in the digital world.

> But in fact, it's a kind of feeling of satisfaction and connection with your friends, that you may not interact with them for years, but you know they exist. […] … It's some kind of new, some kind of weird sign of the era, but somehow it creates a kind of sense of security, like that you're not alone or something. (ET_F2_mother)

Parents' social media groups in both kindergarten and school were also perceived as a favourable communication environment. In addition to exchanging information, they offer the opportunity to be a part of children's daily lives outside the home (kindergarten, school), for example, if some pictures or video clips are shared that can be viewed and discussed with the child afterwards.

DT was quite often perceived as a **relationship breaker and a source of feeling excluded**. This was pointed out by both children and adults, including children in focus group interviews interpreting situation cards. Examples of such situations generated by parents were, for example, long phone calls where the child should not be interfered with, scrolling on a smartphone and listening to something with headphones.

> And the kids notice it quite a bit and resent it. My kids mention, 'why you're on the phone so much?' (ET_F10_mother)

> And, when mom talks on the phone and I want to tell her something, then I can't. She has no time. I can't interfere either. Then you have to wait. Mom once made a long call from my room to that other house. (ET_F2_child)

> … Well, it seems to be like a child is left on its own, that parents are in the smart world. (ET_F8_father)

> I think it's like a child wants to go play with Dad, but Dad wants to watch the computer instead… I think he's actually done all the work, but he's watching a video on YouTube. (ET_FG10_PS)

Respondents had encountered such situations both with family at home and with friends. It was thought that in a world without DT, people would perhaps be happier and more together. In a focus group interview (ET_FG2_KG), a boy pointed out that he wanted a robot to play with him

instead of his father.
One non-Estonian father described a cultural difference from his point of view where Estonians communicate more through DT than by talking face-to-face.

> Estonian community is putting a lot of pressure on me at least. I feel like people are like really IT-freaks… Because they are all the time behind screens. They don't know how to talk to each other. You really when you talk to an Estonian in the street, it takes some time like really to understand that someone is talking to him. (ET_F3_father)

Joint activities and shared time using digital tools were highlighted as beneficial effects for family life. The joint activities mostly concerned joint movie evenings in front of the TV and taking pictures of joint events and trips and later watching them together. Shared memories and emotions seemed to be important for both children and adults.

> … I use TV with my whole family all the time in the evening to watch movies or series. (ET_F6_child)

> The big bonus of a smartphone is, after all, that we can take pictures with it … that these emotions can be captured and recorded and all this is like nice. And it's good to watch it later with the children, for example. (ET_F2_mother)

> Among other joint activities on the computer, creative projects were mentioned (robotics, images for printing), as well as some multiplayer games. The situation on a situation card was described in one focus group (ET_FG5_KG) as a joint activity of a child and a parent.

> I would like to say that they can also watch a craft with a child, that if they were told in kindergarten or school to do it, then you can do on a computer. And then he can see if they are here or not. (ET_FG5_KG)

3.4.5. Well-being

The last two topics emerging in the analysis were related to well-being and health; more specifically, statements about the role of DT as a determinant of well-being and health. Under the topic of well-being, the following sub-topics were gathered: feeling bad, physical activity, stress and relaxation.

One small but distinct sub-theme was the impact of DT on **feelings of ill-health**. It was thought that because violent, harassing and negative content could be found on the Internet and social media, a child could develop fears and an adult could feel that everything is wrong in the world.

> … but I mean too violent or something like that. Because, well, just a movie trailer may as well have disturbing content. (ET_F7_mother)

> The downsides are still fatigue and a big burden, because there is so much negative on social media that you wonder if there really is so much negativity in the world, and it's hard, everything is bad in the news, everything is bad on the computer, everything is bad around. (ET_F9_grandmother)

The impact of DT on physical activity was described in interviews from both harmful and beneficial aspects. DT can be both **influencer and observer of physical activity**. As an example of beneficial effect, it was described how DT can encourage physical activity or make it more fun (accompanied by music, by imitating other apps).

> Just download an app where you can work out. Measures how long you can run and measures how much you can jump on the spot. (ET_F1_child)

> … I think there [TikTok] is for children… positive also, that when a five-year-old child looks at this, you know, and she tries to start these dances or things, consequently she also wants to move. And then, well, if she's not ready to go training somewhere, she'll at least learn something from somewhere. (ET_F4_father)

There was also talk in a positive tone about the possibility to monitor one's physical activity with the help of a smartwatch. This possibility was mentioned by both adults and children.

> I use constantly, monitoring, or well I monitor then … it monitors me, I monitor him, to see how the activity has been during the day, whether I get my laps so-called full, activity lap and training lap and standing up lap. (ET_F5_father)

> …for example, a smartwatch, you can see how long you've walked. (ET_F9_child)

As a harmful effect, poor posture in front of the TV was mentioned and the role model of a parent concerning this was pointed out.

> In fact, I am floating in front of the TV in the evening. Inevitably. And then in the case of children, I sometimes remind them to sit more straight … Posture, that it is already visible how the physique is affected. (ET_F2_mother)

Relaxation and meditation using DT, whether by listening to music or by using appropriate apps, was a sub-topic with little coverage in the interviews. However, this has significant potential for helping to create well-being.

> … And then in the meantime, well, when I need to calm down, I'll listen to some pieces of music from there. (ET_F10_child)

> But mostly, for example, I watch some yoga videos or some meditation things or some motivation things. (ET_F4_mother)

The availability and use of DT was associated with people's **stress levels**. It was described how DT can cause stress by being very demanding of people's attention and constantly signalling in different ways.

> … I think what could be the case that these devices do not constantly signal themselves. For example, some battery discharges, things that come to our consciousness every day, some signals that we, well, that our ancestors did not have to endure. One of the things is the invisible waves that are likely to affect us. But the other is like a physical 'beep' or 'I want to eat' or 'I want to …' (ET_F2_mother)

On the other hand, it was described how against the background of high stress levels, people often start overusing DT, which in turn adds tension.

> It seems that it is also related with some stress level. That if there is a more stressful time, it seems to me that it is easier to forget and drown yourself on the phone… (ET_F4_mother)

3.4.6. Health

In various interviews, by far the most widely covered topic was health and the possible impact of DT on it. The established sub-topics unambiguously concern only the problems and the harmful effects on both physical and mental health.

One interview highlighted the impact of DT on the increase in **health problems in general**, and it concerns both physical and mental health, the individual as a whole.

> The health problems of children are already so great that, let's say, probably if there were no digital world, there would not be so many health problems. (ET_F10_mother)

In the interviews, both children and parents pointed out that the use of DD (especially overuse) can be **harmful to the brain**, especially to the development of the child's brain, so the use should be restricted. Children seem to have shaped their understanding based on information received from parents.

> And I think that for children, maybe it's a biological effect when you're in the field of influence, because it has been studied how it affects nerve cells in the brain. (ET_F3_mother)

> Digital devices are… very, very bad for the brain… Mother has told mostly. (ET_F6_child)

Even more than the damage to the brain, in the interviews the **damage to the eyes** caused by DT was pointed out. Adverse effects on the eyes was the most intense sub-topic of all in the interviews. This was more pronounced in interviews with children, but was also mentioned repeatedly by adult family members.

> Great fatigue, strain on the eyes and on the head, but above all the eyes are suffering, because it is first and foremost visual, let's take anything—everything has to be looked at and focused quickly. (ET_F9_grandmother)

Excessive time and inadequate screen size were considered to be harmful factors.

> … If you're too much on the phone or on TV or somewhere, you can, just like it hurts your eyes a lot. (ET_F10_child)

> Since the phone has such a small screen, which is extra bad for the eyes, I use it as little as I can. And watch TV as much as I can. (ET_F6_child)

In the descriptions of the ways it is harmful to the eyes, fatigue and pain in the eyes, getting glasses and vision impairment were mentioned.

> Mom once looked at the phone with a flashlight at night and looked at the book, and then she got blind and that's why she's wearing glasses right now. (ET_F1_child)

> … if I looked too much, I would have glasses and I don't like glasses. (ET_FG7_PS)

Another health-related topic with intense coverage during the interviews was **digital addiction and overuse**. Both children and adults pointed out that getting stuck in DT is very easy. Digital addiction was widely known already among pre-schoolers; however, they mostly talked about their older siblings or friends.

> Addiction, this is easy, fast entertainment is very addictive. (ET_F6_mother)

> This [computer addiction] means that they can't get rid of it, that they just don't want to get

> rid of it, that they can't be without a phone for a minute or a second. (ET_F1_child)

Addiction was thought to develop very quickly, but also to disappear fairly quickly after use of DT is restricted.

> … And when they get it for a while, it's so addictive in five minutes that we have a lot of crying and arguing after it to explain why they can't be behind this game indefinitely. (ET_F1_mother)

> No, my brother had an addiction recently, or not recently, but actually a year ago. Father and Mother have begun to limit it… But yes, my brother quickly got rid of this addiction. (ET_F6_child)

The term 'addiction' was used very often, even when just referring to overuse. Children referred to overuse using terms like 'telephone poisoning' and 'smart-disease'.

> But I know one more thing… You can get a smart-disease. A boy has it. He's on the computer all the time; he doesn't go out at all… Just goes for a while. Eats a little. (ET_FG5_KG)

Quite often, children described the excessive use of DT by their parents, and adults also admitted that they are bad examples for children in this respect.

> And in fact, I think adults are also relatively addicted to it. (ET_F10_mother)

> I think such a smart addiction, at least in our family, it's more like on an adult level. (ET_F7_mother)

> Certainly, I think you've been sometimes too long on the computer or on the phone and on TV, too, because actually you're too much, especially my father. (ET_F10_child)

> Mom has been watching a lot all the time. She is watching all the time, almost. So, Mom is watching all the time sometimes at night, she is watching every day. (ET_F6_child)

From the parents' interviews, the sub-topic of **anxiety and nervousness** emerged as a mental health problem related to the use of DT. It was also mentioned that it causes in children **insecurity** and poorly controlled emotions (such as anger).

> I don't like that it seems to me, for example, it makes myself, or it seems to me that it sometimes makes my daughter a little anxious after you have been watching something for too long … (ET_F4_mother)

> … my biggest fear with these excessive digital things is, you see, the anxiety that arises in children … Maybe well, these things all affect us on a neurological level. (ET_F7_mother)

> … I think that social skills are perhaps weaker in this generation, who, as it may be, communicates more somewhere through chat windows. (ET_F5_mother)

> … You can get nervous very easily there… For example, when you play a game called Minecraft, then if someone kills you there, you get so nervous. (ET_FG6_PS)

As another sub-topic about harmful effects on health, the interviewees pointed out **sleep problems and general fatigue** due to the use of DT, including Zoom fatigue.

The possible negative effects on sleep quality of screens used immediately before going to bed

or falling asleep were highlighted, as well as the fatigue caused by excessive use of DT at the expense of sleep time. The important role of the parent in regulating the child's behaviour in this regard was discussed.

> ... in fact, this blue light and all in the evening that it can disturb sleep and disturb falling asleep. (ET_F4_mother)

> And the child can't sleep well because tomorrow is kindergarten day and he can't sleep well because he's on the phone. (ET_FG5_KG)

3.5. Results related to the methodological approach

3.5.1. Venues and rooms for the interviews

In general, schools and kindergartens were considered suitable places for conducting focus group interviews. These are familiar and safe everyday environments for children. However, it was noted that noise and distraction (e.g., loud voices during the break at school) behind the room door could interfere with the interview.

Regarding the room settings for focus group interviews, the most important thing addressed was to have eye contact with all participants, regardless of the overall layout or arrangement of furniture in the room. For example, a child sitting next to the moderator could get less attention in terms of eye contact in comparison with a child sitting in front of her at the table.

It was pointed out that there should not be too many things in the room, especially for kindergarten children, as children can be easily distracted during the interview. Consequently, at first glance a child-friendly and cosy room with toys and drawing instruments may not be the best choice for a focus group interview. Additionally, the room should be of the right size, as excessively large rooms can feel uncomfortable.

Moderators had different opinions as to whether it was preferable to sit behind tables or to sit on the floor. In some cases, when sitting behind tables, it was later noted that it would probably have been more comfortable to sit in a circle with children on the floor. Some kindergarten interviews were conducted while sitting on the floor on pillows. At first this was perceived as comfortable, but children seemed to lose focus more easily in such conditions. However, it was definitely disruptive to sit behind folding tables (school desks) as children clicked with the flaps.

Most of the interviews with family members took place in the home environment, which was very suitable as the home provides a sense of security. At homes it was easier for the interviewers to observe the relationships between family members. One family interview was conducted outside the family's own home. The interviewer reflected on this as a shortcoming, because it was not possible to see the home environment and to observe the everyday communication between family members. One family interview was conducted on Zoom. According to the interviewer, this interview did not particularly succeed, mainly due to the lack of contact. It was especially difficult to conduct the interview on Zoom with the child (8–10-year-old girl). Her answers remained very brief, and she often answered 'I don't know' to fairly simple questions.

3.5.2. Dynamics of focus group interviews

For schoolchildren, the suitable focus group size was six children, but for pre-schoolers in kindergarten this was too many. In one kindergarten focus group, only three children participated and this was considered very suitable, as everyone got enough attention and could talk equally.

More children in the group made children noisy and later it was difficult to hear from the audio-recording what was said.

For most moderators and assistants, interviewing children (especially younger five–six-year-old children) was a novel experience. This may have influenced the dynamics of the focus groups, including the formulation of the questions. However, everyone confirmed that this experience was interesting.

The focus group as a method was considered suitable for researching and understanding children's perceptions both at kindergarten and at school. Almost every focus group had a more dominant participant, which raised questions about the appropriate moderation of the focus group, but not about the focus group itself as a suitable method.

In general, children were willing to share their experiences with DT; they listened to each other and sometimes tried to 'beat' each other (about who knows more about or has more experiences with DT). They also complemented each other, sometimes agreeing with what had already been said and sometimes refuting it, explaining things according to their understanding or experience.

In most cases, the contact between the moderator and the focus group was assessed as very good or excellent from the very beginning. The following keywords were mentioned as characterising the moderators: 'active and explanatory', 'supportive and encouraging', 'friendly and supportive', 'took equal position' and 'expressed sincere interest and respect'. It was valued if the moderator instructed children clearly and fluently, allowed the whole group to speak, told them to speak one-by-one and avoided being too directive. However, in some cases the moderator could have been even more directive (e.g., when children were unfocused and did not listen to each other). It was also noted that in some cases the moderator could have asked more follow-up questions.

The role of moderator was especially ambitious in the kindergarten focus groups because it was difficult to keep children's attention, especially towards the end of the interview. For example, there were situations where participants stood up and moved around the room, and on a few occasions the moderator had to invite them back to the focus group. This happened mostly towards the end of the interview, when the children had already become obviously tired.

It was also pointed out that the moderator could have been more confident and clearer when introducing the study and giving instruction (e.g., when distributing stickers). In some focus groups, the moderator gave instructions in a too-uncertain or complicated manner, which took too long a time. Thus, clear and fluent self-expression is very important in focus groups with children.

Introducing the study to children, especially in kindergarten, was time-consuming and quite complicated. There was question as to how to introduce the topic so that children received enough information and understood what it is and what they would consent to and, at the same time, how to avoid annoying children with excessive information. Clear and fluent language use by the moderator was crucial here. It was felt that a preparatory separate introductory session for giving information about the study and for obtaining informed consent forms from children might have been a good idea.

3.5.3. Dynamics of family interviews

Regarding family interviews, there were different experiences and assessments. Some said the interview with the child was interesting, but too long. For some interviewers it was difficult to create contact with children who were timid, restrained and less talkative. For others, the

interview with a child was good experience of free communication.

There were surprising moments with children in family interviews. For example, during one interview the child wanted to share his real-world games and toys with the interviewer and talk about his special interest in space and stars. It was difficult to keep him on track of talking about DT. Sometimes it was needed to get the children to open up by talking about things that were important to them (e.g., drawing, cartoons, pets), but as the interview time was limited, it was also important to find ways to make them talk openly about DT.

Particularly in the case of less talkative children, the interviewers asked themselves how to create connections with children who are taciturn, how to reach them and how to get their opinion. Thus, during the interviews with children the interviewers learned much themselves. It was found that in the case of a timid or closed child, the role of clarifying questions and explanations is very important. This also means that the interviewer's listening skills are very important. Even minor non-verbal gestures by children should also be noticed.

Interestingly, talkativeness of the child may not indicate whether and how much the child liked the interview. One may think that if the child was not talkative, it was possibly because they did not like the interview because it was perhaps too tiring or difficult. However, in one interview where the child was not talkative, he said later to his mother that he had a very interesting conversation and that he liked to talk.

It was found that silence can be constructive and useful in some situations. For example, in a family interview, when the interviewer remained silent and was not sure what to ask next, the boy broke the silence. The boy was generally not very talkative, but at that moment he started to talk about very relevant and interesting things about DT. Thus, the situation showed that interviewers should not be afraid of silence, because it may activate children.

3.5.4. Reflections on interview methodology

The overall structure and content of the interviews worked well. However, for family interviews it was more difficult to talk with children about topics related to family relationships, agreements or possible conflicts. These topics seemed to be too personal and perhaps longer preparation time for creating more trusting relationships would have been beneficial.

It was difficult to find a suitable word in the Estonian language for DT that would also be familiar and easily understandable for children. The prefix 'smart' could possibly be a good option, because the children used this word quite often.

The pictures of DD and applications worked very well for all types of interviews—focus groups in kindergartens and schools and family interviews with children and adults. Using pictures (visual material) encouraged children to tell stories and stimulated their fantasy. However, it was also pointed out that there were too many pictures and for some children (especially in kindergarten) the pictures were too abstract and difficult to understand.

It was a question for many interviewers whether to show the pictures one-by-one or spread them all out in front of the children or family members. Both options were tried. Showing pictures one-by-one was more time-consuming, but then it was clear what the respondent was talking about. Showing all pictures at the same time encouraged respondents to start talking about those DD that are the most relevant and interesting to them, but sometimes it was confusing for them where to start from. Additionally, it was difficult afterwards while listening to the audio-recording to understand which DD the respondent was talking about.
While interviewers tended to agree that pictures about DD were appropriate and supportive

for the interviews, opinions about situation cards differed much more. The relevance of using situation cards for kindergarten children was raised the most often. Several interviewers thought the **situation cards** were too abstract for children in this age group and therefore remained incomprehensible to them. In case of interviews at school, the assessments were much more positive. Situation cards stimulated storytelling, fantasy and imagination in this age group. For both groups it was mentioned that situation cards guided children to talk about the rules at home. It was also remarkable that situation cards encouraged children to talk about their feelings.

The most complicated part of the focus group interview was using **emoticons** (smiling, neutral and sad face) and putting **stickers** on them to express children's attitudes and feelings about situation cards. Especially for kindergarten children, this task was too complicated and considered by reviewers unnecessary and not helpful. Giving instructions was time-consuming and the whole process was cognitively challenging for children (instructions included: look, think, put sticker, do not talk before you are told to, now say why do you made this choice, etc). The emoticons and stickers on them were confusing and sometimes children did not understand until the end what was expected from them.

The **role play** was considered as an appropriate part of focus group interviews that caused an interesting change in focus group interview dynamics. It lifted the mood and attracted children's interest and attention. It was assessed in both kindergarten and school focus group interviews that the role play and children's reflections regarding this should be the very last part of the interview and that no more questions are needed afterwards.

3.6. Summary and conclusions

In Estonia, DT and all kinds of smart devices and apps are widely accessible and used within families and by small children. We did not see notable inequalities between families with different socio-economic backgrounds. People use different functionalities, but this is not because of poor availability of DT, but rather personal choice or ignorance.

It is self-evident that DT has become an essential part of normal everyday family life and it is therefore also a part of children's normal daily life. The way we interact has changed and it is a norm today that we use DT to mediate and facilitate communication. It can be even said that DT contributes to providing human needs as described in the classic pyramid by Abraham Maslow:

- Physiological needs: online shopping, ordering food, having rest and entertainment
- Safety needs: calling for help, getting all sorts of information, staying informed of the COVID-19 situation, working from home, distance learning
- Love and belonging: staying in touch with extended family and sharing life events, feeling satisfied and safe from knowing you are not alone, preserving history and memories, communicating with friends living far away
- Esteem: exchanging information, posting life pictures, seeing what your acquaintances and friends are doing
- Self-actualisation: learning new things, activities that support development, working out, meditation

It was interesting to see how children reacted on a request to imagine life without DT. The spontaneous reaction was: 'That would be the end of life'. Then they normalised the situation and admitted that such a life is hard and sad but doable. Finally, they also found positive sides to such a situation ('It's so much fun'). The spontaneous reaction shows how naturally DT is integrated into children's lives. However, adults also acknowledged that although their

generation remembers life without DT, they would not appreciate life any more without those small amenities DT can provide.

There is a need to find balance between real life and digital life. If children are given a choice and the choices are equally interesting, they do not necessarily prefer just sitting and using DT. They like to go out and do things together with their parents, siblings and friends, either with or without involvement of DT. It is possible that use of DT in general is not so much desired by children themselves, but a normal part of their socialisation process into the digital world. Children need to be socialised into the digital world, step-by-step, similarly to the way they need support and guidance in the general socialisation process. They cannot do it on their own and the best and safest guides are parents, but also other family members (grandparents, siblings). The digital world is a separate world, but it is also a social world. Without integrating the digital world into their lives, children may feel isolated from their friends and from the shared field of meaning. Socialisation into the digital world allows children to participate, learn and communicate safely using DT, and is a part of learning general life skills.

A smartphone for a child seems to be a status symbol in the sense that getting a smartphone is associated with going to school. It does not matter so much if the smartphone is better or worse, newer or older; the fact of owing a smartphone means that the child has grown up. Similarly, having less restrictions while using DT can be meaningful as symbol of children's growing up process. While growing up, children's DT use reflects their leading activity of their developmental age period (from playing in pre-school age to learning activity and peer interaction in schoolchildren).

The role of parents in the digital era is challenging, but general rules and parental guidance actually seem to be similar in the real world and in the digital world. However, when parents raise a child in the real world, they can rely on intergenerational experiences and use the tools they have learned and embraced from their own parents. However, when raising a child in the digital world, they do not have this collective intergenerational experience. This can make parents feel helpless, as there are no routines; they have to invent something new every day. Parents need to be open for their children's developmental needs, interests and wishes. This needs copious parental time and commitment. At the same time, parents themselves need good practices and guidance.

Parents are the most important role models for their children. Often the parents admit that they are not very good role models. Even if parents understand that certain habits of using DT are not good (scrolling through a smartphone too often, headphones on when the family is at home together), they are not able to behave otherwise. Children are observing and learning from their parents how to use DT in their everyday life. It is not only what children see, however. Parents need to explain the background of their behaviour using DT. For example, for children there is no difference whether the parent is working or scrolling randomly—to a child, the parent sits with the computer. Parents should involve children and explain what they are doing there and why.

Sometimes DT are used to replace parents in families' everyday life—as a babysitter and as an entertainer. For children, the accessibility to DT is good, but accessibility for parents can be poor. DT should not be used as a replacement for family interaction and quality time spent together. Further, in some environments and applications in the digital world there is a gap between generations (e.g., TikTok is used by children and Facebook is used by parents) and family members are not aware of each other's activities there. Some parents may also consider the digital world mostly as a dangerous and frightening place, and this attitude is reflected in children's understanding.

Parents seem to value more the rules that are clearly measurable. For example, most of the rules about the use of DT are about time: how much time children can spend using different types of DT. These rules can be based on parental fears (e.g., DT is bad for the eyes and brain). It could be noticed that parents sometimes overregulate the use and set the limits where it is not absolutely necessary. Parents also like the applications that can monitor something—time when using DT or the child's journey between school and home. To avoid conflicts between children and parents, it is easier for parents to use apps and tools that automatically control and limit the usage of DT. However, the balance with the human touch is still needed and the restrictions should be reasonable and justified, not dependent on parents' mood and cognitions at the present moment.

Sometimes the rules are not predefined, but emerge on an ongoing basis from a specific situation, developed by parents based on trial-and-error method. There is a need to find balance between rules and flexibility and it would be easier if the values related to the digital world led this process instead of needing to invent precise rules. One can be flexible in rules if one knows the values. Above all, the parents should first be educated, and then children.

Within Estonian families, the DT-related rules are created by parents, and children are mostly not involved. However, children should be involved as active agents in both the socialisation process into the digital world and in negotiating and creating rules about their everyday activities using DT. They are actually very cooperative and they deserve to be involved as equal partners, as it is their life that is of concern. Children are actually sometimes even more aware than their parents and bring ideas and wishes related to DT into family life that parents do not even know about. As we could see from the interviews, children are often the ones who teach their parents and call parents to order if they misuse the DT. Children expressed the opinion that even if they may not like the rules, the rules are good and necessary. However, children may not yet have the cognitive maturity to make complicated choices and set their own boundaries. If children have to make decisions, they also have to be ready to take responsibility, but obviously they are not ready for that yet; they need a supportive structure provided by parents.

Within everyday family life, the benefits of DT and especially joint and creative activities using DT are highly valued. Children and other family members can learn using DT (e.g., educational programs and apps, tutorials), but even more importantly, they can interact through it. DT is used as a possibility to continue communication between extended family members (children, parents, grandparents) in situations where face-to-face communication is not possible and calling by phone is not interactive enough, for example, during the COVID-19 lockdown period and when parents are on a trip.

Although joint activities using DT are valued both by children and parents, most of the activities using DT are still individual. Joint activities require parents' initiative or at least an immediate response by parents to a child's invitation, as then the child has an interest and enthusiasm to participate in these activities. In joint activities it is important to create common narratives and share them (e.g., taking and watching photos of family events and trips). Further, the emotional component is very important. Children's reactions to the situation cards during the focus group interviews demonstrated that using DT together with their parents or with the whole family brings them much joy and that they wish to use it more in this way.

Some engagements and activities using DT are especially attractive for children. Children were fascinated by robots; they would like to use them for learning purposes and for enriching interaction, complementing everyday communication so that they could have more choices. Children multitask in their digital life and gaming is very important to them. If the time for using DT is limited, they start with gaming (and not with doing their homework), because this is what matters most to them. However, children are not passive DT users; they are actually very interested in learning new things (e.g., language, mathematics) and creating new things

themselves (e.g., robotics). Involving DT can enrich the ways in which children learn, including learning by playing. Even small children are ready to accept DT in curricula, for example, robotics in primary school.

The intelligence of children in the digital world is also confirmed by the fact that they create new language that, in turn, reflects the creation of new knowledge related to DT. Several new words were mentioned in connection with smart devices—for example, smart-disease, smart-poisoning, smart-hunger. Apparently, the children have negotiated and practiced these words in their peer groups before bringing their 'smart-world' into the world shared with adults.

A significant proportion of studies about children and the Internet during the past decades has addressed security issues with the main message that the digital world has many dangers and may therefore not be a safe place for children. Our data showed that such a narrative of security issues has become less prevalent; at least it is not the main concern children and parents have regarding DT. In the contemporary world the main question is not whether to introduce the digital world to children, but how to introduce it wisely. There are concerns that younger children may have difficulties in distinguishing real life and digital life. Therefore, parental reflections and explanations are of great importance, including challenges related to TikTok and YouTube. Interestingly, both parents and children perceived DT as a tool that ensures security, because one can call for help at any time or observe where the children are.

Besides security issues, many beneficial and harmful effects of DT were reflected in the interviews. Often these effects were not described dichotomously as black and white situations, but rather several DD, functionalities and apps could provide both harmful or beneficial effects to the same aspects of life or be neutral, depending on the context. For example, DT can be beneficial for holding and creating relationships, but it can also be damaging to relationships. It was perceived by parents that seeking information is a wonderful thing DT has brought into their lives, but being dependant on it could lead to destructive behavioural patterns. The need to keep balance in life regarding DT was one of the most important observations.

Harmful effects of DT on people's health were a predominant concern. This concern can be justified and may refer to high awareness. However, it may also be a sign of moral panic and exaggeration of problems. Parents may overreact to the present situation related to DT and think about future threats, and they may have fears about the future that are transmitted to children, for example, 'urban legends' about getting glasses because of DT use (small screens are bad, big screens are better) and developing addiction quickly. However, the potential of DT in reducing stress and promoting well-being seems to be understated.

Some conclusions can also be drawn about the methodology tested within the DigiGen study on small children. The best place for interviews is in a setting that is familiar to children (home, school, kindergarten). Interviews in an unfamiliar place or on Zoom were perceived as less comfortable. Because children's attention is less persistent and they can get tired quickly, it is of great importance to structure the interview wisely and keep the length of the interview reasonable; for example, a maximum of 30 minutes for focus groups for pre-schoolers and 45 minutes for primary schoolchildren. The formal introduction part should be conducted shortly, clearly and precisely. If possible, a separate preliminary meeting with children could be organised for that.

It is important to be sensitive to children's language and be prepared to negotiate with them central terms of the study. For example, it was challenging to explain to children what DD are. It is important to find out at the very beginning of the interview which words represent DT most appropriately and understandably for them. For that purpose, the pictures with DT and situation cards prepared for the DigiGen study were extremely helpful. However, it has to be considered carefully what a reasonable number of pictures is and, how to integrate showing

pictures naturally into the interview: by showing them one-by-one or by showing the whole set of pictures at once. There is no right or wrong answer; pros and cons were noticed for both options. For some children (especially younger ones) overly abstract pictures might be difficult to understand and realistic images could be more helpful. Another option could be that children draw pictures themselves.

Additionally, interviewers should be aware of children's cognitive abilities at particular ages. Small children are interested in talking about their life and are happy to reveal their personal experiences, but it might be difficult for them to answer the questions about what children at their age might generally think or feel in a certain situation. It was also cognitively challenging for smaller children to understand and follow the instructions regarding tasks where situation cards, emoticons and stickers were involved. Such tasks are interesting and may provide valuable data difficult to obtain otherwise, but overly complicated and time-consuming to implement. It should be considered carefully whether the benefits outweigh the time, or perhaps the tasks can be organised in a simpler manner. In general, it seems useful to integrate into the verbal interview for more interactive tasks; for example, role plays at the end of the focus group interviews worked very well.

4. Case Study: Norway

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4.1. Introduction

Across Europe, children from a very young age quickly become familiar with a range of digital technologies from smartphones to laptops and tablets. Many of these are an integrated part of family life related to, among other things, leisure activities and organising daily family life. This means that children from an early age are building a fundamental relationship with digital technology (sometimes referred to as digital media) that will remain with them and continue to develop throughout their lifetime. As more and more of our lives become dependent on digital technology, it is important to understand how this relationship is managed in the developmental process as related to the everyday lives of children and young people and to fully apprehend the relationships they have with others and the broader society around them. For Bronfenbrenner (1979), this is related to *processes* of human development, and this 'process' can be explained by the connection between some aspect of the context (e.g., culture or social class) or some aspect of the individual (e.g., gender) and an outcome of interest (Bronfenbrenner, 1988; Bronfenbrenner & Crouter, 1983). In his later work, Bronfenbrenner defined this as the *proximal processes*, pointing out that this is the key factor in development (Bronfenbrenner, 1994, 1995, 1999; Bronfenbrenner & Ceci, 1994; Bronfenbrenner & Morris, 1998). The proximal process involves enduring forms of interaction such as playing with a child, reading or learning new skills such as learning to use digital technology (DT). Through engaging in these types of activities, children and young people are able to make sense of the world around them and understand their place in it, while also playing their part in changing the current order and simultaneously fitting into the existing one. Closely linked to this is the work by Vygotsky and his view on the role of parents. Nikken and Schols (2015) point out that:

> In accordance with Vygotsky's (1986) theory on child development, parental mediation is seen as a key strategy in developing children's skills to use and interpret the media, foster positive outcomes and prevent negative effects of the media on children. Physical, emotional and social experiences, such as media use, and social interactions related to these activities with parents and siblings, provide a scaffold for the child's development, especially when they occur within the child's zone of proximal development. (Vygotsky, 1986: p. 3424)

While scaffolding is an important part of the development process, Ólafsson et al. (2014) point out that little attention is paid to the role of parenting in the use of digital technology by children, with even fewer cross-national studies. It is crucial that we recognise that children and youth today are growing up in a world surrounded by evolving ecosystems that are heavily influenced by digital technology. This technology has changed the way children and young people live and learn. This has become even more apparent during the COVID-19 pandemic. Yet, questions arise about equity issues and the digital divide, including unequal access, affordability and skills (next-generation digital divides). While access is essential, it is also meaningless without a focus on use, skills (competence) and the learning lives of these digital citizens. The result is that technological transformations may leave some children and youth behind and in turn contribute to an increased digital depravation.

The questions we aim at addressing in this work package include the use of ICTs by individuals and in the family context with a focus on the devices available and their use in the home environment and out-of-school context and the type of activities family members use software applications for. We are also concerned with examining negotiations, rules and conflicts around

ICT use. Finally, we aim to understand both the potential harmful and beneficial effects of digital technology on the family system and individuals. This country report focuses on the Norwegian data that include ten family interviews and ten focus group interviews.

4.2. Norwegian Sample and Data

Our data comprises focus groups with children on the one hand and an individual interview with children and at least two further family members ('family interviews') on the other hand. To conduct our empirical research in Norway, we tried to reach families and children with different socio-demographic backgrounds. Initially, we aimed to recruit families for the individual interviews and children for the focus groups through schools and kindergartens. We sent out information about the study and asked the institutions as gatekeepers to distribute this information among parents. However, due to COVID-19 restrictions, the institutions were overloaded, and the recruitment process, to some degree, stranded. In addition, the institutions contacted were not able to help us with rooms and spaces for the focus groups due to restricted outside access to visiting the institutions in the first months of the fieldwork. By exploiting the networks of all researchers involved in the Norwegian team, we contacted parents and other relevant persons to assist us in distributing our call for participation among their peer networks.

This snowball sampling resulted in a diverse selection of families from eastern and south-western Norway. We ended up with a sample of participants from both urban and rural (or suburban) areas in two significant regions of Norway. Further, our sample includes families with diverse sizes, structures, and family forms: families with children living in two households after their parents had divorced; families with three or more children; and families representing the nuclear type. Our sample involves families from different socio-economic areas and with high and low income and varying levels of education. The sample also includes multicultural families, with one or both parents having been born outside of Norway or having an immigrant background. According to the Norwegian definition, those who are Norwegian-born with immigrant parents are considered as having an immigrant background. As we also asked the child's parents to fill out a short questionnaire in the case of family interviews, we can provide more background information on our sample of families: the parents' educational background reflects significant variance and ranges from lower education (equivalent to a High School education) to academic education with a doctoral degree.

Some of the focus groups were also recruited through a snowball sampling approach. Four of the focus groups were organized by parents, recruiting friends and schoolmates of their child, and these were conducted in private homes. During the last phase of our fieldwork, the pandemic restrictions in Norwegian institutions improved, allowing us to visit institutions. We were able to visit three kindergartens and one school where the kindergarten manager or the teacher recruited children for the six focus groups.

While all focus groups were conducted face-to-face, some interviews with family members, both with adults and children, had to be carried out with video (via Zoom) calls (five out of ten families). However, even with kindergarten children, this interviewing method turned out to work well, both in terms of researcher-child-interaction and in content and narrations evoked by this interviewing technique. Nevertheless, these interviews only offered limited insights regarding observations of the family background, environment, and family communication.

Regarding the focus group data, we approached children's perspectives in discussing with children aged five–six in five focus groups and children aged 8–10 in five focus groups. In total, 14 children aged five–six (nine girls and five boys) and 18 children aged 8–10 (nine girls and nine boys) participated in the focus groups. Three groups with children aged five–six were gender-mixed, and two of the groups aged five–six had participants of the same gender, both

with girls. Due to a last-minute illness, one of the focus groups for this age group had only two children. One of the groups with children aged 8–10 was gender-mixed, and four of the groups aged 8–10 had participants of the same gender, two groups with boys and two groups with girls. The groups consisted of three to six children each. We felt the size of the groups allowed sufficient room for discussion and provided an opportunity for all the participants to be heard. The focus groups took place in urban and sub-urban areas with participating children with diverse cultural, socio-economic and family backgrounds.

Regarding the family interviews, we recruited seven children aged five–six, of which two were girls and five were boys, and a total of seven children aged 8–10, of which four were girls and three were boys. We further interviewed at least two other family members of each child. In all the families, we interviewed the child's mother; in four families, we also interviewed the child's father. The child's sibling was interviewed in six cases, and the child's aunt in one case. In one case, the youngest child and the elder sibling did not want to be interviewed via Zoom when we connected. In that case, we did a group interview with the mother and the two children. We continued interviewing the mother when the children lost their interest and moved on to other activities. While this last interview was not according to plan, we believe it gave us many unique insights, such as when the oldest daughter challenged the mother with her thoughts that were very different from what the mother initially thought.

4.3. Results related to ICT and its Role within the Family

Digital technology is a part of children's everyday lives, whether they have access to it or not (OECD, 2019). For DigiGen, and in particular for the Norwegian context, access is less of a challenge than in other countries (Ayllón et al., 2021). Once access has been established it is important that citizens have the capabilities to make the most of digital opportunities and of the Internet (OECD, 2018). For children and young people, this is even more important as they spend more and more time online, perhaps surpassing the time spent online by their parents (Ofcom, 2019). As a result, children and young people may experience both more benefits, but also the risks of being 'connected'. However, the time spent online means that children and young people are gaining new skills that may help them tackle the digital world.

The increased use of digital technology also means that written texts and reading and writing practices are changing. We are seeing an increasing move from paper to the screen, from reading physical books to audiobooks and from written texts to pictures (Bolter & Grusin, 1998; Gee, 2003). For children and young people, these changes necessitate developing skills and knowledge on how to safely use and navigate digital environments while simultaneously reaping the benefits as well as the competence to read texts and pictures in these new digital arenas (Gee, 2003), often referred to digital literacy[3] or digital competence (Erstad et al., 2021). According to Ilomäki et al. (2011), digital competence is used to

> …describe the skills and competence of using digital technologies, such as ICT skills, technology skills, information technology skills, 21st century skills, information literacy, digital literacy, and digital skills. These terms are also often used as synonyms; e.g. digital competence and digital literacy. (p. 1)

In our research results, we attempt to show how children in two age groups are beginning to develop digital competence through the use of technology. As avid users of technology, it is often

3 Another term commonly used is 'digital competence', which, according to Erstad et al. (2021), is a more commonly used term in the Nordic countries and in their view 'is broader in conception than [other terms such as]…skills, literacies and bildung' (p. 78). In this country report from Norway, we have chosen to use 'digital competence', but we will also, when appropriate, refer to digital literacy

assumed that children and young people deal with and relate to digital technology in different ways than their parents and grandparents (Tapscott, 1998). In this country report, we aim to uncover how children in the two age groups of five–six and 8–10 use digital technology, but also the relevance of it in their everyday lives, and in this way contribute to further developing our overall understanding of digital competence.

4.3.1. Children's own use, access and relevance of DT

Children in Norway relate to DT in various ways from an early age. They are familiar with a wide range of technology, like computers, tablets, gaming consoles and smartphones. Their use varies depending on how their family positions DT as a part of everyday life. Family values also affect how and when children can interact with DT. In this part of the report, we will focus on how children themselves experience DT as a part of their life based on what they told us in the focus group and family interviews. When relevant, we will include voices from parents and other family members in order to provide a more comprehensive picture.

4.3.1.1. How children use DT

In the Norwegian data, we find not only that children from the age of five–six already show a great interest in digital technology, but also that the range of use in devices, games and applications (apps) is impressive. The five–six-year-olds we spoke with described using their devices, mostly an iPad/tablet or Nintendo Switch, together with their siblings and to a lesser degree with their parents. They are dependent on the willingness of other family members to interact with other persons. Such interactions happen more often when they use gaming consoles like Nintendo Switch and Xbox than when they use tablets. As a consequence, many of the children in this age group mainly use DT alone, as an individual activity.

Their elder siblings, on the other hand, play and interact online with friends, but the five–six-year-olds seldom have access to peers through their digital devices, or they do not have access to games or apps that allow them to interact with others (friends) as we find for the older children in the data we have from the family work package. The games they play are mostly for entertainment purposes even though some of them are labelled as having pedagogical content. On tablets, they describe playing games or using Netflix or other apps with children's series and movies. Only one child tells us that she plays online with friends (NO_child 6 year). Consequently, the younger family members are more isolated in their families than the older ones, and more dependent on the company from their family members when at home, because they, to a very small extent, can communicate with peers through digital devices. Such an approach to digital use is only slightly reflected upon by parents. Instead, parents generally describe digital use in terms of education and time spent when the youngest children operate digital devices on their own (i.e., screentime).

Access to digital technology by children in the age group 8–10 in the Norwegian context is relatively straightforward. The children we spoke with all had access to devices that either they owned, their parents owned and in some cases were from their schools: 'I do have my own tablet. And a computer, but the computer is only for schoolwork' (NO_child age 9). This child went to a school in which a Chromebook laptop was provided, and the parents confirmed they had many digital devices in the family as a whole. Other children were enrolled in an 'iPad school' where each child is provided with an iPad from the school. There also appears to be a clear division between devices for children in this age group as iPads or tablets and mobile phones are used for free time and to relax, but the Chromebook is used for school and 'I never use it during the weekend' (NO_child_age 9_girl). This clear distinction between the tablets belonging to their

school and the tablets belonging to them and their family was evident in several of the focus groups and family interviews. This means that developing digital competence, through the use of digital technology, is supported first and foremost at home with increased support coming from children's schools as they get older.
Other children in this age group have access to DT as well, but to fewer devices. In these families there is more restrictive and controlled access to DT. One child, aged eight, explains how she does not have her own mobile phone yet, but she has used her 'mother's phone to play games on or during the COVID lockdown I was allowed to use it to call my friends… and I got a PC from my dad that I use to play games on, listen to music, draw and write with, but I don't think I have Internet on it; at least I have not used it for that. My friends have Google and stuff, so I have seen it there. We do have an iPad I share with my (brother) but it belongs to mom and dad' (NO_child age 8_girl). This child is from one of the families we would describe as more restrictive and having more controlled access to digital technology. This child also attends an iPad school, but the school iPad appears to be used only for school activities and has limited apps installed such as a Norwegian language app for learning Norwegian and other learning-related apps. Other children, like one of the boys aged nine who we spoke with, has even more restricted access to devices: 'we have Wii and I can play a bit on the weekends or when I am at my friends'. We can play games on PlayStation or Xbox or I can use my dad's iPad, which I like better than using my mom's since my dad has installed games I like' (NO-child age 9, boy). This boy went to a school with less focus on DT and had no access to a tablet from the school.

While some of the children have access that is limited to devices, others seem to have access to an online world as well, through gaming online with friends, Googling information (NO_child_age 8) or even just watching YouTube (NO_FG_PS) or TikTok videos (NO_FG_PS). Some children, like this nine-year-old, have access to and use several devices 'I have an iPad, Chromebook and a mobile-phone…The iPad I see when I am at home and the Chromebook there I got from school and I use that at school or for schoolwork, while the phone is always handy in my pocket' (NO-child age 9, boy). For one of the nine-year-old girls, gaming on her phone is something she does frequently with her friends. 'We play *Roblox or Blockstar*. On *Roblox* we like many different games like "Tycoon" or "Adopt Me"'. While "Adopt Me" revolves around adopting and caring for a variety of pets, some of the pets can be purchased with Roblox virtual currency called *Bucks* or *Robux*. Tycoon involves players having a base, usually a business or company, and they need to earn cash and spend it on upgrades for the company. Both games involve content purchasable through the use of Robux. It has been possible to purchase with Robux since 2008, as well as to earn these through the games. To what degree buying Robux takes place for this age group is not something we have followed up on with parents, but we have been told by many of the boys who play Fortnite that they do buy lootboxes and skins in the game. Some parents mention that the children have to ask them if they want to buy things in the game or if they want games costing money. In one of the families, the mother told us they filled up the child's account in the app store so that he himself could decide what he wanted to spend his money on (NO_mother). This was confirmed by the boy (NO_child_9 years), even though he was less specific about where the money came from, but he knew that he had some kroner to use. Furthermore, several of the boys in the 8–10 age group mention having a handy mobile phone in their pocket, which allows them easy access to playing games with friends when they are outside together or situated in different locations.

While both five–six and 8–10-year-olds have access to a range of devices such as tablets, laptops and some even a mobile phone, access to applications and platforms including Snapchat and YouTube, with a few having seen or are using TikTok, is more common for 8–10-year-olds. None of the children in either age group use Facebook and only a couple of the 8–10-year-olds have been on Instagram. There were only a few of the children who did not know what Facebook was when they were shown the pictures that were used to elicit discussions. We were told by the majority of children that Facebook is only for 'grown-ups' and parents use it to 'share photos

with family and their friends' (NO_child age 9, boy). We were also told by this child that his mother 'always asks if she can take a photo and share it'. A similar story is also told by other children (both individual and focus group interviews). It is reassuring to hear that parents are concerned with children's online privacy rights and that sharenting issues are taken seriously (for details on sharenting see Sarkadi et al., 2021). While Facebook seems to be mainly for adults, older siblings, we are told, use Instagram (mainly sisters) and sometimes TikTok. Further, children have access to these through sharing them with other family members: 'with our younger children they want see TikTok on my phone every day. So I will find two or three things that their cousins have uploaded and let them watch it with me' (NO-Father). In other cases, parents are not aware that their children are using different apps with family members. For instance, the mother of one of the girls interviewed (aged eight) told us that as parents they are 'very restrictive in terms of screentime and what she can have access to either on her iPad or PlayStation and we think she is too young to have a phone and when she gets one it is only for calling and not to play games or unnecessary things like watching TikTok videos' (NO-mother). For this parent, having a mobile phone can allow access to unnecessary things, but talking with another family member (NO-other family member), we find that access to such unnecessary things is provided by other family members (i.e., an older cousin): 'my daughter who is about six years older spends a lot of time on her phone with her younger cousin taking Snapchat photos with filters. They use a lot of time playing around with the mobile phone'. Thus, through other family members and even friends, children in this age group have access to and use a wider range of DT and apps than what some parents think their children are seeing and doing.

4.3.1.2. Children's digital competence

In the interviews with the five–six-year-old, we find that they show their competence in how they describe the content in the games they are playing and the devices they use. The children express themselves as feeling competent in the individual interviews. One girl says that she thinks she knows more about gaming than her classmates and that she is becoming very skilled in a game her brother taught her (NO-child age 6, girl). Even one boy who did not game very much seemed to feel confident when talking about one of the few games he was playing (NO-child age 5, boy). Another boy was eager to teach the researcher about *Minecraft* and giving advice for gaming (NO-child age 6, boy). In the focus groups, the differences between the children appears clearer and they also seem more insecure and self-aware in terms of their digital competence. For many of the children in this age group, using digital technology revolves to a large extent around play and having fun.

In the age group 8–10, we also found many discussions about using DT for play and having fun. Some of the girls aged eight and nine told us that they like to play *Pokémon Go*, but also some games on *Roblox*, as noted earlier. However, things like '*Fortnite* are mainly a boy's game' (NO_child age 9_girl). Similar discussions also came up during focus group interviews where games with more caring or social elements were more popular among girls and games with shooting themes were 'games for boys both in *Roblox* but also *Fortnite*' (NO-FG_PS, girls only group). Thus, apps and games for the children aged 8–10 seemed to be important ways that they start to develop their digital competences and interests.

While gaming seems to be a widely shared activity for children in both age groups, there are fewer who use a computer in ways that involve more formal learning activities during their leisure time, except for one of the boys, who tells us that he uses the computer for coding as part of a coding club he belongs to (NO-FG_PS, boys only) and that he used to go there with a friend. In Norway, the coding club is developed and supported by volunteers working in or connected to the technology sector. The coding club originally started as an initiative from parents seeing the need for children to not only be consumers but also produce digital

content. Even though there are many parents in our focus groups with an interest in technology and gaming, few of them have told us that they have provided their children with access to arenas like coding clubs. The devices children have access to in their leisure time and family life mirror competencies related to gaming and social networking more than coding and similar competences, and as such, children are in many ways mainly consumers of DT as opposed to being also producers.

In both age groups, children recognise the various digital devices shown in the show cards. All the children we spoke with, both individual and in focus groups, tell us that they either own or have access to tablets or mobile phones and some computers. This is the case for both age groups, but only a few in the five–six-year-old group own their own device and most of the 8–10-year-olds have a tablet, laptop and/or even a mobile phone.

4.3.1.3. Experienced differences

The five–six-year-olds perceive differences between themselves and the world around them. They describe differences in terms of devices available compared with their family members and how they use content differently than parents, siblings and friends because of different preferences, needs or because of different ages. The children also recognised that children in other families have other rules and also opportunities. Many explain to us how their older siblings visit other children for more screentime, something even some of the parents have admitted to knowing about (NO_father). In addition, one boy talks about a friend in kindergarten who wishes to have the same game and skin in the game as he does, but the friend never actually played the game himself (NO-child age 5, boy). They also reflect on differences between themselves, siblings and parents when it comes to different rules. One girl describes that her older brother needs screentime because he loves gaming so much, but she likes many things, so it is not necessary for her (NO-child age 6, girl). Some of the children explain that their father uses the phone to play games while eating dinner (NO-child age 6, girl) or that ‘my dad often uses his phone at the table…but that is how it is for adults’ (NO-child age 9, boy), while the children are generally not allowed and this seems to be, for the most part, accepted by both age groups. Some parents also talk about using the phone at the table but that it is often work-related. They also recognise this as a challenge and that by doing this they are not necessarily ‘good role models’ (NO_father). Rules appear to be somewhat common for most of the children in both age groups, such as no phones at the table or in bed. The role play in the FGs show a clear line on bedtime rules. The children are commonly not allowed to bring DT to bed with them. There are, however, several exceptions, like if the child needs to follow up on school work (NO_mother) or has trouble sleeping and can be soothed with an audiobook (NO_F_child_6 years). There can also be different rules for children in the same family: ‘my older sister can have her phone in bed to listen to audiobooks because she has a hard time sleeping, but otherwise me and [my twin] sister are not allowed to have our phone in bed’ (NO_FG_PS_girls only).

In the focus groups, the difference in preferences is somewhat less clear. One child said that she likes robots, then another child said that they do not like robots, but it was unclear whether they do not like them or whether they just had not tried to play with robots and pretended not to like them (NO_FG_KG_girls only). In the same focus group, one child talks about a game she has seen at her friends’ house but had not tried it herself. Another child says that she has played the game so much that she is tired of it. In many of the kindergarten focus groups, the children seem competitive in showing their competence when talking about the subject, which does not come up in the individual interviews, probably because they are alone and they have the researcher’s full attention.

When asked what devices they know and use, the children make it clear that a computer is for

homework and *adult work*. They seem to draw a line between the computer and tablets/mobile phones/gaming consoles. They seldom include computers as part of the digital content they relate to in their leisure time, and only a few of the children express that they want one. Some of the children say they will 'get a computer', but they 'will only use it for gaming' (NO_FG_PS, NO_child_age 9). Conversely, tablets have more of a shared function in several of the families. Both parents and children tell us that they all have access to tablets, even though they are mainly used by the children. When addressing mobile phones in the interviews, children appear to attribute to these devices a more 'private' function than a tablet, describing it as a device belonging to a parent or an older sibling (ages five–six) or something they will finally get when they are in grade four (children in the age group 8–10). Regarding the idea of what kind of tool a telephone is, the families vary. In some of the families they state that a phone is there to call others, and as a child you do not need a smartphone; you can have a much simpler version (NO_mother). In other families, they let children as young as five inherit the parents' old smartphone to use as a gaming console, like the family telling us how Pokémon Go had become a family activity during COVID-19 lockdowns. In order to play, each member needed a phone. In this case they underlined that it was not possible to use the smartphone as a telephone but rather as a tool for gaming. It also allowed them to 'let the child take small walks on his own' (NO_Mother). For many of the children in both age groups, it is however the rule that they must ask to use a mobile phone if they do not own their own, and therefore they have more restricted access to them than to the tablets or gaming consoles.

4.3.1.4. Subjective assessment of DT

For all the children and families in this study, DT appears to be an important part of their daily lives, albeit the use differs between families and individuals. Through individual and Focus Group interviews, children expressed that DT allowed them to connect with others (mainly peers) through gaming or simply to relax, for entertainment or send a text message asking if they can meet and play. Yet there are also challenges to children's wellbeing or physical impacts, but also things they generally do not like.

One boy explains how his back aches when using his iPad (NO-child age 6, boy). Mostly, however, the children talk about practical issues like commercials in games being boring (referring to commercials that appear on various games, especially free games), that they do not like charging the devices because of the waiting time or that a laptop has too small a screen for watching movies. Accordingly, these are things that prevent them from the 'best experience'. However, there are some reflections such as if we 'didn't have any devices then we wouldn't be so occupied with them' (NO-child age 6, girl) and some of the children talk about how they avoid scary content, so they 'won't get nightmares' (NO-child age 6, boy).

When one of the researchers asked what they like about digital technology, they talk about game content like being able to get skins, diamonds and gold (virtual currency) and infinite lives. Most of them think the best thing about digital technology is that one can play games, and some of them like this better than playing with other toys, but many of the children also express that they have no problem finding other things to do. If DT did not exist, some of the children say that they would cry, indicating that DT is an important part of their life. One boy even says that it would be 'hard to sleep without his iPad' (NO_child_age 6). One child says he would go bicycling with his parents, and another says that she would 'get sick of her sister and parents if it didn't exist' (NO_FG_KG). In one focus group, some of the children talk about how they get angry when they watch television for too long or when they cannot decide if they will watch television or the iPad (NO_FG_KG).

One of the more popular apps for children in the age group 8–10 is YouTube. For them it is used

to watch films, listen to music and find songs they need to practice for school, but moreover to learn new things, for example, to watch others gaming in order to 'learn new tricks' (NO-child age 8, boy) or to 'watch gamers who are really good and that way you can learn and be a better gamer' (NO-FG_PS, boys only). YouTube is used both in a regular version and in a children's-only version, YouTube Kids. One of the fathers we spoke to was very specific that the children-only version of YouTube was the only one allowed (NO_father). According to several of the children, most of them had the same rules about YouTube Kids, but the adult version has more options and was therefore seen as more attractive to them (NO_FG_PS). The children aged 8–10 seemed to be quite clear on the difference between YouTube and the Kids version and explained to us that their 'dad won't let me watch YouTube; he will only let me watch YouTube kids' (NO_FG_PS). The children emphasise the word 'only' in their conversation and we understand it as if they are aware that YouTube Kids involves restrictions. Some children in this age group are already avid followers of game streamers, but this seems to be mainly related to boys more than girls.

The children are clear that YouTube, TikTok and other apps including films and content can have sequences that scare them. They also told us that they could access scary content when using Google to search for information (NO_FG_PS). How they handle their own emotions stumbling upon such content differs, but the majority explain they tell an adult, often their mother, about it (NO-FG age 9–10, girls only). When directly questioned whether talking about scary things helps them, they all confirm it does: 'Yes, because then it all gets better' (NO-FG age 8, girls only). Yet, in two of the focus groups, there seemed to emerge a discussion between the children on content that was scary or something they were not supposed to see (NO-FG age 8–9, boys only), but with one of the groups there appeared to be a 'silent agreement' that this was something they were not going to talk about, and quickly, after looks across the table at each other, the discussion moved on to another topic (NO_FG_PS).

All the children aged 8–10 in the focus groups could identify Facebook, Instagram, YouTube and TikTok from the picture cards we presented at the beginning of the interviews (both individual and focus groups). They even made us aware that we were missing Snapchat in our show cards and even though they clearly described the age limits, several of them had access to especially TikTok and YouTube. We were also told by almost all the children that in our drawing of a game controller that there were mistakes and one missing button, which clearly shows how much gaming and the use of gaming controllers are an important part of children's lives. There were a few children who we spoke to who had been involved in producing content for YouTube together with relatives like an aunt or elder siblings (NO_FG_PS, girls only). Both boys and girls had some sort of relationship to TikTok. Some of them had participated in creating content, and all of them were occupied with likes (NO_FG_PS, groups with only boys, only girls and mixed groups).

4.3.1.5. The lonely child

Children, due to their age and role in the family, are vulnerable to how older family members include them or exclude them in daily activities. Moreover, previous research has found that children's wellbeing is linked to the quality of the environment, interactions and relationships they have across several ecosystems (Newland et al., 2014; Bokhorst et al., 2010), with the family being one important ecosystem. In DigiGen, the need to focus on factors such as social and family environments is seen as crucial if we are to move the research field beyond merely looking at screentime and instead understand children's encounters and activities concerning DT.

In the Norwegian data we have found that for some of the five–six-year-olds there is a feeling of being left out or even a sense of loneliness when their parents or older siblings are on their digital devices. One boy explains that he will very much 'miss his older brother when he is busy

gaming and does not have the time to play with him' (NO_child_age 6). One girl talks about her father being 'so busy gaming that he doesn't answer her' (NO-FG age 5, girls only), and even for a girl aged nine when her 'three brothers just sit in their room and are gaming and it's only me with my mom and dad. It just feels like boys are like this, just sitting there gaming' (NO_FG_KG, girls only). Yet, it differs how the children describe being affected by their parents or siblings being at times distant. One child says that she has no problem finding something else to do if family members are busy (NO_child_age 6), while other children describe feelings of being left out. Some of the children actively choose to play alone because then they can make all the decisions in the game, like 'dressing Mario in a princess gown' (NO-FG_PS,_girls only).

However, parents describe these experiences not as vulnerability, but rather as a balance between individual and collective needs in the family. One of the parents thinks it is a good thing he has email on his phone because then he can be more effective and focus on important work and at the same time be present at football practice or ball games. Yet, other parents such as one father we spoke with described these kinds of incidents as 'irritating to see parents who just sit there with their heads facing down on their phones and their kids are just running around their field try to gain their parents' attention' (NO_father). For this father, he sees the need to be a good role model and children as emulating their parents.

Some parents are striving to balance family time and work time, but the question is whether the line between work and family time is becoming blurred due to DT and the ability or 'need to be always available for work-related issues' (NO_father). This father also talks about how his relationship with his wife is affected by DT because of the 'possibilities of sitting side-by-side on the sofa each with a device of their own' (NO_father). How such situations affect both children and parents we have no answer to, but it would be interesting to investigate this further. Some children talk about watching television on Saturday mornings alone because they wake up first. The parents reflect upon these matters, but seldom in terms related to loneliness. They rather describe it as something the child wants to do and how 'children wake up early in the weekends because they know they can watch the iPad before other family members wake up' (NO_mother) or to 'get in some extra screentime' (NO_father). They also describe how some of the children prepare the iPad in the evening so they can turn it on as soon as possible when they wake up (NO_mother). This triggers worries about whether or not these practices create too much screentime for the children, but very little worry about what the child has access to in their alone time. For some parents, the screentime discussion is more of a concern than the content discussion.

The youngest children also describe gaming alone or watching cartoons alone as something positive. One boy says that it makes him calm in his brain (NO_child_age 6) and a girl told us how she likes to relax in her bed with her iPad and cuddle with her teddy bears (NO_child age 6) and some bedtime routines involve 'listening to audiobooks to fall asleep' (NO_FG_PS, girls only).

4.3.1.6. Gender differences

For children in the five–six-year-old age group, a gender difference is seen in the role and importance DT plays in their lives. More of the boys we spoke to said that they would cry or that it would be hard to sleep without it (NO_children three different children aged six, all boys). The girls seemed to have more flexible answers like that they would get used to it (NO_FG_PS_girls only) or that it could have been a good thing because then she would not be so occupied with it (NO_child_age 9). More of the boys said that they would make digital technologies themselves if it did not exist. In one mixed gender FG, the children seemed to agree that boys like gaming more than girls (NO_FG_KG). The children in this age group told us that there are not as many fun games for girls as for boys, that there are not as many princess games and spoke about a

ghost game that would be too scary for girls. What seems apparent from this age group is that the availability of games that are of interest might differ according to gender, but also that boys might seem more occupied with technology from an earlier age than girls; of course, this might be linked to what is available and for whom. Certainly, further research in terms of gender, especially for the youngest children, could provide even more insight.

What is most clear for the age group 8–10 years is the importance of games and gaming in general. While boys' discussions revolve more around gaming, girls also play games. However, there is a clear difference between the types of games they play and how important this seems to be in their daily life. Many of the children in this age group play games found on the global gaming platform *Roblox*, founded in 2004. According to the Norwegian Barnevakten.no [4](Babysitter) *Roblox* is described as similar to Netflix or YouTube, but for games. Roblox serves up a vast universe of games, many of which are built by its users (content is created by 'amateur' game creators), who also get a share of related revenue. Roblox allows children to have access to thousands of games, allowing them to also virtually hang out with friends and chat. For both parents and children, *Roblox* seems to be a popular platform and entry to games and gaming.

One of the administrators in *Roblox* states that the legally binding PEGI rating only covers the basic system and a few sample games. In a recent article by Andy Robertson[5] (2021), he points out that

> *Roblox* itself does filter and check the games that are being created both for inappropriate images and profanity. However, games are still allowed that can have horror, murder or bloody themes. One game we tried, 'Hotline', *Roblox* tasked players with knocking each other over with guns or knives before then beating each other's head until they died with blood splatters.
> The best solution to this is to specify the Account Restrictions setting in the linked *Roblox* account. This limits the playable games to those selected by *Roblox* itself. Although do note that setting a child's age as under 13 doesn't limit the games they can access.
> Yet, in many of the interviews it is clear there is a very clear difference between the types of games girls and boys are playing in *Roblox*. On the one hand there are games that involve shooting themes and on the other hand games that involve a caring or social theme.

None of the parents we spoke with did however discuss such issues as put forth by Robertson relating to the content of *Roblox* or the game's age limits. Several of the mothers we spoke to often referred to the website 'Barnevakten' as an important arena for support and information because it provides an overview and advice for parents on how to register their children at Roblox and how to restrict game choices and chat functions. The type of access to and reasons for choosing *Roblox* were mentioned by several of the parents, but the content and the necessity of limiting access to some of the content were not discussed. The children on the other hand seem to navigate through the different games in Roblox. Some of the children told us about the different content of Roblox and all the games they could get access to: 'Like I can search you know, for *Grand Theft Auto* and then I can play the game. Even though I am way too young' (NO_FG_PS). The child did not reflect upon the fact that the version he played was programmed by one of the users in *Roblox*, but he seemed to love the idea that he got access to a game targeting age groups other than his own.

In many of the interviews it is clear there is a very clear difference between the types of games boys and girls are playing in *Roblox*. On the one hand, there are games that involve shooting

4 Our research uncovered many refences by parents to Barnvakten.no (a parental interest organisation built on Christian and humanistic values) as opposed to the Norwegian Media Authority (the government body aimed at promoting media diversity and increasing media literacy). Barnevakten is an actor we were not fully aware of had such an impact before our research began
5 See https://www.Internetmatters.org/hub/esafety-news/parents-guide-to-roblox-and-how-your-kids-can-play-it-safely/

themes, and on the other hand, games that involve a caring or social theme.

For many of the children in this group, both boys and girls, *Roblox* is an important platform for finding and playing games, but as noted earlier, there are gender differences in the types of games they are interested in playing. For instance, in one of the FG interviews with a group of girls aged 9–10, we were told that 'boys like shooting games or games where you steal things'. 'Jailbreak' is one such game, based on the classic game *Grand Theft Auto*. This is one of the most popular games on the *Roblox* platform and involves, among other things, breaking out of jail and stealing cars. We asked why girls do not play these games and for them it was a lack of interest in the idea of shooting and stealing. Instead, they explained to me that the games they like are, for example, 'Adopt Me', involving a caring theme.

In addition to *Roblox*, many of the boys in this age group (but far from all) are avid gamers, mainly playing *Fortnite*, which has a suggested age restriction of 12 years and up. Those who play Fortnite often talk extensively about what happens in the game, talking with friends on Discord while gaming, but also about being able to buy 'skins and battle apps' (NO-child age 8, boy). *Roblox* also incentivises purchases with real money through the use of *Robux*. In our talks with a group of boys who are avid *Fortnite* players, the topic of buying skins, battle apps and lootboxes (containing random items) brought about much discussion and excitement. Such excitement also came up in one family interview with a boy aged nine (NO-child age 9, boy). The question of where they get money or how to pay for this was not always so clear. Some parents did explain that they credited an account on their child's platform that allowed them to spend a certain amount of money to purchase these items, but that most of the money came from the child's weekly allowance. For many of the boys in the focus group discussions, both in mixed groups and boys-only groups, there was much discussion on games and gaming, and *Fortnite* was generally the most popular game, which most all the boys played regardless of the age limit. We did speak to some families where the parents were gamers. In these families, parents (mainly fathers) would first play the games themselves to assess whether or not their own child was mature enough (not necessarily age-related) to handle the game. For these parents, assessing the child's 'maturity was more crucial than the strict age limits and I am more concerned with the social aspect and that you do not know who you are playing against. I would rather sit with him until he is safe enough' (NO-father). This father also sees that his son is developing several skills through his gaming, such as improved English language skills, the ability to see possibilities in the game, demonstrate mental agility and to think quickly.

While *Roblox* appears to have a wide reach for the age group 8–10, it also appears to be among one of the most popular gaming platforms, with other games mentioned such as *Fortnite* and *Minecraft*, but again gender differences were clear in terms of how much gaming takes place, the importance of games in the discussion and the availability of games that interest the different groups of children.

4.3.1.7. Differences of age groups

One interesting subject that differentiates the age groups is how the 8–10-old children are more connected to their peer culture while the five–six-year-old children are more in line with their parents' view and more accepting concerning the family rules and values. The youngest children with more restrictive parents do not seem to disagree with the rules and values in the family. They tell us that one can get addicted or that one can push the wrong button and buy something by mistake (NO_child_6 years), which seems to be something their parents have taught them. Resistance in the youngest group seems to be more in the moment: when their parents ask them to finish a game, the transition to another activity seems to be difficult for many of them. They say that it can take some time before they listen to their parents (NO_child). These

moments of transition are raised by both the children and the adults.

4.3.2. Family Life and Family Practices

Children's use of DT has increased significantly over the past decade, which has brought about important concerns around screentime, but perhaps less around how children are spending their time. While there is much concern centred around children's use of technology, DigiGen believes that the use of and integration of DT in family life is equally important. For our work on how technology impacts on family life and in doing family, understanding the construction of family life is part of what is needed to better understand how, why and with what effects DT is impacting on children's lives (Odgers, 2015). For many parents, DT has introduced new challenges that include ways to ensure a balance between independent exploration and providing appropriate limitations and oversight (Pew Research Centre, 2016). Through the voices of different family members, we aim to provide multiple perspectives on how DT features as an everyday practice for families in terms of social interaction and leisure, but also the opportunities it opens up for family life. Certainly, this is not without challenges, and thus our aim is to also provide a glimpse of family rules and negations of use, practices and perhaps even conflicts.

4.3.2.1. Doing Family

'Doing family' expresses how family life is nothing static but depends on how the family members interact and what they actually do together, how they organise themselves and how digital technology is a part of that organisation. The idea of 'we-ness' seems to be changing as digital technology becomes part of family life. All of the families see DT as crucial but their values as a family determine how concerned, restrictive or liberal they are. Attitude towards ICT can be understood in parts as 'family identity' and creating a 'we-ness' as a family, and the families underline how values are important in constructing their everyday lives and how values affect their ICT use. To the parents, the computer is mostly connected to work and to some extent used in family activities, except from those parents defining themselves as 'gamers'. However, they have a gaming computer and a space in the house where this computer is placed. This is a computer other than the laptop they use for work. For the parents, the phone is the most important device out of work, and several of the parents tell us they use it 'everywhere. On the bus, the sofa or when I am bored' (NO_mother).

4.3.2.2. Integration of digital technology in family life

The question of what shared media experiences are accomplished within the family vary across the families interviewed. Even though the majority of our families are middle to high class with parents mainly holding a bachelor's or master's degree, the family's digital practices differ. The idea of the family sitting together and watching television, similar to what most parents today experienced growing up, no longer seems to be a valid picture of doing family in the living room. Children aged five–six spend very little time watching regularly programmed TV. Instead, they rely on streaming applications like Netflix, Disney+ and HBO (for streaming in Norway). Watching TV through streaming options is however one of the few activities described as a shared family activity at some point. For example, 'Saturday night is family film night and my favourite thing' (NO_child_9 years) where the family can get together to watch movies on the HBO app. In some interviews, the parents describe how they let the children choose the content and they themselves are by-sitters. In such cases, several of them admit they turn to their own phone when they get bored in order to scroll through their social media sites or read news (NO_mother).

In all the families, the parents are focused on experiencing digital content together with their children, but how they do it seems to be connected to their style of upbringing and their ideas of what a child can do. Some of them describe how they explore digital content together, so they all know what it is about. They discuss what apps and games the children can play, and parents and children try them out. The easy and intuitive games the children explore on their own, but several of the families inform us they play together when the game is first introduced. 'Like when we downloaded *Minecraft*, she (six years old) needed some help in the beginning, so we did it together. But after a while she could do it on her own, and we are only needed if she is stuck. But other games like Nintendo Switch we can play together' (NO_mother). Such a practice can be found across the families, and the parents help their children until they can do it on their own.

For children ages 8–10, doing family is more difficult to identify as much of their digital use is alone or with peers. During the interviews with children in this age group, the researchers posed questions about what they use and how (i.e., both hardware and software/apps). For many children in this age group, a mobile phone is something they have started to own or for some, something they will own very soon (often in the next school year). Several of the families describe how 'being alone together' is an increasing part of doing family. It is acceptable to put on one's earphones and listen to music or audio books, browse the web or play games, and at the same time sit next to the rest of the family on the sofa. Both children and parents describe this as a way of relaxing and pulling back from a hectic everyday life. What we previously imagined would be described as 'stealing' joint quality time, actually is described as a way of being alone and at the same time together. Our interviews do however underline findings from recent research showing that the older the children become, the more they use electronic devices alone for individual activities (European Commission, 2019a; Livingstone, et al. 2017a; MPFS, 2016a), not including the other members of the family but in many cases including peers. This kind of togetherness, as mentioned, has different implications for members of different age groups in the family. It seems as if when children get older, interaction with peers through the use of DT is increasingly important and that family activities through DT become less than for children aged five–six.

'Being active together' is put forth by several of the parents interviewed, implying they approve of (1) digital content allowing them to move as a part of the game, like *Super Mario* on Switch combining physical movement with the game, (2) singing karaoke together, (3) using mobile devices for treasure hunts or *Pokémon Go* or (4) creating content or films together. In such uses all family members take active part, even though the children are more untiring and find joy in the activity longer than their parents. Some of the parents continue gaming with their children because they enjoy it themselves and some because they want to show interest. A challenge is that they get bored with doing it together with the children or they get exhausted. One of the parents said: 'I really did want to play with him. But you know, he is so much better than me; I am a boring co-player' (NO_mother). It is unclear whether they discuss this experienced boredom with their children or not. An overall impression from talking to five–six-year-olds is that they very much want their parents to participate and seldom get bored even though their parents are not that skilled or involved. However, they do hint that their parents get bored and do something else, 'like looking at their phone' (NO_child). Earlier research shows how the device itself needs to be suitable for joint engagement (e.g., having large screens suited for multiple users). Engaging together on handheld devices is, therefore, difficult. For example, the study of Hiniker et al. (2018) suggests that tablets are, in contrast to analogue toys, mainly used alone because the relatively small screen of the tablet makes it harder to use the tablet together. We do however see how several of the families depend on phones in their joint activity and give their child a phone so he or she can use it as a gaming machine, for example for Pokémon Go or a treasure hunt. All members of the family participate through their own device and with their own user, but they play together.

Communication with family members outside of the nuclear family is mentioned by several of the parents as an important way of keeping in touch and updating each other. They describe how Skype or Facetime is used to communicate with grandparents and other family members: 'We regularly use WhatsApp to stay in touch with our aging father who lives alone' (NO_father). The children seldom mention these conversations as important, but they do participate. Such a communication is described as positive because they can see and hear each other even though they are not in the same place. A common rule in the families is 'no phones or other digital devices at meal time', but sometimes they connect with grandparents or other relatives so they can share a meal even if they are not sitting at the same table. The surface of the iPad replaces the family members not being present, and this has been especially important during the COVID-19 pandemic. One of the parents even described it like this: 'We were supposed to be together at Christmas, but due to restrictions none of us could travel to visit. So then we spread our iPad and computers a little bit out in the house and we or the children could connect with grandmother during preparation of meals or play time. The children even took her on tours around inside the house. She could sit in her chair and connect as usual. So even though she is not that technical she could be a part of it, you know?' (NO_father). This example displays how family members share media experiences across generations, and how DT helps to keep in touch across borders.

4.3.2.3. Devices connecting the family members together

Some of the children received their first mobile phone in grade two or three, but grade four seems to be the age level at which owning a mobile phone becomes most common. Some of the children tell us that they first had a smartwatch for children that allowed them to call, send and receive an SMS and to take pictures, but nothing else (NO_FG_PS). This is confirmed by the five–six-year-olds. They seldom have their own mobile phone, but several of them own a smartwatch. They do, however, 'only use it at home and to call Mum' (NO_FG_KG). Some of the 8–10-year-olds who we interviewed told us that some of their friends or classmates also have or have had a smartwatch. It seems as if the smartwatch is quickly replaced by a mobile phone, which is often 'inherited' from their parents when they have bought a new mobile phone (NO_FG_PS). Another girl in this focus group told us her phone was broken and she did not miss it. Her mother wanted her to wish for a new one for Christmas, but she was not particularly interested.

To some degree, a smartwatch allows parents the opportunity to locate and keep track of their children and for children to contact their parents, if necessary, but without the full possibilities that smartphones offer. The developers of smartwatches refer to these as a safe way to 'onboard kids to the digital world' and that they have removed services not appropriate for young children such as Internet access, social media and most game-related applications. While parents may not see this as 'onboarding their children to the digital world' this is perhaps what they are actually doing in one way or another. The parents interviewed are concerned with what smartwatches do to their children's freedom and they portray this as a dilemma. On one hand it feels safe to be able to reach one's child if he/she is out, track him/her down if necessary and know the child can reach the parent if necessary. On the other hand, they compare this with their own childhood and worry that we monitor our children too much. 'If they have a smartwatch you can follow them around. When I was a child, I had to get home by a certain time, but I was free to play outside and visit my friends without my parents knowing exactly where I was. Kids today can't do that because we monitor them all the time' (NO_mother). Other parents are reluctant about both smartwatches and mobile phones and say they 'rather take a walk in the neighbourhood to find their children than to insist on them bringing their devices with them' (NO_mother).

The parents are not as much worried about their children's activities online currently, but they are afraid their children will lack competencies like play and crafting when digital technology becomes more important (NO_mother). The parents also think they have a good overview of what their children are doing online, but they are worried about the years to come. When asked what they worry about, they say they are concerned their children will be addicted to gaming (mainly the boys' parents), that they will experience violence online and that they will be bullied and shut out of the diverse social groups online (mainly the girls' parents). They are also concerned they will lose control of what their children are involved in online.

The children are feeling more competent and have more knowledge about both the devices and the content than many parents are aware of. An example illustrating this is how parents and children relate to the app TikTok. TikTok was discussed and thematised in several of the interviews. In the family interviews, parents were sceptical about TikTok due to content they had heard of, and almost all the parents put forth stories about suicide or self-harm. They told us their children did not use it, or were only allowed to use it together with one of the parents. The children interviewed in family interviews generally repeated this story. In the focus groups, however, it became clear that nearly all the children knew about TikTok and had their own experiences with the app. Even though they did not have their own user account, the children had experiences with both looking at TikTok and making videos for it, often together with older siblings or relatives. These experiences were more apparent amongst the 8–10-year-olds. In one of the focus groups with children aged 8–10 years, two girls started a conversation after the group moderator had brought up harmful content and whether they had ever come across anything unpleasant. One of the girls directed a question across the table, stating 'Do you remember...' Before she could complete her sentence, another girl pressed her lips together, shook her head and looked down at the table. The first girl added 'No' and then continued by turning to the moderator. Both moderator and observer noticed the situation and interpreted it as if these girls had experienced an incident earlier but had agreed upon not talking about it. Another FG thematised how TikTok was banned by parents in their class after a suicide incident in Italy that had gone viral, and how they as children still used it despite the ban (NO_FG_PS, girls only).

4.3.2.4. Family rules and parental mediation

In the family interviews, we saw that parents are occupied with several aspects in their children's use of DT and their access to online activities. There is a clear link between how the different parents interviewed address the challenges in their role as parents, even though they all say it is hard to get knowledge on how to deal with DT as a part of upbringing. Mostly, they are aware that they do not themselves have first-hand experience with all the possibilities and the content children of today have access to in diverse arenas. They are also conscious that many of the rules or the general discussions about DT are based on assumptions more than on research: 'Because we do not know yet' (NO_mother). The parents are sceptical about making rules and regulations based on unproven notions. At the same time, they seem to need something to hold on to when constructing their role/identity as a parent. The website barnevakten.no (babysitter.no) is a resource a majority of the parents' mention. They seem to find the webpage useful and they trust its content.

For children in the age group 8–10 it is clear that digital technology plays an important role in their daily lives. Yet, from the interviews with them it is also clear that they have other activities and wishes that are not necessarily linked to being online or the use of digital technology. For instance, activities that are also important parts of their lives are things like swimming, playing musical instruments, reading books or just playing outside with friends. For one girl, when asked if she could 'have a day where she could choose between spending the day on the screen or playing with friends' her reply was that she would 'much rather play outside with friends

than spending the day on the screen' (NO_child). In some respects, while we may think children spend copious time on screens and often want even more screen time, examples like this show that there is still room in their lives for other activities. It seems that none of the five–six-year-olds can use digital devices whenever they want, but that their parents decide when. Some of the children said they have screen time or that they can use the devices more on weekends. Even though the children say that they are not allowed to play as much as they want, most of the children seem to accept parents monitoring their time use. Many of the children present flexible time use and some can even bring devices to bed sometimes. One boy says that the grownups must decide so the children cannot be harmed. Another boy finds in the interview that he will ask his mother for a day without gaming every week so he can play with his brother instead.

The parents also regulate what content the children can access on their tablets or phones. They most commonly install parental control, and they install YouTube Kids in some families. They also assist their children in choosing apps and other content. Some of the children (aged 8–10) told us they already knew how to overcome limits the adults put on the devices, either through developing strategies for when and how to ask for more time, going to a friend's house to play and interact with content not allowed at home or overriding limits set by parents at home. One of the children told us he had developed a strategy to get access to YouTube, even though his father wanted him to relate to YouTube Kids. 'Yes, I have deleted YouTube Kids from the home screen. And because my dad does not know how to download it, I can install the YouTube app instead. Then I just click on "log in" and then I log in to YouTube' (NO_FG_PS). This demonstrates how children understand how different apps relate to each other and experiment with deleting and installing apps in order to get access to content they are interested in. Maybe a lesson is 'If the parents can Google how to set up a system, then the children can Google how to crash it'. This example also points us in the direction of how children interpret what their parents understand and what they do not. 'Many of the parents do not know that much about Roblox, and they don't know why it is our favourite game. They just... You know. There are a billion games there. If your parents tell you no about a game due to age limits. Then you can just search for the game on Roblox and you can play whatever you want. Like GTA. I don't think parents know about that' (NO_FG_PS).

The parents are, however, unsure about how to decide what is acceptable or not. Most of the parents in our study seek information through websites, especially barnevakten.no, and through browsing news about digital content and young children. Many of them wish for more discussion amongst parents and as a part of parental meetings at school, but they claim they are missing arenas for having these discussions. It differs substantially whether parents themselves feel like they have other parents or teachers to discuss this with. Some of them have experienced parent meetings with DT as a theme, some of them including a speaker hired through barnevakten.no. Almost all the parents tell us they have access to Facebook groups consisting of parents in their children's classes. It varies considerably whether they discuss DT in such fora, and they all seem to be cautious about telling others how to raise their children. They therefore reflect upon different practices, but they do not make it an open discussion. At the same time, in the anonymous sphere of the research interview, one parent (NO_mother) expressed clearly what she thinks about the sons of her friends, saying that when they come together for dining with friends the boys seem like drug addicts with their screen and that it is 'totally crazy'. She describes other parents using the screen as a pacifier for their children and that sometimes she thinks that it is a failure in terms of care. However, she thinks that there seems to be a difference between boys and girls and that in her case, as a mother to a girl, it is easy, so she does not know how she would handle it if she had a more demanding child. She also describes how she does not want her child to live a two-dimensional life, being physically passive, but have a rich life consisting of many different things. This fear of a child in front of a screen missing out on a rich life is understandable, but at the same time it can lead to a devaluing of digital activities when other activities are said to be of higher value, which can be

condescending to those who find digital activities of great value.

As mentioned, the parents use barnevakten.no to find information about children's digital use. Most children have some sort of rules based on screen time or age limits. One of the most common rules is a maximum of two hours of screen time, preferably on the weekends. 'Except when it is raining' (NO_mother, NO_father), several of the parents express, then the children are allowed to stay longer online. Some of the parents tell us this is information from 'barnevakten'. This website seems to be an important stakeholder in family life. In our initial research we placed the Norwegian Media Authority (Mediatilsynet) as a stakeholder in the macrosystem (Bronfenbrenner, 1983). Parents as a group do not, however, relate to this official website. As researchers, we ask ourselves if this is because they do not give clear advice and directions, but rather present frameworks explaining about age limits, etc. The parents instead turn to 'barnevakten'. On this webpage they get concrete advice on screen-time, tests of different games, smart things to think about, etc. One question we want to look further into is why our first assumptions are linked to digital media use as a controversial field. As a modern society we have little experience to lean on in carving out rules and regulations determining what is 'good' for children. Mass media frequently report how our children are taking part in a huge experiment and that we do not know where this will lead us when they write about digital content in these early years, as well as in school settings (Brochmann, 2019). Such writing may underline the insecurity and sometimes fear of where this will lead us, expressed by some of the parents we spoke to. When they as parents go online to search for good strategies it seems as if barnevakten.no understands what the parents are searching for to a greater extent than the Norwegian Media Authority and perhaps in a format and language parents can relate to.

4.3.2.5. Different parenting types

Even though the parents are interested in what their children do online, they do not always have an overview of the games and the content and how it affects their children. The 8–10-year-olds tell different stories about how their use is regulated. Several of the children in this age group tell us they can game every day with very flexible use, whilst others have stricter screen time rules, such as 'I need to first do my homework and then I can game' (NO_child 9), but overall, it seems as if screentime is more regulated for the five–six-year-olds.

The interviews indicate three groups of parents.

- In the first group the parents have strict rules based on both screen time and content. They do not want their children to access DT before they have to. They find it challenging to navigate digital content and they are unsure of what to choose on behalf of their children. At the same time, they are worried that if their children spend too much time online, they will miss out on other important knowledges like crafting and developing their social competencies.
- In the second group the parents have moderately strict rules. They often have screen time limited to two hours a day and they navigate through the digital landscape in discussions with their children, other parents and websites. They are reluctant to make the rules too strict, but at the same time they want to protect their children. They are curious about their children's digital experiences, and they sit next to them or try some of their games. In the interviews, however, they cannot always name the games.
- In the third group, the parents are flexible, and they view DT as a part of the world, not as something unique. The parents in this group also address issues such as a balanced life and the importance of balancing online gaming and participating in physical activities and social relations. However, they also acknowledge the joy children find in interacting with digital content and they often play the same games as their children and have knowledge of what is taking place in the digital activities.

All of the groups of parents say they find it important to talk to their children about what they can do in the digital world. It varies however, as to what time they address the different topics. Some of the parents talk extensively about why the children should not attend online activities, and we can find these attitudes reflected in how the children themselves value different activities. An example can be the mother stating that 'There is lots of stuff out there and horrible things can happen. We are not able to lock them out. The children will be able to access them no matter what. That's when it is important to reflect upon and talk about who you can meet, what kind of communication you can get involved in and what you can know about the people you meet online. I think we have to thematise this from an early age' (NO_mother). Other parents want to address such issues when they arrive, not up-front.

4.3.2.6. Organizing family life

DT also has an organisational role in family life, contributing to how they structure their everyday lives. Shared calendars including all the children's activities and out-of-work activities for the parents are common. Shared shopping lists for groceries are also common on digital devices. In some families they have an app connected to the door lock and they can remotely let the maintenance worker or the cleaner in even if they are not at home themselves. Some of the families put forth the need to communicate and share information onscreen and online because their lives are complex. Relating to such issues, the parents state they would feel helpless if the network connection disappeared because they would lose their overview of what was happening.

4.3.3. Summary and Conclusions

Our research shows a range of practices both within families, but also among the children themselves. One key point we find useful is that we no longer need to question if children are using DT, but instead we have attempted to understand *how, why* and with *what effects* this is having on children and their lives, including family lives (George & Odgers, 2015). What is clear is that all the families we spoke to had a relationship with DT in one way or another and for some it is seen as something normal and natural and allows families to organise their lives and experience pleasure and for some it is a source of confusion, frustration and perhaps even loneliness.

It is clear that children as young as age five have an obvious understanding of different devices and for many a general understanding of these as consumers. This is also apparent for the older group of children (ages 8–10), but for them the use is even more social, also contributing to important developmental stages that include identity formation and building positive friendships while they are immersed in using DT. Perhaps one of the negative aspects revolves around the idea of loneliness, especially for the five–six-year-olds. The fact that DT in many ways promotes individual use can be challenging for some of the members in the families we interviewed. Yet, some families also see the possibilities of being alone together as positive in their hectic everyday lives. The knowledge parents have about what their children are doing online changes as children get older. We find traces in our material that there are more discussions than those of screen time that seem to be important for advice to families. In addition to this, it is worth mentioning that it is crucial that parents get access to information and knowledge aimed at them about how to parent in the Digital Age and in a language they can understand and relate to.

While we have seen how families and children use technology, the considerations of the competence gained (i.e., skills) has been less clear. There was only one parent who had reflected on the skills his son has gained through digital activities and gaming. Perhaps there is a need for both parents and educators as well as policymakers to focus on and consider digital competence in addition to issues such as screen time. Located within the discussion of

digital competence, there is a link with the digital divide, as digital competence is important in understanding different social groups' unequal access to digital services and differing abilities to make use of a range of digital possibilities (van Dijk & Hacker, 2003). According to Erstad et al. (2021) digital competence is likewise linked with the work in *New Literacy Studies*, which is 'deeply embedded in 'human development and the transformative nature of technological progress'. The permeation of DT into the everyday lives of children and young people across a range of ecosystems, including the family, necessitates the need for competent navigation of digital environments while simultaneously reaping the benefits as well as the competence to read texts and pictures in these new digital arenas (Gee, 2003) and in this way perhaps help the digital generation to move beyond being merely consumers but to also be producers of digital content.

4.4. Results related to the methodological approach

As a consequence of interviewing in family homes, the researchers obtained an impression of how the families were organised and what possibilities they had related to time and space inside their homes. On the other hand, we experienced that they had put effort into tidying up and presenting their home in the best possible way. One of the parents commented 'you have no idea how much time we have used to tidy this room. Not only because you were coming, also because we needed to, but you were like a facilitator you know' (NO_mother). In such a case one might say the family member did not only choose how to present themselves through words (like in the interview), but they also took effort in how they presented themselves in terms of rooms and organisation. However, situating the interview at home seemed to contribute to making the family members comfortable in their natural surroundings. This also gave us a sense of family life and the place of technology in the home.

4.4.1. Recruiting participants

Initially we planned for recruitment of families through schools and kindergartens and through social media channels connected to Norwegian Universities and our national stakeholders. Parents who already knew about the researchers or the institution, or parents with a special interest in digital technology, got in touch with us, but they were few. Consequentially, the researchers had to activate their own networks, both personal and professional, to get access to more families, and thereby recruited families through snowball sampling. Such a sampling contributed to recruiting a more homogenous sampling than we initially were searching for. Still, the families interviewed show diversity in their use of ICT, as well as in socio-demographic background.

For the focus groups we had to activate our networks as well and sent direct messages to the leadership of schools and kindergartens to get their help to recruit children. We can see in our overview that leaders of institutions we already had a relationship with through earlier projects and cooperation through our university's professional work were helpful in the recruitment process. Using these institutions as gatekeepers, collection of consent forms and organising time and space for the focus groups granted access to diverse groups.

4.4.2. Access to physical and digital sites

Initially we planned a period of interviews, both family and focus groups, from December 2020 to March 2021. Due to national and local COVID-19 restrictions in Norway making access to institutions and homes impossible, we had to adjust. We thought it important to conduct most of the focus groups in the institutions, so we stretched our fieldwork into September 2021 to get access. Regarding the family interviews, we conducted half of the interviews via Zoom and the

other half as planned in family homes and (one) at the university campus.

4.4.3. Zoom Interviews

Conducting interviews via Zoom produced challenges for some of the children participating. We experienced reluctancy in one of the children in the beginning of the interview and another child did not want to participate without the mother being present. Except for these two cases, there were few challenges experienced from the researcher's side. This was also underlined by some of the parents participating, expressing they did not think it would work out but relieved it did. We also experienced parents taking a break in their own interview to check if their child was comfortable in their own interview in another room. They reported back that 'everything went well and the child was surprisingly engaged' (NO_mother).
When interviewing five–six-year-old children, the researcher started by asking them about their toys and whether they wanted to show something through the screen. This action contributed to children being more relaxed and interested. Such an approach contributed to activating some of the same benefits as interviewing in family homes even though the researcher was only virtually there. What we missed out on was the possibility of getting an accurate impression of the family home and of the family together before and after the interview, as we did when interviewing in real life in their homes.

All the interviews were audiotaped, and listening through them, we did not detect any pronounced differences in lengths of answers, contributions to the interview themes or emotional expression when comparing parent interviews.

4.4.4. Interviewing young children

The interviews with the youngest children took different forms and directions. This is probably because children are different and because of how the researcher experienced her own position differently across the interviews based on earlier interviews with children. With the youngest children, all the in-person individual interviews were done sitting on the floor, letting the child help spread the picture cards out on the floor.

Some of the interviews followed the interview guide straight forwardly and others had a larger focus on puzzles and play and less talking about the subject. Both interview types generated interesting findings. The straightforward way led to more textual answers, but the playful way gave rich answers as well, even though the children did not express very much through words. As an example, one of the male children asked the researcher to turn off the dictaphone to make her concentrate on the puzzle he wanted them to piece together. The researcher did as the boy pleased and they continued the interview after they finished the puzzle. This interview turned out to address many emotions, and the boy addressed his own experiences and wishes talking about how much he would like his older brother to play with him rather than being busy gaming with his friend.

In the **focus groups** conducted in institutions, the children were sitting on chairs around a table. One out of five focus groups with five–six-year-olds had to be organised in one of the children's homes. We tried doing this focus group on a couch, but the children became very distracted. There are several possible reasons for these distractions: the seating, toys and digital devices being present, the baby sister walking around and the researcher's way of asking the questions. When examining our own researcher position in the interviews we observed that the focus groups led to a more restrictive researcher, a researcher using the material environment and the interview guide more to organise the interview and thereby help the children stay focused.

The **picture cards** worked well both in the individual interviews and in the focus groups. We observed how children attempted to touch and hold on to the picture cards when talking about the content. In all groups the cards contributed to the interview by creating a sense of common ground and carving out the idea of what themes we were going to talk about. In this sense the cards provided a starting point for the conversation. The fact that there were no emotions in the pictures opened up to imagining what feelings the content could activate, and also opened up discussion, especially with the adults. We did, however, get comments from the children on missing Snapchat and that the buttons on the remote control were placed incorrectly. The children also commented on the children not having hair and that not all of the participants in the pictures had shoes. They experienced such observations as being unfair. In the focus groups the pictures contributed to activating dialogue amongst the children about the situation or the digital device. We experienced this as valuable in terms of the focus group as a method. When the researchers asked questions, the children addressed their answers more to the researcher than discussing amongst each other. When activating the picture cards the researcher became less the focus, and the picture cards contributed to exploring the discussion about the topic.

The **roleplay** as part of the focus group worked well for structuring and keeping the children interested in the subject. The five–six-year-olds were easier to engage in role play than the older children, making role play an important part of these focus groups. Even though we did not use role play with the older children, their more developed language let them contribute to 'what if' questions. This kind of question allows children and researchers to make room for imagination in the focus groups, both for five–six-year-olds and 8–10-year-olds. Communication around picture cards, role play and the 'what if' questions made us see that the children are quite good at verbally reflecting upon the issues even though they are young. The principles of 'stage of development' seem to be challenged by how much and how the children communicate with others, their role and place in the family and how much experience they have with both digital tools and other activities performed together with peers.

The **individual interviews** put forth other aspects than the focus groups. Such a finding can relate to the interview guide and the different environments produced between the researcher and the child(ren). The children's position amongst peers did however seem to matter in the focus group, especially in how the child make his/her own competence visible in the group. Variation and diversity amongst the children become clearer when different children contributed to the same focus group than when we compared individual interviews.

An interesting finding in the **family interview** is that the children often 'repeated' what the adults told us even though they were not in the same room. There are several explanations as to why this was happening. This might connect to the way our methodological design gives access to family values and practices and not to the children's understanding and knowledge developed outside the family. Such an interpretation implies our design makes it more challenging to get access to what children are critical of in their family environment or what they think should be different. Maybe they are not particularly critical in early years, but the matter is relevant to discuss.

An interesting question in the focus groups was **'What if there were no Internet**, what would you do'? This question opened up for somewhat more gendered answers than the other questions, especially amongst the 8–10-year-olds. The boys tended more to answers like 'we would be bored' and 'we will really miss it'. The girls on the other hand gave answers like 'I would play with my friends', 'go to the forest', 'use my other toys', 'play outside', 'go riding' and 'no problem, we can just do other things'. We have no explanation yet for why these answers differed, but will look further into it.

4.4.5. Analysis

After completing the fieldwork, each one of us individually completed the memos as described in the manual. We then met and discussed our interpretations and findings in order to develop the memo on each family. The discussion brought up different aspects of DT in family life and we will continue working on how literature, discourses and practices as such can be explained further than in the research literature. In such senses we both developed a nuanced understanding of the family based on discussions with different members and connected these to the above-mentioned meta-perspectives. We did, however, experience that this way of analysing our data contributed to knowledge about the themes decided upon up front. Because we had audiotaped and transcribed all the interviews, we decided to do another round of analysis. Inspired by Tjora (2019, p. 28) we performed an *inductive empirical close coding process* to reduce the risk of presumptions and theories making us jump to conclusions. Using NVivo to systematise our data, we read through all the interviews and coded them according to the groups five–six-year-old children, 8–10-year-old children and parents. We could also separate the individual interviews from the focus groups in NVivo. The codes would highlight the main point in what the informants talked about, and in the next step we developed categories across the material as we could see repeating themes. In this stage we were more analytic and allowed ourselves to connect the empirical codes to theoretical concepts. The themes we found relevant for the research questions is reported on in the different parts of this report.

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5. Case Study: Romania

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5.1. National context: A short literature overview

This country report summarises and analyses the qualitative data collected at the national level by the Romanian DigiGen team. Prepared for WP3, the document scrutinises the impact of technological transformations on young children 5-6 and 8–10 of age and their families, with an emphasis on family dynamics, the online behaviour of children, and engaging relationships in familiar or external contexts.

The Romanian social context is characterised by lower levels of digital access and competences compared to the Western European countries (but also a growing trend in digitalisation (INS, 2020; Reuters Institute for the Study of Journalism, 2020). There are strong indications that Internet access and use of DT were accelerated in the last years before the pandemic, and especially in the period during the pandemic, forced by the lockdown context, home office and online schooling. An increase in affordable mobile Internet providers and smartphones made Internet accessible in many Romanian households before 2018, though often in the absence of personal computers (Radu, 2018, 2019). The access of the general population to mobile broadband increased in 2020 to 78.2%, compared to 64.2% in 2019 and 57.3% in 2018 (INS, 2021). This has been a significant increase, mostly in connectivity to mobile Internet, demonstrating that communications technology is becoming an increasingly important aspect among Romanian families. Social media is seen as an important source of information, with more than two thirds of Romanians getting the news from Facebook, YouTube and other social media platforms (Holdis, 2019; Radu, 2018). Internet platforms are used by families both for information and for entertainment. The Cartoon Network Romania Chanel on YouTube , which is a very popular child-focused channel, reached in 2019 a record number of subscribers to this channel of around 250000 people (Holdis, 2019). Data shows that DT usage increased to the detriment of television, though it is still the most important source of information and entertainment in Romania (Holdis, 2019). Most likely, soon DT will surpass traditional television in the country as families will move to more interactive alternatives. Romanian families largely invest in online learning materials for their children (paid online learning materials; online learning programmes), as reported by Vuorikari et al. (2020), for the use of paid digital content. The percentage varies in EU countries from 17% to 29%.

Among those who have access to Internet-connected devices, some do not have exclusive access, meaning that they share one or more devices connected to the Internet with other family members. This is especially concerning in relation to children who need to participate in online courses and have siblings who also need to do so. According to IRES, in 2020, 32% of children enrolled in pre-university education did not have exclusive individual access to a functional device (desktop, laptop, tablet), which reduces the presence of students in online classes. This report is especially disturbing as the current situation caused by the COVID-19 crisis forces children to participate in online classes and this has direct effects on families as it deepens the inequalities in access to education for children from disadvantaged families even more. The data about school children's low access to devices for online schooling is alarming also due to their great differences: while the Romanian Ministry of Education points to 250,000 school children lacking such devices, the IRES independent research report mentioned 900,000 children for the same period. The Ministry of Education made some efforts to distribute tablets for 'those needing it' during the school year 2020–2021, but there has not yet been an evaluation of how much this program reduced disadvantages of the digital divide for the children living in socially disadvantaged families. This program cannot solve all the issues of

Internet access. Although it has been planned to provide an Internet connection via a SIM card, some communities were not covered by the contracted Internet providers, the poorest families had no source of electricity to recharge the batteries, some families did not dare to ask for the tablets as they were afraid they would need to pay for them if broken, some schools or teachers organised trainings for parents to be able to help their children, but this was not the rule, etc. (Vuorikari et al., 2020).

The Romanian data shows a digital divide between the urban and rural and on the gender dimension. The National Statistics Institute (INS) released data for 2020 pointing out that 78.2% of the Romanian households had an Internet connection, with a division of 60.9% of urban versus 39.1% of rural households and 84% of the households led by men versus 66% of those led by women. In relation to children's Internet use, the good news is that families with dependent children were reported as having Internet access in proportion of 97% (compared to 67.7% in households with no children (INS, 2021, p. 67). This program gave a boost to the use of DT for education but as it has been a temporary solution, funded by government resources for one specific school year, prolongation of Internet access and supplementation of devices have not been discussed for 2020–2021, although a large number of schools/classes operated online in October 2021.

In Romania, signals for too much time spent online for elementary school children were released in 2015, showing that the average age at which children start spending time online is nine years, with an average of 7.4 for children under 12-years of age and 9.7 for the those between 12 to 17-years of age. After they began spending time online, many Romanian children and adolescents have at their disposal several tools with which they could use the Internet. Even though computers maintain popularity, tablets and smartphones have become more widespread in recent years, gaining widespread use (Tőkés & Velicu, 2015).

In 2015, Save the Children Romania, based on a quantitative study, stated that 40% of children affirm that they surf the Internet without a specific purpose and that 28% have tried unsuccessfully to spend less time online. Almost 13% of children said that they often did not eat or sleep in order to be online and 23% that they did not feel comfortable when they could not stay on the Internet (Grădinaru & Stoica, 2015). Even so, when children chose to use the Internet for communication, the most popular social networks among them were Facebook (95.9%), YouTube (90.5%) and Instagram (81.4%) (Grădinaru & Stoica, 2015). When they connect to these networks, in the first stage, children come into contact with classmates and friends from real life (offline) (Tőkés & Velicu, 2015).

Previous Romanian studies that have given insight into the activities that children initiate online found that the most popular digital practices of the young Romanian children were watching cartoons on YouTube, playing downloaded or online games and making and watching slideshows or home-made videos (Tőkés, 2016, p. 101). According to these research data, before the pandemic, children rarely used digital devices for communication or searching for information (Tőkés, 2016).

According to the JRC Science for Policy Report, in 2020, for communication purposes, messenger apps (WhatsApp and Messenger) were the most commonly used by school children (95%), followed by emails (81%), text messages (e.g., WhatsApp) (74%) and social media like Facebook, Instagram and TikTok (68%), For education, children used video chat or video conferencing (92%), on the digital platform required by the school (71%); more than a quarter of the respondents in this study also used learning apps not required by the schools (28%). At the same time, the role of TV and radio educational programs have lower percentages: 41% for TV and 23% for radio (Vuorikari et al., 2020).

5.2. Sample of the DigiGen qualitative study

In collecting data for the current qualitative study, we followed the methodology provided by the DigiGen WP3 guidelines. Accordingly, the interview sample consisted of 11 families, with 12 children (six in the five–six-year age group and six in the 8–10-year age group). The families participating in the study were selected based on the snowball procedure, the starting point being four families with different social statuses from Cluj County, in the North-West region of Romania.

The Romanian team conducted 11 focus groups, five groups with pre-schoolers, aged 5-6 years, and six groups with elementary school children, 8–10 years of age, in which a total of 53 children participated. The composition of the focus groups varied widely, addressing diversity in socio-cultural and economical status, including children living in families, in deep poverty on the landfill (in the proximity of the garbage dump) to those in middle-class and well-off families.

The research was carried out in schools, kindergartens, offices of NGOs and the homes of the interviewed children. Consent procedures have been respected as described in the methodology. Interviews and focus groups have been conducted only with children whose parents consented to the research, and only if children themselves understood the scope, agreed to it and assented to the research.

Research methodology and the use of show cards was respected by all researchers and procedures were followed as agreed in the consortium, aiming for the comparability of research results. In the reports, for the focus groups we used fake names for presenting children's words.

The research group[6] was composed of four junior and one senior researcher. Research sessions were run with a lead researcher and a research assistant. We often invited educators or teachers of the children to be research assistants.

5.3. Findings

The first part of the interviews gave us information about the general perception and use of DT by young Romanian children and their parents. Among digital devices, the most frequently used are smartphones and smart TVs. We have identified two ways in which children use smart TVs: as a main device to watch movies with family or certain videos on YouTube, and as a secondary device for 'background noise'. For children, digital technologies, in particular the smartphone, represent a space for entertainment. Because most children are allowed to use these devices independently and generally without close monitoring, smartphones are a space of freedom and escapism from the 'world of adults'. Regarding the frequency and diversity of digital technologies used by children, one of the most recognised and used applications is YouTube, mostly for children five–six years old, and TikTok by children in the 8–10 years age group.

Referring to the use of technology by parents, the most used digital devices are the smartphone and the laptop. The adults using laptops associate it with the workplace, consider it a work tool and associate the smartphone more with the private space, which besides work, serves their personal needs, such as entertainment and communication with family members and friends.

From the category of digital apps adults use most often Facebook, Instagram, apps for online shopping and WhatsApp.

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More in-depth analyses were conducted on specific dominant themes and in order to present the results in an easy-to-follow manner, we will also structure the presentation of results from this point onwards based on these domains.

5.3.1. Meaning and usefulness of ICT for children

We can observe that access to digital devices is very important and a strongly motivating incentive for children in Romanian families, regardless of their social class. For Roma children, the digital device they recently received from school, from the city hall or some NGOs have been almost the only way to keep in touch with the education system during the lockdown. In some cases, the digital devices have prevented school abandonment, which is perhaps one of the most important results that can be attributed to them.

> Interviewer1: Let me know, where did you get the tablet?
> Dia: I got it from school.
> Ana: I got it from school too. (RO_FG2, 8–10 years old)

Regardless of their social group, in most cases children recognise the different digital devices on the showcards, and they have a faint idea of how they work, even if they have not had the opportunity to own, see or try them out in real life.

> Interviewer1: What do you recognize?
> Cristi: This?
> Interviewer1: Yes, what is it?
> Marius2: A robot.
> (RO_FG 1, five–six years old)

The 11 families of the Romanian sample show very different situations in terms of possession of technological devices owned or accessed by children, from children who share one smartphone with three other siblings (RO_F1) to children who have two or more personal digital devices (RO_F8).

Starting from the child's degree of familiarity with a certain digital device or apps, and then the frequency with which the devices and apps are used, most of the children interviewed recognised both the devices and the applications shown in the images in the first series of cards. One of the most recognised and used applications by children is YouTube (five–six-year age group) and TikTok (8–10-year age group). The children predominantly access the Internet at home and through mobile devices.

To understand the differences in the use of digital technology between these two age groups, we consider it necessary to present the perspective of children depending on age. It is also interesting to see the perspective of adults along with that of children.

The most used digital devices and applications by children:

5–6-year-olds:

- from devices category: smartphone and smart TV.
- from apps category: YouTube and TikTok

> Interviewer: What do you like most about the digital world?
> RO_F1_1: To watch TikTok, second place is YouTube.
> Interviewer: And how do you watch TikTok?

RO_F1_1: I enter.
Interviewer: On what?
RO_F1_1: On the phone. (RO-1-1)

Interviewer: What devices do you use mostly?
RO_F3_1: The smart TV, I used to use the phone but it's broken now. (RO_F3_1)

With a lower frequency, once every 2 to 3 days, from the devices category they use the laptop and the tablet, and from the apps category they use Facebook and various games applications, such as *My Talking Angela, My Talking Tom, Minecraft and Magic Tiles*.

8–10-year-olds:

- From devices category: smartphone, smart TV and speakers
- From apps category: TikTok, Facebook, Messenger and YouTube

Interviewer: What kind of speaker is it?
RO_F8_1: A speaker you can use to listen to music...
Interviewer: Do you have one?
RO_F8_1: Yes, we connect to it and we play any music we want on it. If we want, we can turn up the volume. We use it only for music. (RO_F8_1)

TikTok is the favourite of 8–10-year-old children, being perceived as a platform that offers the opportunity to manifest social status.

Andu: There's TikTok
Interviewer: Are you using TikTok?
Andu: Yes, yes, yes, yes!
Radu: I also have an account on TikTok.
Dia: I have 1,000 followers.
Interviewer: A thousand followers, wow!
Radu: I have 600.
Duci: I have 450.
Andu: I lost my account; I had 4,000 followers.
Interviewer: How did you gather so many? It seems incredible to me
Andu: I did episodes of a game.
Interviewer: So, you filmed yourself playing?
Andu: Yes. (RO_FG7, 8–10 years old)

With a lower frequency, once every 2 to 3 days, they use the laptop and a PlayStation and from the apps category they use Roblox and Snapchat. A PlayStation is the most desired device by children, followed by a smartwatch, but only two of the children interviewed have consoles: RO_F8_1 and RO_F9_1. It is worth mentioning that the girls consider the PlayStation to be an interesting device only for the boys.

Asked what Roblox is, RO_F11_2 explained:

It is an application that you have to download, after which you create an account. It is not necessary to enter your real name; you can use pseudonyms. And after you have an account, you can start collecting clothes, animals and land. There are some for sale, but I only use those that are free. (RO_F11_2)

Among the devices that most children do not use and have encountered difficulties in recognising is a virtual assistant AI technology (Alexa), with one exception, RO_F6_1, who had such a device

at home.

Further, in several situations children have confused the computer with the smart TV. On the other hand, for them it was easy to recognise the laptop. This aspect is relevant in terms of the phenomenon of a higher frequency use of the laptop, to the detriment of the computer. In most situations the computer is used only for work and at work; thus, not having such devices around, children are not familiar with their usefulness and appearance.

From the category of applications, children do not use Spotify and Instagram. In one of the interviews, RO-F11-1, the child said that the Spotify card indicates that the phone is connected to the Internet, as the graphics for the Spotify logo and the signal of the presence of a Wi-Fi network are very similar.

Some of the children use certain applications depending on their usefulness; for example, a young girl told us that she most often used TikTok for entertainment, Viber for socialising with classmates and Roblox for virtual community gaming platform. For socialising with family members, she also uses applications such as Messenger and WhatsApp.

An interesting detail is the children's perspective about the usefulness of robots: no one from our sample had a robot. To the question 'How do robots appear, who produced them and for what?' a 5-year-old girl answered 'Santa Claus! He created them for children to take care of them. To help us get somewhere if we don't know the way, the address. To cook for me, to help me wash my hands. They could play with me and take care of me. I really want a robot...' (RO_F11_1).

It is interesting that in the case of families where there are several children and an older brother, the little ones know many details about the devices and applications from their siblings. For example, RO_F7_1 knows about Facebook, WhatsApp, TikTok, Spotify, Instagram and smartwatches from his sister, and RO_F6_1 knows about sound editing software from her brother:

> Interviewer: What else can we use a laptop for, except for online school and watching YouTube?
> RO_F6_1: We can make music with it, using a special program.
> Interviewer: Create or listen to?
> RO_F6_1: To create. My brother has a program named FL studio and he uses it all the time. He likes music a lot, but my mother doesn't like what she hears... (RO_F6_1)

Referring to the way in which the children perceived the B-series image cards, we noticed that the scenes depicting the different situations were easy to understand. It was not difficult for them to identify with the characters because they faced many similar situations themselves. What was different was the situation of the disadvantaged children, who did not rate the scenes depicting negative situations as negative in all cases. This may be explained by the lack of clear rules about the use of digital devices in their families, with their parents not behaving consistently in these situations. However, they are aware of only the positive side of the existence of digital devices.

5.3.1.1. Usefulness of digital technology – Children's point of view

The children use digital technology as a response to some personal needs (the need to socialise, entertainment, play). The most common activities in which children engage through digital technology are games, watching videos (tutorials of how other children are playing in a

game) or just to be ‘online’ or ‘on TikTok’. Video games seem to be the activity that connects all 5–10-year-old children to digital technology.
Children from the five–six-year age group used YouTube for cartoons, music, tutorials and in some cases for kindergarten projects. They watch cartoons on the smart TV and also on the smartphone (on YouTube).

> Interviewer: And what are you looking at on the TV?
> RO_F4_1: Paw Patrol, Pyjama Heroes, Blaze and the Monster Machines, these kinds of shows… they are cartoons. (RO_F4_1)

> Interviewer: Are you using YouTube?
> RO-2-1: Yes.
> Interviewer: For what are you using it?
> RO-2-1: I listen to music.

We can observe that in many situations the smart TV is assigned more functions, often being used to select video content from YouTube.

Children highlight the aspect of socialisation related to DT as giving a feeling of familiarity and taking advantage of the expressive mechanisms of socialisation related to applications dedicated to beginnings such as emoticons.

> There are all kinds of faces that you can send to people, and they are looking at this. (RO_F6_1)
> I like that there are all kinds of emoticons. (RO_F10_1)

> In some cases, children also expose the limitations of certain devices that they find slightly annoying: ‘If only it had at least Google (on a smartwatch), it would be awesome’ (RO_F7_1).

In the 8–10-year-old age group, TikTok is used for entertainment. At the same time children are aware of the economic potential of this application: the opportunity to earn an income if one produces attractive content, and how.

> There are challenges that you can do and if you have a profile with many followers, you can make money from views, but you have to know how to dance or be very different. (RO_F11_2)

The integrative aspect of using several types of media on a single device fascinates children and indicates that they can handle complex actions by taking advantage of and integrating more facilities offered by digital devices.

> The smartphones are useful to make calls, take pictures, send messages. I also made video calls with ten people during vacation. The robots can help us to clean the house, the smartwatch is useful to listen to music and make calls. (RO_F8_1)

The children know the differences between various types of messaging apps:

> Messages and Messenger. Messages is from the phone, meaning you can send an SMS from your phone number and the person who receives the message can see your number. Messenger is an application related to Facebook; there you can see your Facebook profile picture and your name. (RO_F11_2)

The way in which technology can influence aspects of daily life is related to how much the child

allows that device or application to be part of his/her daily routine. A good indicator in this regard is the extent to which the devices are personalised (custom case, personalised stickers on devices, the background image of devices). For example, one of the participants (RO_F6_1) named her speaker after her personal name.

A reverse learning process can be observed when children 9–10 years old show their parents how the devices work and help them find content that interests them. There is not really a system in place for how much time children can spend with their digital devices. In the case of the children living on the landfill, the limiting factor is their ability to charge their devices, which is not always possible.

> Interviewer 2: Did you have a phone?
> Interviewer 1: Who has a phone at home?
> Costel: Mom gave it to me.
> Interviewer 1: Mom gave it to you?
> Lia: Mom lets me play on the phone.
> Interviewer 1: Mom lets you play on the phone?
> Dia: Also, my mom lets me play on the phone.
> Interviewer 1: Ok.
> Interviewer 1: Tell me, where did you get the tablet?
> Dia: I got it from school.
> Alina: I have received a tablet from school too.
> Interviewer 1: And you?
> Robi: I have a phone.
> Interviewer 1: What do you use the tablet for?
> Daria: To look at cartoons.
> Ana: To look at movies.
> Interviewer 1: To watch cartoons and movies?
> Dia: To listen to music.
> Alexa: To see the celebrities.
> (RO_FG2, 8–10 years old)

5.3.1.2. Children's satisfaction with digital technology in the home and at school

The aspect of DT most acclaimed by children is the communication and socialisation that they consider a central element of the Digital Age the facilitating mechanisms of which (such as emoticons), as previously presented, they have adapted and are familiar with.

Regarding the digital behaviour of children, manifested in the two different environments, at home and at school, we can see that most children delimit these two environments by using different digital devices. This is due to the various activities related to these two contexts. In most cases, the smartphone is perceived as a device for quick entertainment and the tablet and the laptop are devices for school.

> Interviewer: Do you use the tablet every day?
> RO_F6_1: Sometimes, when I leave the house, I don't use it.
> Interviewer: So, you don't take the tablet with you?
> RO_F6_1: No, it stays at home.

RO_F2_1 has a tablet given to him by the school. He uses it on a daily basis, but most of the time

for school, as he is afraid that he will break it. RO_F1_1 also had a tablet given by the school, but she broke it, a similar situation being the case of RO_F3_1 whose tablet was broken by her younger sister.
Use of a laptop by the younger group of children was rare, but RO_F4_1 uses a laptop with Zoom for the online classes held by the kindergarten teacher.

The schools and kindergartens try to curb the use of phones as much as possible. We observed that children tend to leave tech-enabled lives behind them as they enter the classroom, but this is only for the teachers' eyes: in their discussions during breaks, a child's status in the group and even school success are areas influenced by the use of digital technology. Some children also secretly use digital devices in the school context.

At the same time, outside of school, digital devices are an integral part of everyday life. This is shown by the answer to the question of what the world would be like without digital devices: boring, monotonous, sad. There were kids who had difficulty imagining the world without digital devices. The first and foremost reaction of all the children was that they would very much dislike a world that lacked electronic devices.

> Radu: Ugly. We couldn't call each other.
> Interviewer: Daria, what would our life be like?
> Dia: The advantage would be that we would no longer be on the phone. It would be nice, but the disadvantage is that we would be bored without the phone; we would have nothing to do.
> Interviewer: Andreas, what would our life be like?
> Andu: We would be bored without.
> Lia: Boring, winter would be a lot more boring. (RO_FG7, 8–10 years old)

> Interviewer: Try to imagine what our life would be like without a laptop, or without a telephone.
> Dan: I can't. I would die.
> Interviewer: You can't imagine because you're dying, are you Dan?
> Dan: Because I love technology.
> Interviewer: What would our life be like without technology?
> Mia: Life would be clearer uncomplicated. (RO_FG8, 8–10 years old)

Based on the data obtained we noticed that in children's lives, access to technology is a basic criterion for the group inclusion of the child.

There are indications that digital devices can be used by children as a source of status, or at least that they help socialise through discussions about them. We must consider, however, that this may be just an argument by which children convince their parents that they need that device because other children have it.

That's how it was with us when we bought PlayStation. Stefan complained that he had nothing to talk about with his colleagues and that he was rejected in the group because he didn't have a console and didn't know what those games were about. (RO_F8_2)

The mother believes that depriving the child of technology is not a solution, lack of access to technology being a criterion of social exclusion: '…by limiting children's access to technology, you are actually creating the context for them to be socially excluded' (RO_F8_2).

The use of devices with peers is not just something that is always done remotely by potential

interlocutors. In some cases, devices are used as entertainment offline with other people who are next to each other (e.g., watching movies or even more active elements such as playing video games on a console): 'I played on the console at some friend's house' (RO_F9_1).
Children tend to associate the lack of, or limitation in access to, digital technologies with poverty, the inability to use these devices or with the label 'you are not cool' if they know nothing about Minecraft, PlayStation or certain apps.

By using specific applications designed to improve children's knowledge, they can increase their level of school success. In this case, digital technology assumes a so-called 'mediating role', being a bridge that would allow the strengthening of the new knowledge accumulated by the child at school by using certain digital technologies in an intentional manner. A mention should be made here about the role of technology, especially in watching video materials such as gaming tutorials, in the acquisition of language skills and competencies. The learning of English by children with the help of DTis relevant especially in the case of Romania.

> Interviewer: Where did you learn English?
> From YouTube and Minecraft (...) my friend doesn't know so well to read and text in English, so I aid him when it does not understand something from the game. (RO_F9_1)

Children believe that the use of digital technology has advantages in all areas of life, regardless of context. The behaviours in which children engage when using digital devices at home are related to the existing models they observe in their family (by siblings, parents, relatives and friends visiting the family).

Some of the children want to spend time with their family doing activities mediated by digital technology.

> Interviewer: If you have a PlayStation, do you think you would be able to play with your whole family?
> RO_F11_1: Yes, but that will never be possible. They never have time; they are very busy with work.

5.3.1.3. Gender differences in DT use by children

Referring to the different ways in which technology can be used depending on gender, the interviews revealed gender dimensions assigned by children to certain technological devices and differences regarding perception of the benefits of certain digital devices and applications.

Starting from the perspective that in generating a digital experience, the socio-cultural context, family and social background are reference points for children, the perception of how digital technology is to be used and for what reason is influenced by existing gender stereotypes learned by children in their social-cultural context. At the moment of using and accessing DTs by each of children and adults, they do not have a tabula rasa of status as users; each of us has baggage of personal experiences, mentalities, personal needs, prejudices and other elements that in fact determine the 'colourful character' of experiences in the relationship between human and technology. To illustrate the gender dimension here, we cite the participants who attributed gender dimensions to certain technological devices or applications.

> Interviewer: What is Facebook?
> RO_F6_1: Facebook is something that you can look at, and there are many girls. You can take photos of you and post there. You can send to people different faces (emoticons) and they are looking at this.

(RO_F8_1): Even though the games on the PlayStation are more for boys, sometimes I play with my brother.
RO_11_2: Only boys use speakers or robots and sometimes they are naughty and put on loud music...

Regarding the gender differences regarding the scope, girls most commonly use digital devices like smart TVs (for watching cartoons accessible through the program grid) and smartphone (for YouTube, Roblox and taking pictures or making short films for TikTok), while the most common devices used by boys are smart TVs (to connect to a console) and laptops (for watching YouTube videos or playing online games). In the case of the RO_F11 family, the interview with the girl aged nine revealed that sisters sometimes agree to watch a vlog together, but their brother prefers cartoons and cannot agree with the girls on common entertainment.

Regarding the differences in the perception of the benefits of certain digital devices and applications in everyday life, we identified that girls were more oriented towards the impact of DT on the education dimension. On the other hand, it is interesting that boys consider the relational and communication dimension to be more impacted by the daily use of digital technologies.

Reflecting on the advantages of digital technologies, a schoolgirl commented: 'All the time and anywhere. For example, if I had a tablet, I wouldn't have had to repeat a school year. You can find a lot of useful information on the Internet. Nowadays it is important to be connected to the Internet' (RO_F3_1).

Interviewer: How do they make your life easier?
For example, for (getting) information, to do homework... (RO_F5_1)

Yes, they help us communicate and keep in touch. (RO_F2_1)

You can make calls and you can keep in touch with people. (RO_F7_1)

5.3.2. Meaning and utility of DT for parents

The frequency of use of certain digital devices by adults is generated by several factors. Most often, they adapt their use of different devices and applications to the intended purpose for more efficient use.

5.3.2.1. Devices and applications used by adults

Based on these observations, we grouped the diversity of devices and applications used by adults into three categories:

1) Digital technology is used for **personal purposes**, starting with personal needs.
The most commonly used device is the smartphone, seconded by the laptop. For communication and entertainment, adults largely use smartphones, while for access to information and activities related to the workplace, they mostly use laptops.

Interviewer: And what kind of information are you looking for on your laptop?
RO_F4_2: Firstly, information related to school, professional, scientific and on the other hand I'm looking for news, the press article. (RO_F4_2)

The laptop is my devoted friend. It helps me work, I used it so much that I ruined five keys.

I use it daily for work. (RO_F6_2)

From the category of digital applications, the most used by adults are Facebook, Messenger, WhatsApp and YouTube. With a lower frequency are Instagram, Spotify, TikTok, Pinterest and Telegram. Several parents told us that the existing digital content on TikTok is not suitable for children, though it is considered to be the social media of children.

For some adults, Facebook is the main source of information and for others the last source of information. Four of the parents claim that they are Facebook-dependent, Facebook being the most frequently used application, in different contexts.

Interviewer: How often do you use it?
RO_F2_2: I use Messenger every day because I talk with P (partner). He's working in the UK and I don't know another way to speak with him. (RO_F2_2).

To have Facebook is important for RO_F2_2, being a means of communication that ensures the continuity of the relationship with her husband who went to work in the UK.

RO_F11_3 uses various devices and applications, usually more than four times a day: Facebook, Instagram, Viber, Telegram and WhatsApp. Once every two days, she uses the computer to check her personal email and for some job tasks.

One of the participants in the research, RO_F4_3, a grandmother, when asked if she uses modern digital technology, gave an ambivalent answer: 'Yes and no.' Of all devices, she uses the mobile phone the most frequently, and this only for the purpose of communicating with her family. She has a Facebook account, but rarely accesses it. The grandmother believes that digital technology is very useful for children and young people, being aware of the process of digitisation of the economy. She also believes that it can be useful for the elderly if someone is available to teach them how to use it.

Interviewer: Do you use a computer or laptop?
RO_F4_3: I don't use it. I only use the phone when I talk.
Interviewer: Do you have Facebook? This is the Facebook logo.
RO_F4_3: Yes, but I rarely use it. I don't know very well how to use it and I better not go in. (RO_F4_3)

Grandparents from RO-11 have two smartphones, and usually the children use them. For personal purposes, these grandparents use phones only for calls.

Digital devices (especially the smartphone) are perceived as a primary instrument that can be used in case of emergencies.

Interviewer: Where and how can these devices facilitate some dimension of your family's life?
RO-1-2: First, technology is important in helping children with homework. Or, when we have a problem… I can call the rescue, a doctor, or a taxi. (RO_F1_2)

2) For several parents who do not use DT for work, the use of smartphones, tablets and laptops is related with the child's needs and the requests of schoolteachers. From the category of digital applications, the most used are WhatsApp and YouTube.

I downloaded WhatsApp because my son's teacher said that we need to have this application.

> There, the teacher made a group with all the students and there she made an announcement related to the school. (RO_F2_2)

RO_F1_2 uses mostly the following apps: TikTok, YouTube to support children in looking for cartoons and Facebook for personal interest, such as spending free time, maintaining relationships with family members living in another city and for information.

> Interviewer: Why do you use Facebook?
> RO_F4_2: When I have to see some photos or messages that are posted by someone only on Facebook. At Timothy's kindergarten, at one point there were some messages posted only on Facebook and not on their website, and now I have opened Facebook to see the teachers who take the preparatory class, to see their face and feed history. (RO_F4_2)

In the case of disadvantaged families, where they have only one digital device, the mother must postpone her own needs in favour of the children's needs.

3) DT is used for **communication and participation in social life**. Analysing participation in social media, we identified two directions:

- To be a part of the family—by including technology in family life. DT contributes to the way families organise and live together, and has significantly transformed in the last two generations, having an obvious impact on relations between family members. The use of DT for family activities contributes to maintaining some common time with family members, especially between children and parents, including spending time together for entertainment. The most common devices used for common time are smart TVs and smartphones. The most used apps are Netflix, HBO, Messenger and WhatsApp.

  > Interviewer: Do you watch movies or YouTube videos on your computer or laptop?
  > RO_F6_2: No, the screen is too small. We use our laptop and computer more for news or certain concrete information. For movies we use smart TVs. (RO_F6_2)

RO_F7_3 believes that watching a movie with his family can be a technology-mediated activity that includes spending quality time with the family, the other types of online activities being 'just a waste of time'.

- To be a part of the social group and aware of the social events—the use of DT to access information, to read news and to actively participate on social platforms in all kinds of discussions about social and political issues. For this, the most common digital device is the smartphone. The most used applications are Facebook, Instagram, email, Pinterest and YouTube. Likewise, adults use DT to spend time with friends. For this, they use devices such as smart TVs. To be aware of music trends, they use YouTube.

  > Ooh… Facebook! The thing I wake up with in the morning. I have an account and I log in whenever I have free time. I find it useful. I found a lot of high school's friend there and I can see pictures of all my colleagues. (RO_F6_2).

  > I admit that I don't really use all these devices. I mostly use Facebook and WhatsApp for communication—there I have all kinds of groups I am part of. I talk a lot on video-chat with some of my friends from another country. (RO_F8_2)

In disadvantaged families, we encountered parents who still own phones without touch screens for some the smart phones, and tablets were 'borrowed devices' that were received from the schools and NGOs and are used by the school-aged children.

> You have to pay attention to what they do, where they „walk" on the internet, what they access and press... If someone walks past you and swears, and it's near the microphone, what the person said appears on your phone. It happened to me... (RO_F1_2).

These parents do not understand how to operate the touch screen devices, so they give their children maximum freedom to browse the internet. Unfortunately, in these families there is no content censorship, so in such cases children might watch inappropriate content.

5.3.2.2. Parents' perspectives on usefulness of DT

Although adults utilise technology for personal and work-related communications and interactions, they also use technology to keep in touch with friends and extended family members. We have identified the following areas for which adults use DT the most frequently:

- For online shopping (RO_F4; RO_F8; RO_F11)
- Showing there care for children's health, those who use various applications for online shopping have stated that they only buy goods that do not expire, so, food products are not on the online shopping list.
- For communication and socialisation purposes
- 'Facebook helps to maintain relations with all the family. For example, now I have a baby and I can't go to my mother. I can call her on Messenger, and I can see her any time.' (RO_F2_2)
- 'The phone is useful because I can keep in touch with my family. Yes, primarily all these devices are useful for communication.' (RO_F6_2)
- As a form of leisure, adults mention that they use YouTube and some mention common activities like gaming:
- '... for entertainment I prefer YouTube as an application, and the mobile phone (smartphone) as a device.' (RO_F7_2)
- Intergenerational perspective. Parents and children can do digital activities together, creating opportunities to support each other, and have fun together.
- For example, one father talked about how gaming on DT is bridging the intergenerational gap: 'I feel like we speak the same language' (RO_F8_3).
- Another parent mentioned preparing a snap together and participating in a Snapchat (RO_F6_2).
- Several parents mentioned using DT together In order to search for a variety of information, depending on the common areas of interest.

Some devices are used specifically for certain activities, for example RO_F5_2 uses the laptop for work, online shopping and for aspects related to the child's education. The smart TV is used only for watching Netflix, HBO and YouTube. She also uses the smartphone frequently; on it she has installed apps like Facebook, WhatsApp, Messenger, Instagram, Pinterest and Calendar.

5.3.3. Family life and family practice

The extent to which digital technology is included in the family determines the impact and the changes of the family dynamics. From the total number of interviewed families, we identified the following family patterns regarding the use of technology in the family:

- Families that use the technology at the minimum necessary level and a small variety of devices and applications, the most used devices being the telephone and the television. The main goal in such families is to keep in touch with each other and sometimes access information, mostly related to entertainment. On average, these families have between one and three digital devices. (RO_F1, RO_F2, RO_F3, RO_F5).

Interviewed children in disadvantaged Roma families had fewer DT in their families compared

to well-off families. Devices owned by families were shared and used alternatively, by children and parents, as well as by older and younger siblings. For example, one tablet is used by two sisters for schooling, one smartphone was used by a boy of nine years of age for school and entertainment and his stepmother for communication. In such families, the negotiation of device time and space for home-schooling is not easy. Poverty also adds difficulties and responsibilities for charging and caring for the device, which rarely last for long in such families, due to being taken from one person to another, or being traded for food, or other necessities in case of hardship.

- Families that use digital technology with a higher frequency, and with parents' daily control, the devices being used purposefully. The variety of digital devices is wider: in addition to the smartphone and TV, they also use the computer or laptop. On average, these families have between one and five digital devices (RO_F4, RO_F6, RO_F9, RO_F10).
- Families who use digital technology frequently, owning various devices and various applications. On average, these families have between one and eight digital devices (RO_F7, RO_F8, RO_F11).

  We have too many devices. Some we don't even use anymore. There are two tablets that children no longer use. They prefer to argue over the phone rather than to take the tablet. (RO_F11_3)

For example, RO_F7_2 uses a laptop for work, YouTube for music, Facebook and WhatsApp, and the smart TV for music and Netflix. The father also listens to music on YouTube and uses WhatsApp and Facebook and the smart TV for TV series and documentaries. He also uses Waze, an app for drivers. The elder sister uses almost all the apps. The only thing the family does not use are the robots and a PlayStation. Once a month, the parents use their devices for online shopping.

5.3.3.1. Perceived risks

Many parents believe that technology negatively influences family life, especially family relationships. For example, RO_F6_2 considers that the main disadvantage of DT is the consumption of time that can be invested in the growth and development of family relationships.

> I think we spend more time on devices than with family. We need a good set of rules so that we can spend more time physically interacting with each other. (RO_F7_2)

> Interviewer: What would be the advantages or disadvantages of using digital technology for your family?
> RO_F7_3: The ease with which you can connect with family members. They are also useful for information, meaning you can verify the information, so now we can no longer be manipulated as easily as during communism. In some measure we have an information power, truth power. but there are also negative aspects. Even if we say that it helps us to keep in touch with the family, at the same time we feel we are away from each other. The boundary between these two aspects is very thin and we must be careful how much time we spend online without neglecting the relationship with those around us. (RO_F7_3)

5.3.3.2. The role of digital technologies in transnational families

We cannot talk about the impact of digital technologies in family life without including the category of transnational families, for which technology remains a catalyst in maintaining family relationships and in virtualising family practices. Two of the interviewed families are transnational families, in which one of the parents, or a member of the extended family, is abroad to work.

For these families, the lack of digital devices would mean the interruption of communication with family members who migrated (as mentioned by the stepmother of Ionica in RO_F2_2, in the subchapter 5.3.2.1).

For inclusion as much as possible into the daily family activities of the migrant member, in the daily routine and in the aspect regarding the negotiation of the rules on the use of digital technologies, the moment of communication with the family member who is abroad has priority and prevails over the other family activities or rules.

More than the number of devices owned, the purpose of using DT by children and the 'story' behind the device, its degree of functionality, the technical parameters and the level of proximity of the child to technology are some elements that transform the simple action of using technology into a complex experience, which has an impact on all aspects of the child's life. The intensity of this digital experience is influenced by both internal factors (characteristics of the digital environment) and external factors, such as social status, cultural context, family dynamics, family income or parents' level of education. For example, the interview gave us insights to understand the value of the DT from the point of view of a Roma child, nine years of age, who told us the story about having to sell the console received from his father to get money for food for his family (stepmother and stepbrother) living on the landfill, to survive the lockdown crisis, while his father was stuck without a job in the UK. He shared the phone with his stepmother and stepbrother and used it for school and communication with family members and for entertaining his brother and himself. By being competent in using the smartphone, he became the stepmother's ally, rising in the hierarchy of family power.

5.3.3.3. Construction of family life and ICT

We identified two main trends in the contribution of DT to the construction of family life:
- Mediation of family relationships
- Anchoring the family in certain cultural groups (global/national/local)

The communication aspect of DT is often seen as an advantage by parents in the analysed interviews, and as a beneficial factor for the maintenance of family connections, facilitating easier communication between members. Seeing each other was especially valued when contacts were difficult:

> …now I have a baby and I can't go to my mother. I can call her on Messenger, and I can see her all the time. (RO_F2_2)

There are advantages and disadvantages. An example of an advantage may be the fact that it allows us to have free access to information; we can find whatever you want. It also facilitates the maintenance of the relationship with family, friends. If I can't visit a relative, then I make a video call and I enjoy the experience of seeing that person. (RO_F7_2)

> Technology helps … a lot to organise your daily life, family life. (RO_F1_2)

ICT can be beneficial for building family ties through the collective consumption of digital content (e.g., watching series/movies together within the family with some regularity).

5.3.3.4. Family rules and negotiation: Practices and conflicts

DT increasingly offers parents more and more opportunities to monitor children, reshaping the way control and autonomy are negotiated within families. Negotiations and conflicts take place

on two dimensions: vertically (child-parent/adult) and horizontally (child-siblings).
From a **child's perspective**, the most common causes of conflicts related to the use of digital technology in the family are:

- One digital device must be shared with siblings

  Interviewer: How do you get along with your sisters when using the smart TV? Do you argue over it?
  RO_F3_1: We sometimes argue, because everyone wants to watch different things, but the smaller children win, because if they don't get to watch what they want, they start crying. (RO_F3_1)

  Interviewer: How do you get along with your siblings when using the phone? Do you argue over it?
  RO_F1_1: Yes (because they only have one phone, and everyone wants it). Everyone should have their own phone.

This girl's solution to make everyone happy was not around rules and negotiations, but about providing smartphones for all kids in the family, not only for adults.

In the case of the RO_F11 family, family members are split on the contents of DT use according to their gender identities: sisters sometimes agree to watch a vlog together, as they have some common interests, but the boy, the youngest child, prefers cartoons and cannot get along with girls to choose the same content. If the phone is taken away from him, he starts crying, screaming and hitting. In such situations, the mother intervenes, who usually returns the smartphone to him and tells the girls that they are older and must understand him.

- Conflicts with parents, because children do not respect rules: they spend too much time on devices, or not respecting an optimal distance between the device and the eyes

  I have arguments with my mother because I'm watching things for older people. And sometimes when I sit too close to the TV while playing on the PlayStation. If I stay too close, I will have to wear glasses and I don't like it. (RO_F8_1)

  Interviewer: Do you ever argue with your mother about using those apps too much?
  RO-1-1: A bit, mostly when I watch TikTok too much and deplete the batteries. (RO_F1_1)

From an **adult's perspective**, the most common causes of conflicts related to the use of digital technology in the family are somewhat like those explained by children:

- Children have only one digital device that must be shared with the other siblings. In such situations the parent always offers support and defence to the younger child (RO_F1; RO_F2; RO_F3; RO_F11).

  The children were arguing with each other. I made the rule to enter one by one… There are children here (in the community) who stay for hours on the phone, until late at night. If I left them, mine would do the same. And being in the socket, she would stay with him, she wouldn't even let him charge… (RO_F1_2)

  There are some conflicts because the children have just one phone that they have to share. (RO_F11_3)

- Children use digital content that is considered inappropriate by adults

> Sometimes, Sonia watches YouTube videos from which she learns nothing, or she watches others how they play Minecraft. I tell her to turn off the phone because it annoys me when I see what she's looking at. (RO_F6_2)

For the RO_F7 family, negotiations refer to what content is consumed.

> Sometimes he looks at something useful from which he has something to learn. Other times he looks at the Minecraft tutorials from which he actually learns nothing. (RO_F7_2)

> I have arguments with my mother because I'm watching things for older people. And sometimes when I sit too close to the TV while playing on the PlayStation. If I stay too close, I will have to wear glasses and I don't like it. (RO_F8_1).

- Most of the parents complain that children spend too much time on devices

> Interviewer: Do you ever have quarrels or disagreements about using the Internet or devices?
> Yes, when it seems to me that he is watching too much TV... it ends with quarrels. If he already has an hour to watch TV, or a maximum of two hours, I find it difficult to detach it from the remote control. He doesn't accept the situation; he revolts, which seems natural to me, I would revolt in his place… because the cartoons are beautiful. (RO_F4_2)

> Yes. Because they are staying on the phone too long and it's not good. My sone stays often upp until 3–4 in the morning. (RO_F2_2)

> Yes, with Toma. I tell him, 'Toma, this cartoon is over, I'll leave you just for another 10 minutes…' Sometimes he exaggerates. If he's not on TV, he's on the laptop. If he's not on the laptop, take the phone… If he sees that I'm somewhere, get the phone and that's it. He quickly learns how to use some apps and he already knows how to handle them all. I have another nephew and he do the same. If he doesn't like something, quickly look for another video. Today's children understand all technology better and faster. (RO_F4_3)

> Yes, with children every day, it is very difficult to detach them from the tablet, phone or laptop. (RO_F7_3)

In some cases (RO_F1, RO_F2, R_F6, RO_F11), the rules established in the family depend on the digital skills of the older child, the parents being to some extent dependent on him or her when they need to use technology or provide technical support for younger children.

5.3.3.5. Parents' digital literacy level and the rules regarding the use of digital technology in the family

An essential role of parents is to set limits for young children using the DT. Parents differ in their attitudes towards the necessity of DT and their confidence in using of digital technology, as well as in their ability to set limits with consistency, firmness, and gentleness to ensure the safety of children. In the long term, the rules set by parents and the practices used to negotiate these rules will become the basic principles to which children will refer in order to access and use digital resources.

In one of the situations, the parents took parenting courses where they had the opportunity to find out ways to negotiate the rules.

Interviewer: So, you made up the rules, following some parenting programs…
RO_F5_2: Sort of...since Miranda was a baby.
Interviewer: How strict are these rules? Are there any exceptions? Are you strict about applying them?
RO_F5_2: There are some exceptions…

In our sample we had parents who have a higher level of digital skills (identified in the interviews by the way they were able to provide details about certain mechanisms of operation behind certain applications agreed as a couple on the rules applied in regulating children's use of DT mentioned few or no conflicts related to the use of technology within the family. Involving children in establishing these rules was another way of competent parenting. Elaborating on participation of children in defining rules was expressed by only one family, who were skilled not only in using DT, but were also professionally engaged in analysing parenting behaviour.

> We parents have an agreement never to punish children by limiting their access to technology, not to try to put some rules that seem OK for us without asking them for their point of view. We do not want to make this (use of digital technology) a problem, because we have seen many parents punish their children by depriving them of devices and children becoming problematic. (RO_F8_2)

The data we collected indicates three typologies of families in relation to the rules: families that impose strict rules (usually related to the time allocated to digital activities), families that impose rules but do not enforce them and families that do not impose restrictions on the use of technology. It is worth mentioning that in most cases the rules are made by the mothers. There are rules for the older children and other rules for the younger ones. Fathers are rarely involved in setting or negotiating rules. Participation in setting the rules was not reported in our interviews with children.

Interviewer: Who made up these rules?
RO_F3_1: Mother did. (RO_F3_1)
Interviewer: Who made these rules?
RO_F4_1: Mother. (RO_F4_1)

(1) Families that impose strict rules (usually related to the time allocated to digital activities) (RO_F3, RO_F6, RO_F9)

In the case of these families, we can see that parents usually specify the actions they take when the rule is not followed.

> She (daughter) is not allowed more than one hour on the tablet and is only allowed after doing the homework. Sometimes, after sitting on the tablet for one hour, she goes and turns on the TV. If I notice her, I go and turn it off. (RO_F6_2)

> Children often interiorise and accept the norms set by parents: the girl of the mentioned mother thinks the rules are there for the whole family, and that it is appropriate to have restrictions in using DT if one behaves badly. (RO_F6_1)

> Interviewer: Are there rules in the house about using the smart TV or the apps?
> RO-3-1: Yes, there are. We are not allowed to use Facebook and we are allowed to watch Tik Tok a little bit. (RO_F3_1)

One method by which the families promote compliance with the rules, is to promptly react for disobeying them. Another one is to provide benefits in compliance with them.

> Two hours a day, but if I abstain from Monday to Thursday, … (then I have) Friday, Saturday, and Sunday unlimited. (RO_F9_1)

(2) Families that impose rules but do not enforce them (RO_F1, RO_F4, RO_F5, RO_F7, RO_F10)

> In the case of these families, we can observe an interesting trend: those who help us in noticing the lack of rule application are usually the children.

> When they let me use the smartphone, they say: '10 minutes.' But I use the smartphone for much more than 10 minutes... (RO_F7_1)

> Sometimes mother doesn't allow me… sometimes she allows me. (RO_F4_1)

In some cases, though, parents acknowledge that the rules are not being followed and even provide guidance on the causes that led to this situation. They explain that sometimes it is momentary disturbance that causes to ignore the rule, and as a result further rules have been increasingly difficult to apply.

> Yes, we made some rules. We tried to follow them, but we didn't manage to stick to them. We make many exceptions that eventually lead to a total reduction of the rules. (RO_F7_3)

We found indications of violations of the rules in these families, some children acknowledging that at least sometimes they manage to break the rules.

> I secretly disobey them (the rules) sometimes. (RO_F5_1)

In this category fall also those families where are no explicit rules regarding the time for using of technology, but adults expect children not to look at a certain type of content. The behaviour in which adults engage in such situations is often not consistent and is determined by unforeseeable factors from the perspective of the child. RO_F11_1 claims that if she is caught by her mother or grandmother watching YouTube, they scream at her and punish her.

> Mom doesn't allow me to watch YouTube videos… I mean... she allows me, but sometimes when she is upset, she does not allow me, and then she yells at me if she sees me, but I like to watch funny videos. Sometimes Grandma comes and says: 'Why are you looking at this stupid video?' and right then she's shutting down the computer. I tell her it's interesting to me, but she won't let me and if I talk a lot, she punishes me for not having the phone at all that day. (RO_F11_1)

We could observe that the rules used in the families in this category are not followed in a strict way and are not clearly defined. Parents do not explicitly define inappropriate types of digital content and do not explain to children why a certain type of content may be harmful to them. Because the rules are not clear, there are frequent exceptions. The lack of regular parental monitoring conveys to children that they can avoid respecting rules.

(3) Families that do not impose restrictions on the use of technology (RO_F2, RO_F8, RO_F11)

These families usually take a passive approach to DT usage regarding time spent on devices and content of the digital activities Some of these families are not competent in using DT and might not be aware of the risks for their children. The passivity related to rules does not necessarily mean lack of digital education. Some parents might have difficulties managing the limits of their children's behaviour. In other cases, families are aware of risks and explain them to the children and seem ready to intervene if they acknowledge gender. One explanation in

the lack of rules in these families may be that they have a high degree of confidence in their children and their ability to understand the dangers once they have been explained. Thus, an approach that considers all families that are part of this group negligent would be wrong without a closer analysis of the family context.

An interesting aspect is the fact that children from these families in which there are no rules consider that it would be good to have some rules for both children and adults. For example, in the RO_F11 family there are no rules. The girl thinks that some rules would be very useful. For example, she would ban the use of phones in the morning and in the evening as this should be family time. Parents should play with their children, talk to them, and cook together.

> Interviewer (discussing the role play with playing on the phone at bed-time): Do you think there should be any rules?
> RO_F11_2: Yes, if I could set some rules, I would forbid you to use the phone in the morning and in the evening and to use the devices only a maximum of two hours a day. (RO_F11_2)

In another situation where there are no rules, the child living on the landfill says that he does not have any rules imposed by the parents; barriers are only due to his limited access to electricity for charging the battery of his tablet.

> Interviewer: Do you have a set of rules about using the tablet?
> RO_F2_1: No.
> Interviewer: You are free to use it anytime?
> Ro_F2_1: Yes. But when the battery is low I can't…
> Interviewer: But would your mother allow it?
> RO_F2_1: Yes. (RO_F2_1)

Another category is the family which involves children in setting the rules. In the case of the RO_F8 family, the parents say that there are no strict rules imposed by them, and they give the children the opportunity to make their own decisions about using technology. The father claims that 'when rules are established, they are established together with the children.

> The children's opinion matters, and we really take it into account. We noticed that if you value their opinion, it is very easy for them to respect certain rules. This way there are no conflicts.' (RO_F8_3)

Restricting usage of DT as punishment

Punishment for breaking the rules is similar in all parenting types, less in families where there are no rules: longer or shorter restrictions of preferred DT. Following the question of what happens after braking the rules, the children's first answers were that they would be punished with loosing access to DT; they also disclosed how they would manage to deal with these restrictions.

> Interviewer: What happens after your parents say that they punish you because you broke the rules for using devices?
> Larisa: I'm waiting for the sentence to pass.
> Radu: Sometimes I wait, sometimes I start to cry.
> Interviewer: And with crying do you l have a chance to negotiate?
> Radu: Yes.
> Dia: Yes. If the punishment is a day long, then I have to cry for an hour.
> Andu: I don't pay attention to my father and mother; and then my mother gives me the phone.

> Dia: Every time my mother sees that I'm upset and I cry, she gives me the phone.
> Interviewer: Do you know that this is blackmailing your parents?
> Dia: Yes, yes, yes, sometimes! (RO_FG 7, 8–10 years old)

Largely, parents use the prohibition of digital device usage as a means of punishment, confirmed by both children and parents:

> Interviewer: Do your parents punish you by not allowing you to use your smartphones or tablets?
> TV. (RO_F6_1) No, only when I have some twitches. They tell me not to use the phone anymore or not to watch.

> Interviewer: What is the punishment for your child when breaking the rules for DT
> (RO_F5_2) Depending on the activities she has done… if she accomplished them or not… or as a reward. Or as a punishment. If something bad happens, it's over, I forbid it… If I want to reward her, I let her watch another episode… of those shorter shows.

5.3.4. Children's rights and technology in the Digital Age

As highlighted in the introduction, the use of digital technology in everyday life in Romania is no longer an alternative, but an integral part of how children grow and develop. This inclusion of digital technology in all areas of life has also led, many times indirectly, to changes in the area of children's needs. Being different, the needs also require new, different approaches. Extending the principles of the Convention in the new digital era was a 'must' with the taking-up of the Internet and digital technologies by children (as presented in Comment 25 of the UN, 2021).

One of the problems raised by a girl, 10 years of age, is related to the impact of technology on the parent-child relationship and the danger of children being neglected in situations where parents overuse technology:

> I believe that just as animals need attention, children also need attention, and parents need to take care of their children. Many times, parents stay on the phone for a long time and do not feed their children. They do not take care of them. (RO_F11_2).

As the advantages of the digital economy grow in terms of accessibility, speed and reach into society, we can notice an increasing trend of the lack of parental interaction with children and young people. RO_F6_2 believes that an important and impactful aspect is the child's need for affection and love; technology can't replace the parent's attention and love.

> Yes, it's interesting that even if they have technology and everything they need, children come to you anyway, to your room and want to stay there with you. They wait to spend time with you. (RO_F6_2)

From the analysis related to the practices and strategies used in rule negotiations and the perspective of all research participants regarding the importance of establishing a set of rules, we can observe a tension between the right of protection (online safety), the right of provision (children's right to have equal access to devices and an Internet connection) and the right to participation (to information, to express their voices, to establish connections via social media, to choose how they spend their free time, to participate in civic movements).

Our findings show that parents of young children play the role of 'gatekeepers' when it comes to limiting access to technology or the content of digital activity, causing children's complaints for interfering in their preferences, and parents not listening what is important to them:

> Interviewer: What were the reasons for arguing (with family members)?
> RO_F7_1: We used to argue because they were telling me to watch other YouTubers. But they don't understand that the YouTuber I'm watching is interesting for me. (RO_F7_1)

Sometimes when parents omit stating rules for DT use, children fill this gap based on their own experiences, and develop their own rules. A girl of five years of age claimed that there are no rules; she can stay on the phone all day when her parents are not at home. At the same time, she has imposed certain rules for herself, such as that she no longer followed the 'Tania and Liza's' YouTube channel because they have horror videos and she had bad dreams in the night and was afraid to be alone in the room, and to not use the phone too much because her eyes would hurt (RO_F11_1)

> If I want, I can stay all day, but I don't want this. I stayed once all day and my eyes hurt. (RO_F11_1)

Parents' believes about the safety of the DT and its reliability as an educational tool influences what they provide in their homes and make available to their children (provision). Most parents tend to limit young children's access to dangerous information (protection), though they cannot always define where the dangers lie (digital competencies of parents are often limited). At the same time, most children desire access to digital devices and pressure parents into negotiations (participation). As mentioned in other studies (Livingstone & Haddon, 2009; Dreier et al., 2014; Dias et al., 2016), we also noticed that there are tensions between the rights to protection, to provision and to participation, which are fuelled by incomplete information both on parents and on children's site; there is a discrepancy between what children actually know and do with DT, and what parents think they know and do about children's digital actions.

Interviews have shown that even their knowledge and competences are limited, some of the young children are informed about the possible dangers and risks existing in the online environment:

> Interviewer: Can these devices hurt you in any way? Is it dangerous to use any of these apps?
> RO_F6_1: No, though it is dangerous when someone asks you on WhatsApp about where you live...
> Interviewer: Who told you this? Mom or Dad?
> RO_F6_1: Our teacher. (RO_F6_1)

Children's rights to enjoy the advantages of DT depend not only on parenting, but also on social inequalities that impact not only adults in the families, but also their children. The literature has recognised that those who have a low position in society are prone to exclusion and marginalisation in the digital arena (Helsper & Reisdorf, 2017; Van Deurse et al., 2017). In our sample, the DT users with a disadvantaged social background tend to have a limited digital experience, using a low number of devices and showing little diversity in digital activities.

Access to technology and information is a child's right and the role of the authorities responsible for respecting children's rights is to minimise digital inequalities through specialised interventions at the community level where there are socially vulnerable children.
An important aspect mentioned by both children and parents is the inequality perceived by children if parents can do what is forbidden for children, as in the example below:

Parents know theoretically, that 'Kids don't look at what you say, they look at what you do.' (RO_F11_3)
Related to respecting rules, children in some of the families notice that they have fewer rights than parents:

> Interviewer: What did you mean, Eric?
> Ervin: My father won't let me, but my mother will, but only if I watch beautiful cartoons.
> Interviewer: When you are at home, and are sitting at the table, are you allowed to use the phone?
> Mia: Not.
> Ervin: Not.
> Mia: No, never, because Dad argues with me and I am afraid of him, because he is bigger and I am smaller.
> Interviewer: And your parents are allowed to use the phone at the table?
> Mia: Yes.
> Ervin: Yes.
> Interviewer: So, there is a rule that they are allowed, and children are not?
> Ervin: Yes. (FG_4, five–six years old)
> Mara: My mother said that it is not nice to have your phone on the table while eating. My father's phone is not on the table, but my mother's phone is, when we are eating. (RO_FG3, five–six years old)
> Dad sits and plays on the computer until late and the next day when he's tired, he blames us. (RO_F9_1).

Respect for children's rights in the digital world is a reflection of the democratic organisation of family life, where children can observe and learn based on the models of their parents. They can also experience disadvantages and exclusion, participation to establishing rules, eventually neglect of their need, or on the contrary, attention and guidance.

5.3.5. Harmful and beneficial effects

In the next section we will focus on the topic of advantages and disadvantages of using DT. In our approach we have divided our main findings on the topic into subsections that provide advantages and disadvantages depending on the categories involved with respect to children and parents.

5.3.5.1. Digital advantages – Children's perspective

The children see both advantages and disadvantages in the use of these devices.

- One can learn a new language
- On the Internet one can find additional information on a specific topic
- Through social networks one can make new friends
- One can have fun when one is sad
- One can keep in touch with family

> Interviewer: When do you think these devices would make our life easier and where?
> RO_F3_1: All the time and anywhere. For example, if I had a tablet, I wouldn't have had to repeat a school year. You can find a lot of useful information on the Internet. Nowadays it is important to be connected to the Internet. (RO_F3_1)

> Technology helps us communicate and keep in touch. (RO_F2_1)
>
> Interviewer: What would happen if you don't shut it down?
> RO_F4_1: It could ruin our eyesight.
> Interviewer: Is this the only bad thing that could happen?
> RO_F4_1: Yes. (RO_F4_1)
>
> Interviewer: Where and when can these devices be useful in family life?
> RO_F5_1: At home.
> Interviewer: How do they make your life easier?
> RO_F5_1: For example, information, to make appointments. If I need to go somewhere and I don't know the way, the phone comes in handy… (RO_F5_1)
>
> You can make calls and you can keep in touch with people. Robots can help you to train or to instruct. (RO_F7_1)
> The smartphones are useful to make calls, take pictures, send messages. I also made video calls with ten people during vacation... The robots can help us to clean the house. The smartwatch is useful to listen to music and make calls… (RO_F8_1)

Sometimes this beneficial aspect of digitisation related to information accessibility is also noticed by children, although we must admit, not at a level as abstract as in adults (which may, as noted in the previous quote, link this aspect of information to abstract terms such as freedom).

> Yes, you can find many useful things. You can learn more than he teaches you at school. Lots of extra information. (RO_F10_1).

5.3.5.2. Digital disadvantages – Children's perspective

- Sight problems may occur
- Little time spent with family
- People can become more violent, aggressive (especially children if they play inappropriate games, such as Granny multiplayer—a horror game)
- If humans are replaced by robots, they will not have money to raise their children and there will be more and more very poor families
- If we put pictures of ourselves on the Internet, we can be identified in real life and we can put our lives in danger
- On the Internet we can see content that can cause us fear and negative emotions
- On the harmful effects of technology, most children internalise the issues presented either by their parents or by teachers

As pointed out by RO_F_6_1 (in the subchapter 5.3.4.), besides parents, teacher have an important role in informing children about the risks in the digital world and how to avoid them. RO_F6_1 knew that she is not supposed to communicate her address on WhatsApp from her teacher, as they were using this application for schooling. Yes, if you watch too much TV, they can damage your eyes. (RO_F7_1)

As for the risks of DT to them, children mostly learned and mention that there is a risk for their eyes, but some add that it can affect the whole body, and therefore they should avoid spending a lot of time using these devices. Several children also notice the danger of lack of privacy, and its consequences, as the possibility of being followed by people who want to harm them.

It is dangerous when someone asks you on WhatsApp about where you live... (RO_F6_1)

I don't think it's good to put a lot of pictures with us because thieves can identify you and you can endanger your life. (RO_F11_2)

If you use too much Facebook or TikTok, bad people can get in touch with you. (RO_F3_1)

If we use message apps, a stranger can write to us and if we answer them, he can hurt us. Also, robots if they have an error, they can destroy our house. They need to be controlled well. (RO_F8_1)

5.3.5.3. Digital advantages – Parents' perspective

As presented earlier, the advantages of DT are seen by parents in the following areas:

- Helps one's communication with others: family, friends...(for ex. the mother having a small baby (RO_F2_2) talked about the advantages of talking and seeing her mother on Messenger, though she is far away)Helps greatly in organising one's daily life, keeping in contact with children, when one of them or both are out of home (One can find everything one wants on the Internet
- To pay the bills online without having to go to town

Interviewer: What would be the advantages of using these devices in family life?
RO_F6_2: The phone is useful because I can keep in touch with my family. Yes, primarily all these devices are useful for communication. It is comfortable that you can take them with you. The mobile phone, laptop, and you can work from wherever you want. (RO_F6_2)

The parents' perceptions about their children's advantages and risks are mostly nuanced, recognising advantages and disadvantages. Most parents point to the educational value inherent in digital technologies and describe them as indispensable tools for the future. A minority of parents stated that even when children engage with non-educational digital content on the internet, they always learn. They develop different skills from school-context content, such as independence, problem-solving, collaborating or hand-eye coordination.

RO_F4_2: He learns a lot from cartoon like an encyclopaedia. A lot is learned from cartoons; it is a good opportunity to develop vocabulary, to access accurate information about the world. On the other hand, there is also the risk that the child will end up with films that are not suitable for him. For the kids, the visual impact is very high. Inappropriate images can cause all kinds of emotions such as fear, anxiety. (RO_F4_2)

In addition to the advantages related to socialisation and communication that have been discussed before, we notice that some parents highlighted the benefits for themselves of having the right to access to information. These benefits are viewed politically and philosophically by some adults through concepts such as freedom of information and self-expression.

An advantage may be the fact that it allows us to have free access to information. We can find whatever you want. It also facilitates the maintenance of the relationship with family, friends. If I can't visit a relative, then I make a video call and I enjoy the experience of seeing that person. (RO_F7_2)

We can no longer be manipulated as easily as during communism. In some measure we have an information power, truth power. (RO_F7_3)

5.3.5.4. Digital disadvantages –Parents' perspective

As mentioned in the subchapter on parenting, besides those who have a nuanced opinion ON children's using DT, some parents avoid allowing their young children using technology or encouraging them in this direction, for different reasons. Several parents see technology as a risk to face-to-face socialisation, and all the consequences this may bring like lack of true socialisation. This concern is especially pronounced in family life where the lack of a model of which parents are accommodated is possibly more obvious.

> I think we spend more time on devices than with family. We need a good set of rules so that we can spend more time physically, interacting with each other. (RO_F10_3)

> Even if we say that it helps us to keep in touch with the family, at the same time we feel we are away from each other. The boundary between these two aspects is very thin and we must be careful how much time we spend online without neglecting the relationship with those around us. (RO_F7_3)

Many parents believe that excessive use of digital technology can negatively influence a child's development.

> Interviewer: What would happen if she exaggerated?
> RO_F5_2: If she used them too much?
> Interviewer: Yes.
> RO_F5_2: She would get bored, she would get apathetic, tired and bored… You can't even speak to her…
> Interviewer: She gets tired?
> RO_F5_2: Tired as a state of mind… She isn't in the mood for anything… She has difficulties starting other activities after. It would hinder her normal development… (RO_F5_2)

Though questions addressed family life, some parents reflected on children's life outside family, especially school. They highlighted the advantages of information learned by children using DT together with the existence of inequalities due to lower access for a part of the children, which increases the inequalities among children.

> Interviewer: Do you think there are some disadvantages?
> RO_F4_3: I can't tell you about possible disadvantages, only teachers can tell you… I think that an intelligent child, who is starting school now, already knows many things, and that is a big advantage… However, this also leads to some problems at school. The teacher cannot work with all students at once. Each has a different level of knowledge depending on how much the child has access to technology at home. (RO__F4_3)

Another aspect mentioned by parents is the addiction that the use of DT can cause.

> I don't like the risk of becoming addicted to them. You don't do anything all day; you're online all the time... (RO_F1_2)

> There is, sometimes they can cause addiction, you can no longer control yourself, you are on the phone nonstop. I was addicted to Facebook five years ago. I was on the phone nonstop. (RO_F2_2)

Some parents are concerned about these possible negative effects on children's health, development, education and social life. As a result, some try to restrict the use of their devices to the minimum, with a more active, or passive stand.

5.3.6. Results related to the methodological approach

In researching pre-school and primary school children, DigiGen methods integrated elements designed to increase children's interactivity with the researcher. Based on our team's (RO) experience, interviewing children using show cards successfully enhanced the attention of the children in the individual interviews, yet there were some difficulties when the methodology was applied with larger groups (with more than five participants).

Similar to other procedures, like vignettes (Barter & Renold, 2000) and drawings (Einarsdottir et al., 2009), show cards prove their usefulness in data collection but also as an icebreaker activity. One of the main advantages identified in the interviews is that the images of the show cards express very well the essence of the research questions, pointing to key aspects of digital life. They are useful not only for describing children's knowledge about DT, but also for engaging children in talking about their experiences in using the technology. Cards showing family scenes also allow children to project their feelings and frustrations around family habits and rules. Using **show cards** in the focus group considerably increased the interactivity during the data collection sessions.

The **interviews** took place in the homes of children and a few of them via DT (zoom or WhatsApp). **Focus groups** took place in schools, kindergarten and in a community centre on the landfill. Working with young children and their families has been challenging for the researchers due to the differences in participants' capacity to understand the scope of the interviews, especially in the circumstances of collecting data soon after the lockdown period. Finding a proper, quiet space where research could take place was an issue for several families, with small homes, and for the educational institutions. With safety issues and regulations respected, researchers avoided all health risks. Challenges were also posed by the different developmental levels of the children in the age group of five–six years, especially the Roma children, who had poor vocabulary in the Romanian language (as a second language), and who were less familiar with devices and the task of describing show cards. Finally, even if the cards were meant to channel participants' attention to the topics of our research, the situations on the field created a space for allowing a large variety of responses which challenged the researchers' capacity to keep focusing on research objectives.

The many discussions and preparations for the interviews and focus groups eased the uncertainty which often accompanies field research work, so the interviews with children and parents were dominated by positive emotions. Giving **information** on the scope of the research, asking for consent helped children, parents and researchers to connect with each other. In the case of interviews with some family members, especially those living in disadvantaged social context, the interviewer showed his/her willingness to stay with the family and listen to what they have to say in relation to other topics than those related to digital technology. This has proved useful, thus giving parents the opportunity to express their feelings and daily worries.

During the questions on the usefulness of each device some of children got tired, which is perfectly understandable for children in this age category, so the interviewer gave a break to children, or followed them in some relaxation activities, or in what they were trying to play, or explain. For the most part, children said that they liked the show cards and the whole discussion. The research assistants recruited from schools and kindergartens were delighted with the **role-playing** games and they reported a pleasant time spent with us in the focus groups and interviews.

Role-playing was the most dynamic part of running a focus group. It was considered a game by the children (schoolchildren (8-10 years old) and kindergarteners (5-6 years old)), so it was a great opportunity to gather information about whether they experienced already a similar

situation to the protagonist of the role-play, whether the situation resulted in a conflict and, if so, how the conflict has been resolved. There was a kindergarten group who liked the role-playing so much that they asked the researcher to perform it again because they felt so good as 'spectators' and potential 'actors'. Role-playing as a method of gathering information was also a success among older children, so much so that there was a child who not only watched carefully and waited for us to discuss what we saw together, but also became a transformative actor during the role-play (he stood up and entered the scene to tell the protagonists that what they are doing is not right). In addition to being one of the most dynamic and most popular part of the study, discussing the role-play provided an opportunity to gather a wide range of information (digital device use, situational awareness, family dynamics, and ways to reduce tension, etc.).

Allowing children to pose their questions, express and listen to opinions, ask for explanations, and take the initiative in conversations has been a fruitful approach. For the involved Romanian school settings, this research proved to be beneficial, as it made the educational staff aware of the need to promote digital literacy. The research has also been beneficial to children, as the climate of the interviews and focus groups was respectful to all children, and they could feel appreciated, praised, and rewarded, so all of them enjoyed the discussions.

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5.4. Summary and conclusions

Our findings in Romania indicate that DT are an integral part of children's family lives and that the Romanian families are broadly diverse in their use of and approach to DT. At the same time, there were some general trends such as young children being aware and knowledgeable around DT. Children have shown that they have knowledge about a variety of digital devices, with even children from more disadvantaged backgrounds recognising at least half of the devices shown to them. Among parents we see a larger variation, though most parents we interviewed avoid the polarization into deification or demonisation of technology. A new, but not surprising insight is related to children from disadvantaged backgrounds who, through knowledge of the digital world that is usually greater than that of their parents, take on the role of instructors and technological mediators of the family. We could observe some gendering tendency in using DT: girls use more the Smart Tv for watching cartoons via regular TV channels, and the Smartphone for TikTok, Roblox and YouTube, while boys use Smart TV for connecting the console, the laptop for online gaming and watching videoclips on YouTube. Boys also mention more advantages of using DT, while girls perceive more risks.

Based on the described results around parenting attitudes to DT and their ways of building up rules for children and applying them, we could see that children tend to interiorize parental advice, and are aware of the health risks, dependency risks and of disclosing personal information, as instructed by parents and educators. In the same time they also reflect on the inequalities between parental use and abuse of DT, and the behaviour expected from them, and they expect parental consistency in applying rules.

It is interesting that in parents' attempts to negotiate and find a balance between 'offline' and 'online' activities, children's perspectives on the role of digital technologies in everyday life value technology as more than an alternative for leisure, as it is attributed by most parents. This

observed aspect is largely due to the fact that parents cannot imagine a life entirely dominated by technology, while children cannot imagine a life without technology, and they say they the world be so boring, and even that they would die, or that this is an impossible, unimaginable situation.

> Interviewer: How will it be if all technology (phones, TVs, computers) disappears?
> RO_F11_1: We can go to the store to buy other phones.
> Interviewer: Imagine that they also disappeared from the shops. There are no telephones anywhere in the world. What would it be like?
> RO_F11_1: At the store you can always see smartphones. (RO_F11_1)

Hoping that our study will contribute to the understanding of the Romanian context of digitalisation in families we conclude that digital technologies are an integral part of children's family lives. We are aware of the need for continuing this multidimensional analysis of the impact of daily DT use on children and young people's lives and family dynamics, enriching it with more comparative analysis across European countries.

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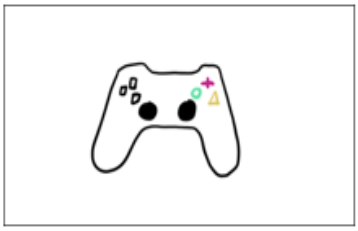
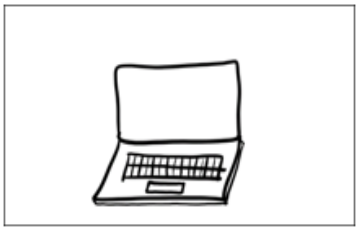
6. Appendix- Show cards



Handheld Game console

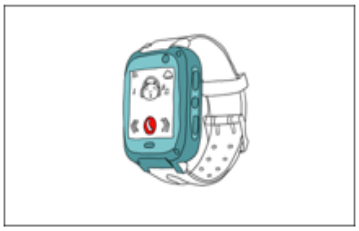
E-Reader, e.g. Kindle



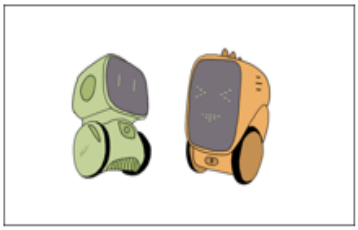
Laptop

Smart Bluetooth speaker (Alexa & CO)

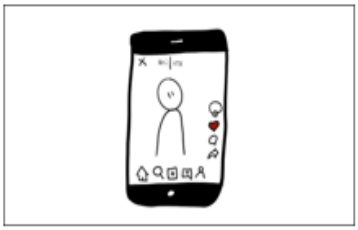
Smart TV



Smart watch



Smart Toy (Robot)



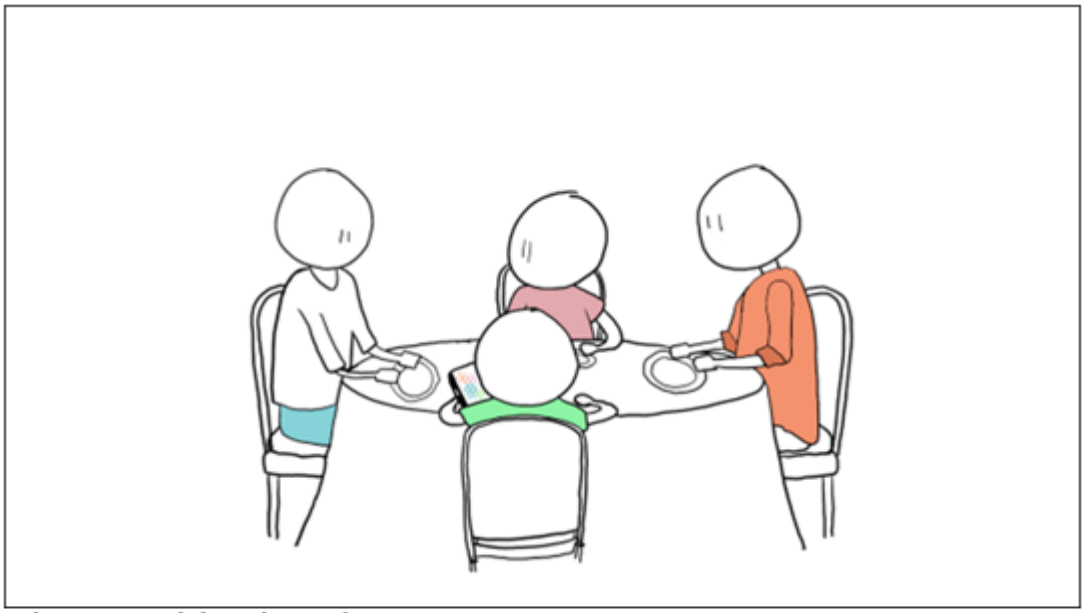
Smartphone with the app TikTok

Tablet with the app YouTube

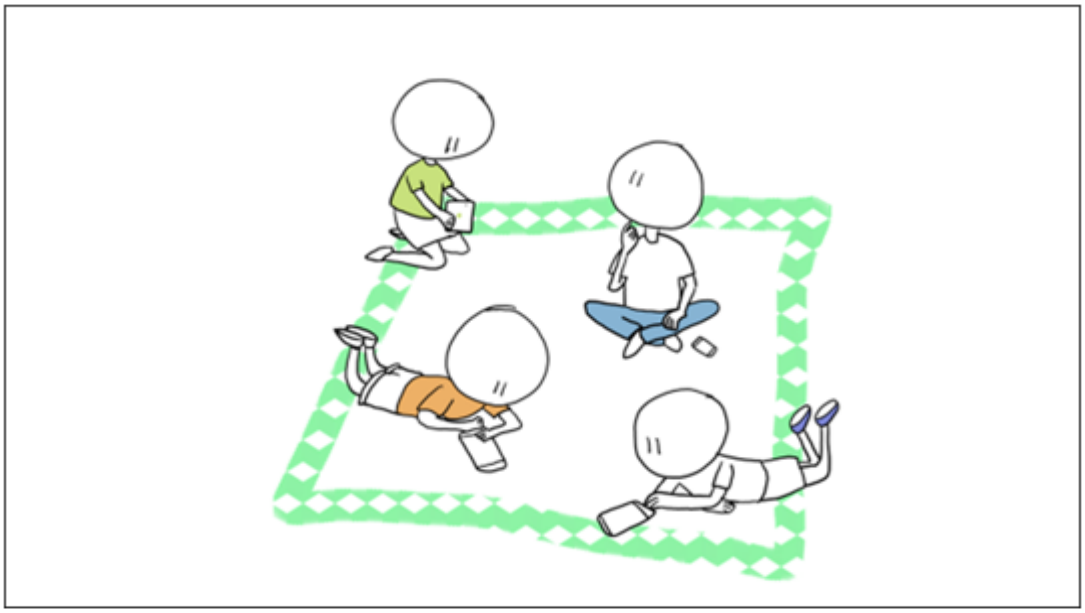
Smartphone with the app Facebook

Smartphone with the app Spotify

Smartphone with a chat in a messenger (e.g. WhatsApp)

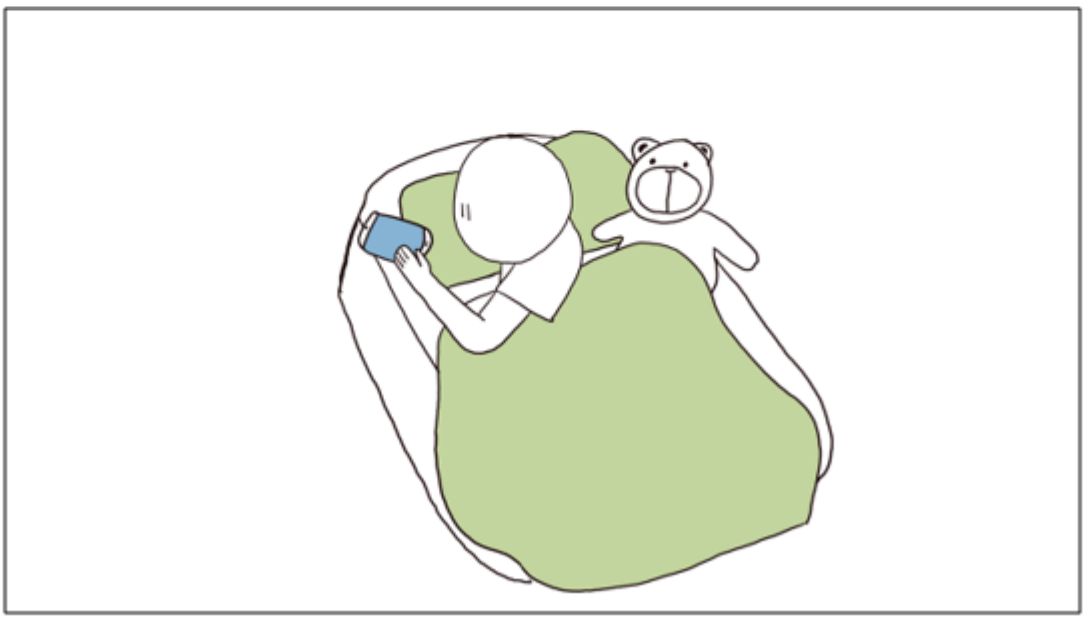


Dinner Table situation



Sitting in a circle

In front of a laptop



Bedtime situation

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