Children's ICT use and its impact on family life

Literature review

Theresa Lorenz
Olaf Kapella
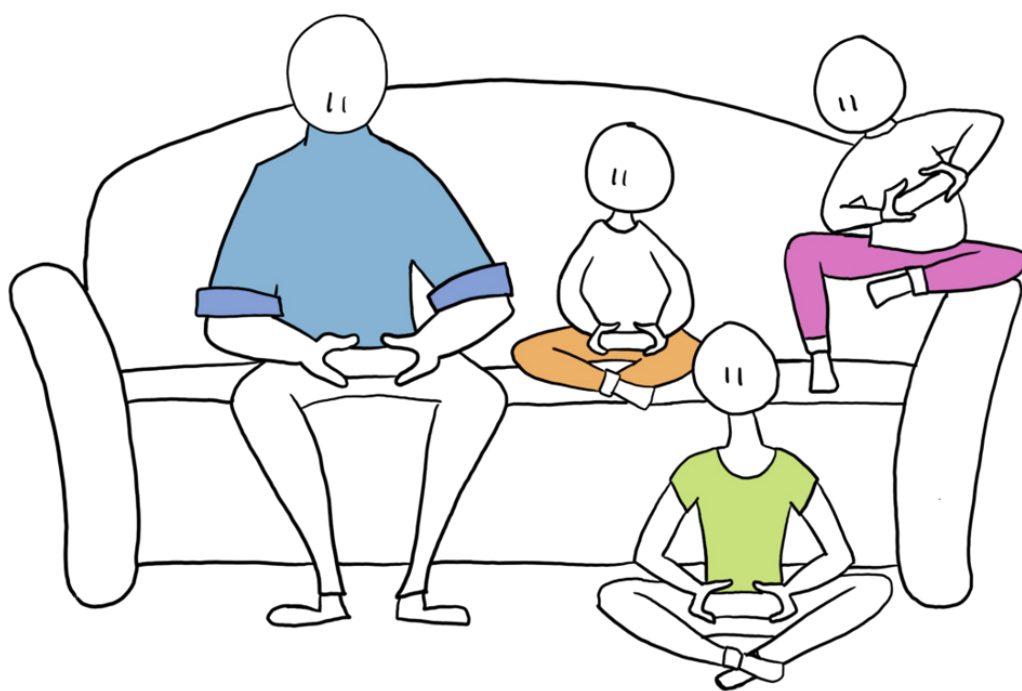
DigiGen

The impact of technological transformations on the Digital Generation

870548

Abstract: The deliverable gives an overview on the literature on ICT use in the family.

Revision history

Version	Date	Author(s)	Reviewer(s)	Notes
1.0	15.04.2020	Theresa Lorenz, Olaf Kapella	Halla B. Holmarsdottir	
2.0	28.05.2020	Theresa Lorenz, Olaf Kapella		

Acknowledgements

Table of contents

Executive Summary

Although digital technologies are an integral part of all areas of life, children and young people use ICT (Information and Communication Technology) most frequently at home. The omnipresence of digital technologies affects the social interactions in their homes and thus influences the family dynamics. Therefore, this working paper reviews the existing literature on the effect of new technologies on family life from the perspective of the individual family members, but also looks at families as a whole.

This review shows that the use of digital devices is becoming increasingly privatized and mobile. Still, families enjoy the joint use of digital technologies by actively engaging in ICT activities together or by appreciating the passive co-presence of other family members during their digital experiences. Individual ICT activities are a primary source for entertainment and a way to relax but are also a root cause of family conflicts. Unlike solitary ICT use, joint digital family activities can create a strong sense of 'we-ness' among family members which promotes family cohesion. As a result, digital technologies are part of the daily act of reproducing family and can thus be understood as a central element of the concept of 'doing family'.

The existing evidence suggests that the ways families engage with digital technologies are complex, and so are their consequences. On the one hand, ICT offers unique opportunities for families and their diverse individual members. Digital technologies support the reproduction of family (doing family), assist the creation and maintenance of new and existing relationships, help children in the development of their identity and skills. On the other hand, children – and also adults – face online risks and challenges, for example if they are exposed to harmful content or if their privacy is abused. Adequate parental mediation and essential digital competencies can help to mitigate the adverse effects of children's and young people's online activities. Hence, whether the overall impact on family life is positive or negative highly depends on the combination of digital behaviors families implement in their daily lives. In addition to families, the society – including its multiple institutions – is also essential to promote digital competencies and strengthen the resilience of children and young people.

1. Introduction

The digital revolution brought extraordinary new challenges and opportunities for families, individuals, societies as well as economies. Children and young people today are growing up in a world that is surrounded by media. Information and Communication Technology (ICT) are an integral part of their daily lives that tie individuals and families together (which can be, for example, described as media ecology see, e.g. Cristiano & Atay 2020, Atay 2020). To express the tied connection between digital technologies and the every-day life, children and young people today are often referred to as digital citizens, digital generation, cybercitizens, netizens, digital natives or homo digital youth (Hockly 2011, Prensky 2001). Applying these attributions, society refers to young people who are growing up in the digital age and have the "ability to engage competently and positively with digital technologies, [...] participating actively and responsibly (values, skills, attitudes, knowledge and critical understanding) in communities at (local, national, global) at all levels, [...] being involved in a double process of lifelong learning, [...] and seamlessly defending human rights and dignity" (Frau-Meigs et al. 2017: 11f). However, assuming that children who are born into the digital era are equipped with the skills, attitudes and values of digital natives by default, would be wrong. Instead, the existing definition should be understood as a goal for society to socialize children in a way that raises digital natives. Therefore, empirical research on every aspect of a child's everyday life is needed to identify how this goal can be achieved.

One influential aspect of children's and young people's lives is their family life, which is the focus in the DigiGen work package 3. More specifically, in this work package, we will assess how the everyday lives of European families are shaped due to technological transformations by analysing (1) their access to technologies, the digital divide, devices and modes of connectivity, (2) digital affordability, ways of digital inclusion, opportunities and forms of use and (3) negotiations within families in terms of use and outcomes.

Since little effort has been made to review the existing literature related to the research questions outlined above, this working paper will summarise the current evidence on the impact of ICT on family life. The working paper also serves as the starting point for the work in work package (WP) 3 in the Horizon 2020 Project DigiGen. Even though there is considerable research on the effects of digital technologies on family dynamics, some aspects have not yet been sufficiently explored. This research gap mainly concerns technical innovations in the last few years and recent developments in the field of video/online family gaming. Also, evidence on children's perspective – and especially on the opinions of preschoolers – is scarce. This literature review aims to demonstrate the existing diversity of research on the relationship between digital technologies and family life. Sometimes, this also means that some aspects need to be supported by older studies because, as far as we know, they have not been addressed by more recent studies.

This literature review is organized as follows: In chapter 2 we discuss what the term 'family' means from a theoretical point of view and embed the results from the subsequent chapters in some essential theoretical frameworks. Parents and children are influencing each other's digital technology habits. To provide a complete picture, we thus present children's and young people's access to ICT and how they use digital technologies in the first section of chapter 2. Then a description of parent's digital technology behaviours follows. In the third section of chapter 2, we bring children's and parent's ICT use together and show how ICT is used in families today to actively and passively interact with each other and how this shapes family life. The parental mediation chapter (chapter 5) displays different strategies for parents to assist and guide their children's media consumption. It further indicates how children experience their parents' mediation efforts and also enlarges upon the role of older siblings concerning technology mediation. Using ICT within the family often requires negotiation that goes along with possible conflicts. Some dominant family conflicts related to the use of ICT will be outlined in chapter 5. After that, children's and family's ICT use will be analysed in a broader context to better understand under which conditions ICT use can lead to harmful and beneficial effects for families and in particular for children.

2. What theoretical aspects must be considered to define family?

Attempts to define families often refer to a specific family model, the traditional family or nuclear family, mostly understood as a breadwinner husband and a homemaker wife who live together with their biological children. Due to the modernization in the 19th and 20th century, the model of the nuclear family spread throughout Europe and the Western World. It often was described as 'the' central model for families and was almost seen as 'naturally' given and universal, the myth of the nuclear family was created. Socio-historical research, however, clearly shows, the construct of family was always and is still diverse and can not only be limited to the model of the nuclear family which was dominant only for a brief period in time (Mitterauer 2009; Segalen 2010; Gestrich 2008; Laslett 1977).

Regarding forms, norms and conditions of founding a family and transition into parenthood, families have changed tremendously in the past decades. Although the majority of families today still consist of children and two parents, who are both gestational/genetic, legal and social parents, the family forms and family arrangements people are living in during their life span are nevertheless diverse. Some examples for different family forms are same-sex parents and families, patchwork families, adoptive families, mix-race families, families with different cultural backgrounds, single-parent families, transition into parenthood with the help of reproductive medicine, foster families and multiple parenthood. To reflect the diversity and reality of families in Europe today, in DigiGen the term family is perceived in a broad sense. In this sense, the family is defined as an exclusive solidarity unit – a social-relational structure or network of two or more people – designed for a relative duration. Its members share goals and values, have a long-term commitment to one another, take responsibility for each other, and often reside in the same home (e.g. Schneider 2008; Nave-Herz 2015).

Next to structural changes in family arrangements – like the decline of traditional family structures and increasing single-parent families, paralleled by a decrease in marriage rates rise of divorce rates and rates of cohabitation – there are further changes in family arrangements that are less commonly known. To illustrate the complexity and diversity of family arrangements, the following changes in family arrangements will be briefly introduced in the subsequent paragraph: (1) segmentation of parenthood; (2) new reproductive technology; (3) the turn to parenting and (4) children and young people as social actors in their own development will be discussed.

(1) segmentation of parenthood: The concept of segmentation tries to grasp the different segments/elements of the context of origin and rationale for parenthood. It distinguishes four segments of parenthood, which have often been considered as inextricably intertwined (Vaskovics 2009; Vandenbroeck et al. 2017; Peukert 2019): (A) Biological Parenthood, for example a mother who gives birth to the child is often constituted as a biological and genetic mother. (B) Genetic Parenthood, having a genetic relation, for example by egg or sperm donation. (C) Legal Parenthood, for example giving a name, rights and duties of parents. (D) Social or educational parenthood, raising the child.

(2) new reproductive technology: Due to the increasing availability of reproductive technology, new opportunities for the formation of families and adding offspring appeared (Greil & McQuillan 2017; Gamson 2017; Golombok 2015). Thus, biological and social parenthood is increasingly falling apart. This erosion of the bio-social dual nature of the family can be observed, for example, by the increase of multi-parent families (Peukert 2019; Bergold et al. 2017). An increasing number of minors are no longer biologically related to their social parents with whom they grow up (e.g. patchwork families, transition into parenthood by donation of gametes). Not only questions regarding 'if, 'when' and 'how' family formation comes about, but also the constellation of parenthood has become negotiable, more individually and diverse.

(3) the turn to parenting: The focus of parenting is often on the role or function of parents in the parent-child-relationship. A significant strand of literature points to different roles of parents in the upbringing of their offspring (Schneewind 2010, Parke & Buriel 1998 & 2001):

- Parents as **interactive partners** of their child in the parent-child relationship. Mostly referring to the attachment theory, for building up a secure attachment in the parent-child relationship (e.g. sensitivity of parental reaction, parental synchronisation in the interaction with the child, stimulation).
- Parents as **advisors, coaches, educators and/or consultants.**
- Parents as **providers of social opportunities** and development.

By problematizing its emergence and widespread usage as a discursive and policy frame, Mary Daly puts the term 'parenting' under scrutiny and refers to 'the turn to parenting' (Daly 2017). From a sociological perspective, Daly is critical about the intense focus on the psychological developmental perspective on parenting. She describes different influences on that development: (A) Growing consideration of parenthood through developmental psychology. "The focus is primarily on child development though and family tends to be conceptualized as an environment which means that parents enter only as needs satisfiers, the 'vehicle' through which their children receive what they need to survive and thrive" (Daly 2017: 44). (B) The 'scientisation' of the field, which conveyed the impression that there is a clear understanding of how good and bad parental behaviour can be scientifically defined. In this sense, good parenthood is determined by the results of studies and good-practice examples. Daly refers to Frank Furedi's (2001) intertwined messages pointing to the relation between scientisation of parenting and the parental determinism in which childhood is conceptualized as destiny and "parenting holds the key to the well-being of future generations" (Daly 2017: 45). (C) The state's engagement in parenting is based on the assumption that parenthood is something that can be learned and trained. In this vein, parenting is perceived as the application of a set of skills or techniques. In her discussion, Daly wants to offer a kind of 'corrective' to the very narrow depiction and practice of the turn to parenting. She suggests recognizing parenting as a variable set of practices that is socially and culturally embedded. From her perspective, the term parenting should, therefore, be distinguished by three concepts (Daly 2017: 52f):
- Parenthood, as the cultural scripts and institutionalised ways of constructing parenthood.
- Parenting, as the experience and practices of being a parent.
- Parents, as the identities of mothers and fathers.

(4) children and young people as social actors in their own development: In a societal hierarchy there has been a major paradigm shift regarding the positioning of children and youth in our societies (Gallacher & Gallagher 2008). Children and young people are no longer perceived as passive, but rather as competent and active actors, not only in their own development but also in the shaping of social relationships (Honig 2008 & 2017). Children are understood as 'being' instead of 'becoming'. In the recent work in the field of childhood sociology, children and young people are described as being active in the construction and determination of their own lives (James 2013, Prout 2011, Alanen 1997). In other words, children themselves are co-constructors of childhood and society (Qvortrup 2014).

The goal of the DigiGen work package 3 is to examine the use of digital devices and activities within the family and among the different family members, its effects on a personal as well as on the family level. To analyse the impact of ICT and digital media on children's and young people's lives systematically, DigiGen draws upon different theoretical frameworks, including the ecological system theory of Bronfenbrenner. In this theory, Bronfenbrenner organized the context of children's and young people's development into five nested environmental systems, with bi-directional influences within and between the systems (micro-, meso- , exo- and macrosystem). The microsystems refer to immediate environments and include home and school interactions (Bronfenbrenner 1979). Since Bronfenbrenner's ecological system theory was developed long before the rise of the Internet revolution and the variety of digital devices today, Johnson and Puplampu (2008) proposed the ecological techno-subsystem as another dimension of the microsystem of the ecological system of Bronfenbrenner. The techno-subsystem mediates bidirectional interaction between the child and the family (Johnson & Puplampu 2008, Johnson 2010). Underpinning the DigiGen analysis by the ecological system theory, allows us to better grasp the role of ICT in the life of children and young people, without narrowing the analysis to presumed assumptions.

From a family science perspective, the complex interaction within families, primarily since the beginning of the Internet revolution, can also be described based on psychological system theory, namely the family system theory by Murray Bowen. In the tradition of the general system

theory (by Karl Bertalanffy) his approach focuses on human behaviour. Family is not described by a group of relatively autonomous individuals but is perceived as an emotional unit. Bowen's theory is based on years of observing and evaluating interactional patterns in the family relationship system. It posits two polar concepts of togetherness-detachment and emotion-intellect as characteristic of human life. The forces of individuality and togetherness are rooted in instinctual needs that characterize all relationships and operate outside the awareness of individuals. The interplay of these two forces (individuality and togetherness) is dynamic, changing subtly in response to levels of anxiety in relationships. Exaggerated response to one of these forces can be the basis of problematic behaviour. Bowen's theory is transgenerational. This means for example that anxiety and learned behaviour can move across generations within families to influence styles of management and symptom development (e.g. Keller 2020, Groß 2012, Hargrove 2009).

The 'doing family' approach builds upon these assumptions and is helpful to focus on daily life in contemporary families. Family in its diversity described as a system is not understood as a natural, given resource. It has no static or fixed institutional framework of private life and individual biography. It is rather seen as a practice that needs to be done permanently over the whole life course. In the tradition of social construction theory, family is a daily act of reproducing family by social interaction among its members – doing family (Jurczyk 2014 & 2017). This reproduction of family (doing family) works, for example, by building up a meaningful identity as a family. Jurczyk discusses several concepts for the construction of family identity, like the concept of Finch in terms of displaying family. The process of displaying family involves the conveying of meanings and family identity through social interaction, as well as its acknowledgement by relevant others (Finch 2007) in the sense of self-assurance internally and staging externally ("this is my family"). The construction of intimacy and affiliation within a family by developing a feeling of we-ness, as Galvin (2006) puts it, is also consistent with the concept of displaying family. Another essential way of doing family is the management of reconciliation and balancing the needs of all family members, for example in terms of the contribution of rights and duties or emotional and mental balancing of needs and different lifestyles (Jurczyk 2014 & 2017).

Concerning the DigiGen research questions, it is of great interest to investigate, how the above-described aspects of doing family – like displaying family, the construction of 'we-ness' and the interplay of individuality and togetherness – are affected by digital technology practices both within the family system as well as the individual use of single family members. For example, research shows that the main reason for families playing video or online games and watching television together is the social interaction that leads to family bonding (see chapter 3.3.3). Moreover, families are 'doing family' to create a sense of 'we-ness' and find a way of displaying family, for example via a family website or content that is shared on social media by individual family members. As Nedelcu and Wyss (2016) showed (see chapter 3.3.3), digital technologies also helped that this sense of 'we-ness' can also be experienced for families with non-resident members by using new communication technologies.

3. What do we know about the ICT use of individuals and families?

3.1 Children's ICT use

Children today are living in media-rich households with access to a variety of different devices, which they use from an early age on. According to Eurostat (2019), Internet access is almost universal for households with children in Europe (98 % on the EU average). Many children not only have access to the Internet at home, but they also make active use of it. In 2015/16 about one third of children in Germany at the age of 6-7, about 55 % at the age of 8-9 and 94 % at the age of 12-13 used the Internet (MPFS 2016a; DIVSI 2015). In 2012, 41 % of 3-6-year-old children in Austria used the Internet at least once a week (IFES 2013). In 2019, this already amounted to a share of 81 %, which represents a doubling within only seven years and indicates the rapid development in children's ICT behaviour (IFES 2020).

Like Austria, data from Germany suggests that these numbers have increased over the last few years (MPFS 2016a). Ten years ago, it seemed that in Northern European countries, the share of children who use the Internet daily has been higher than in other European regions. EU Kids Online data indicated that between 80 % and 84 % of 9 to 16-year-olds in Sweden, Estonia and Norway, 70 % in Romania and the United Kingdom, 67 % in Belgium but only 58 % in Spain, 55 % in Germany and 51 % in Austria used the Internet on a daily basis in 2010 (Livingstone et al. 2011). Data from PISA 2012 points in the same direction, listing 15-year-old adolescents from Denmark, Norway and Sweden and Estonia among those with the highest level of Internet consumption, whereas daily Internet use was low in Italy, Ireland, and Austria (OECD 2019a: 254). Overall, in 2012 on the OECD average 15-year-olds spent 104 minutes online on a typical weekday and 138 minutes on a weekend day. Over the periods 2012-2018, daily Internet use of 15-year-old adolescents has increased by around one hour (OECD 2019a: 254). During this period adolescent's Internet use also increased in all the countries mentioned above. As a result, the 'Internet consumption gap' between 15-year-olds living in Northern compared to Southern European countries was still prevalent in 2018. At the same time, a kind of country convergence process is observable because the increase in Internet consumption between 2012 and 2018 was especially pronounced in Italy, Ireland and Austria (OECD 2019a: 254).

There is a great variety of devices children can use to access the Internet. For instance, based on the international average of ePIRLS 2017, 26 % of grade four students are classified as living in 'High access' defined by having access to the Internet, having a computer and at least 7 digital devices in the home[1], 73 % in 'Medium access' and 1 % in 'Low access' homes (Mullis et al. 2017). Regarding digital inequalities, there is almost no difference in children's access to digital devices related to parents' socioeconomic background (Paus-Hasebrink et al. 2019; DIVSI 2015). However, children who live in less educated, low-income families are less likely to have access to the latest or best devices (Livingstone et al. 2015). There is also a first indication that teenagers with higher levels of formal education are more likely to own a laptop by themselves, whereas for those with lower levels of education a gaming console ownership is more common (MPFS 2016b). Younger children primarily use their parents' devices; children's

---

1   To qualify for the 'High access' category children's homes must fulfil the following criteria: First, they have an Internet connection and a computer available. Second, they have at least 7 digital devices and a digital device for reading for both the parents and the child at home. For children in the 'Low access' category, one of the following conditions must be met: Not having a computer or Internet connection at home, having less than 4 digital devices, not having a digital device for reading at home. All other children were assigned to the 'Medium access' category.

device ownership continuously increases with their age (Chaudron et al. 2018; Holdampf-Wendel et al. 2014). Children most often use (smart)phones, tablets, computers/laptops, game consoles and TV sets. Nevertheless, their order of precedence changes based on their age. The use of computers/laptops is widespread among children and young people of all ages. In contrast, the importance of (smart)phones continuously increases as children grow older and they replace computers/laptops as the most commonly used device among adolescents (European Commission 2019a; Livingstone et al. 2017a; Holdampf-Wendel et al. 2014; Livingstone et al. 2011). For most children, the transition into secondary school is accompanied by owning a smartphone for the first time (OFCOM 2019b). Younger children on the contrary, preferably use tablets because of its large touchscreen and portability (European Commission 2019a; Chaudron et al. 2018; Holdampf-Wendel et al. 2014; Chaudron et al. 2015; IFES 2013). However, for younger children, the features of a device, such as the availability of a specific game, are more important than the device itself (Chaudron et al. 2018).

Not only the devices children and young people use are manifold, so are their digital activities. Children up to the age of 8 years mainly use digital technologies to relax or for entertainment. In this age group, the most common ICT activity is watching videos or (on-demand) TV programs (Chaudron et al. 2018). Preschoolers are even more likely to spend time watching video clips (Teuwen et al. 2012) and engage in entertaining video games, whereas learning games are not common. Primary school children also prefer entertainment games, but games that require creativity, like Minecraft, are also used for educational purposes. Children who have just started school rarely look up information on the Internet or use it for homework. Other forms of digital activities of younger children that are less frequent are drawing, taking pictures or videos and online communication with family members (Chaudron et al. 2018). The older the children become, the more time they spend on digital activities than younger children do as well (i.e. gaming, looking up information, use ICT for schoolwork, communication) but also the variety of ICT activities widens. More specifically, quite a few children aged 9-11 years already use social networks, while among 12-14-year olds, the majority does (Šmahel et al. 2020). If 8-9-year-old children are active on social media, they usually use their parents' social media accounts to follow their favourite sports team or family members' shared photos. When they start using their own accounts, children take advantage of expressing themselves, applying things they have learned online and use social networks to interact with friends. While primary school children use social media in a playful, creative way, by the age of 11-12 children appear to become keen about fitting in. They start to rely on likes and comments as a channel for peer approval and they want to stay up-to-date about recent social media trends (Children's Commissioner 2018). Online news becomes relevant at a later age, that is to say from 16 years onwards (Holdampf-Wendel et al. 2014). Already at primary school, gender differences in digital activities are prevalent, and this trend continues as children grow older: Boys are much more game-oriented, whereas girls research information more frequently (Holdampf-Wendel et al. 2014; Šmahel et al. 2020). Looking at older children, girls are more active on social media than boys (Šmahel et al. 2020). Even though there are only small differences in the access to digital devices among families with different socioeconomic backgrounds, the 2015 OECD PISA study (OECD 2016) showed that young people from higher socioeconomic backgrounds were more likely to use the Internet to look up practical information or read the news. In families with less advantaged backgrounds, they spent more time on entertaining activities (for the implications of this see 'the second digital divide' in chapter 6.1).

Here it should also be pointed out that ICT activities are an essential part of children's lives, but especially for younger children they are not dominant. Other non-digital activities children enjoy and which are in many cases preferred to digital activities are meeting friends, playing indoor and outdoor, activities with the family and doing sports (Education Group GmbH 2019; MPFS 2016a). Yet, children's and young people's digital and non-digital lives are often strongly intertwined, meaning that digital activities are used to support their non-digital activities and vice versa. Indeed, children and young people seek information on their digital and non-digital interests online, they communicate with friends from their offline worlds via social media and they are often constantly available on their smartphones (Telia 2017; Chaudron et al. 2015). This behaviour makes children and young people feel that they are always online and blurs the lines between their online and offline lives.

3.2 Parents' ICT use

Parents are role models for their children who are mirroring and adopting their parents' be-haviour also with respect to their technology use (Chaudron et al. 2018). For example, it has been shown that the amount of time parents spend online is highly correlated with their child's daily Internet use (Livingstone et al. 2011). Also the findings of Chaudron et al. (2018) point in the same direction. They found that if the father likes the StarWars universe, he will play the game with his son on PlayStation, even if the game is not age-appropriate (Chaudron et al 2018: 152). As another example, studying the tablet behaviour of a 2-year-old girl, Nevski and Siibak (2016: 332) revealed that the girl only wanted to play with the tablet when she saw her parents were engaged with their devices.

Thus, when we talk about children's ICT use, it is also important to touch upon parent's ICT be-haviours. However, as opposed to children, much less is known about parents' ICT behaviours. Looking at adults' ICT practices in general, OFCOM (2019a) states that almost all middle-aged adults use the Internet, but the older they are, the more unlikely they use it. Smartphones and mobile phones are becoming increasingly essential to an adult's everyday life: Half of the adults agree that "of all devices, they would miss their mobile phone the most" (OFCOM 2019a: 1). The same result has been obtained in two Austrian surveys of parents with 6-10 (Education Group GmbH 2018) and 11-18-year-old children (Education Group GmbH 2019). In addition, they showed that for parents the importance of a TV had been steadily decreasing since 2010. The relevance of smartphones is also evident from the fact that compared to 2017, an increas-ing number of adults accesses the Internet only via this mobile device. Almost all adults report using the smartphone to access social media, send messages, do shopping and watch and lis-ten to streaming services (Education Group GmbH 2019: 5).

Taking a closer look at parents, UK data from 2017 (Livingstone et al. 2017a) indicates that the devices parents use most frequently are computers/laptops (83 %), smartphones and mobile phones (83 %). Moreover, 65 % use tablets and 32 % engage with game consoles. Other de-vices (wearables, smart home devices, internet-connected smart toys, virtual reality headsets) are less prevalent. Young parents are an exception to that because they use a greater variety of different devices. It is also reasonable to assume that the popularity of these smart devices has increased between 2017 and today. Overall, comparing data on adults with data on parents in particular, it becomes evident that households with children are living in more media-rich homes and parents are also more likely to use digital technologies than households without children (Kildare & Middlemiss 2017).

Mothers and fathers equally like smartphones and tablets, whereas fathers preferably apply computers, game consoles and smart home devices. Likewise, Hagen (2007) found in a Portu-guese study that the way mothers and fathers use ICT is gender-stereotyped. While mothers are using portable devices more frequently, for fathers fixed devices, such as game consoles, are more common. Moreover, from Ulicsak and Cranmer (2010) we know that when mothers are co-playing video games with their children, they are more likely to play active technolo-gy, fitness, education and music games. In contrast, fathers typically engage in co-playing fighting and strategy games. It is, however, worth mentioning that this information is not very up-to-date. To the best of our knowledge, current information on the ICT behaviour of fathers and mothers are not available, so we do not know whether the highlighted differences are still persistent today.

Talking about parents' ICT practices, the possibility for some parents to work remotely from home is one aspect of digitalisation that directly affects families. Flexible working hours can have both beneficial and adverse effects on family life. Parents can reconcile their private and professional life more easily. At the same time, mobile working poses challenges on the work-life balance of parents and might also affect children's well-being if parents are distracted by their work during parenting (AGF 2019) (see also chapter 6.5.3).

3.3 Families' ICT use

Against the background of 'doing family', joint family activities play an essential role because shared activities are more likely to create a sense of 'we-ness' which supports family cohesion.

Thus, the primary rationale of this chapter is to provide insights into the extent to which digital technologies are used for shared media experiences within the family. Starting with a general overview of data showing the frequency of different family joint media activities for various devices, a classification into two distinct types of joint media activities follows. These two types of collective media activities are called 'passive co-presence' and 'active co-use', and they are characterized by structural differences in how they affect family dynamics. During co-present ICT family activities, one family member is actively engaged in an ICT activity, while other family members are present but not actively involved in the ICT activity. By contrast, in the case of co-use several family members take an active role together during the ICT interaction. Afterwards, we will go more in detail, discussing the existing strand of literature regarding three concrete, already well-researched co-used family activities, namely TV co-viewing, co-gaming and communication. Because the family dynamics evoked by the three mentioned aspects are already better understood, here we can go beyond a general description by additionally explaining the family members' rationales behind these shared activities and their impact on family life.

More specifically, for several decades, scientists have already been investigating family TV viewing. Recently, also an increasing body of literature is dealing with the collective gaming experiences in families. In the first part of the TV co-viewing and co-gaming section, these family activities will be briefly described from a historical perspective. The second and central part then deals with the associated effects of these two co-using practices on family dynamics. Since the dominating family dynamics and the impact on the family life of co-viewing and co-gaming are similar, they will be analysed together.

Referring to family communication, it is already well researched, how different family compositions use new technologies for communication purposes and how this affects family relationships. Hence, the related literature analysing the use of ICT for family communication will also be listed in the last part of the subsequent section.

There is plenty of literature available on certain shared ICT activities, but due to the fast-paced environment, it is difficult to research the effects of the latest trends. For example, prior research on the role of internet-connected handheld devices and their consequences for family life was primarily related to family communication and organization. Apart from that, we know very little about other possible family activities on handheld devices (e.g. gaming). For family gaming, most research has been done as a response to the game industry's shift from individual to shared video games from the beginning of the 21st century onwards. Today, we can tell that family gaming is still prevalent, but we do not know a lot about new family gaming trends in detail. Open questions are, what type of games and on which devices families are playing today. Furthermore, more research is needed to examine the effects of the latest trends, such as smart homes, language assistants or internet-connected toys on families. Even though digital content creation, like digital art or digital music, as another sort of family activity is not as prevalent as other activities, research is also somewhat unfamiliar with the impact of those activities on the family life.

3.3.1 The extent to which ICT is used together with other family members

Children and young people most commonly use digital devices at home (MPFS 2016a; Tillmann & Hugger 2014; Livingstone et al. 2011). It is therefore of interest, how these new technologies affect family life in terms of the interaction and communication among family members, the negotiation process within the household, opportunities and challenges, etc.. In this way, we can gain more insight into questions regarding if and how the use of ICT contributes to a permanent reconstruction of the family (i.e. doing family).

In order to better understand the effect of ICT on family life, we need to know whether children, young people and their parents mainly use their devices alone or together with family members. In fact, digital device use is increasingly privatised and mobile, which means that more children access the Internet in the privacy of their bedroom (Livingstone et al. 2014). Using digital devices individually does, however, not necessarily imply that children use them alone. In a qualitative study of Hugger et al. (2013) 6-13-year-old children were asked, why they often

retreat into their room when using digital devices. Their main reasons are related to the 'quiet-ness' and 'cosiness' in their bedroom. They pointed out that even if children are not in the same room, they take advantage of the new possibilities of shared connectivity: For example, Max plays Mario Kart with his sister, while she is in another room: "I can lie here in bed and she, my sister, is downstairs [in her room]." (Max, 12 years)
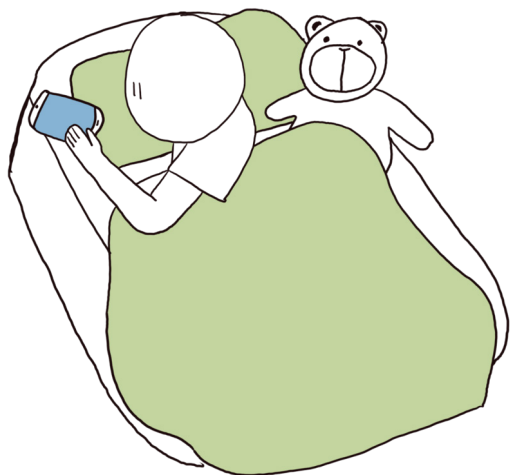
Nevertheless, compared to individual ICT activities, these kind of social ICT activities are less common in families (Chaudron et al. 2015). More specifically, for data that measures the amount of shared family ICT activities for different devices and ICT activities, the following pattern emerged: From children's perspective, listening to the radio is the most frequently done ICT family activity. The majority of children watch TV alone but sometimes also together with their parents or siblings. DVDs and (online) videos are equally watched alone, with friends, parents and siblings. Surfing the Internet and using the (smart)phone are activities almost exclusively done alone. As a general rule, the older the children become, the more they use electronic devices alone for individual activities (European Commission 2019a; Livingstone et al. 2017a; MPFS 2016a). This is particularly true for mobile games, surfing the Internet and watching videos online. As data from the UK shows, other ICT family activities contain learning about something on the Internet[2], contacting friends or family together[3], and playing computer/video games together[4]. Whereas activities, such as using technology to create or edit videos, photos, music or other content and interaction on social media together are less often done (Livingstone et al. 2017a: 16). Digital activities that parents engage in with their children are less researched. According to the German FIM study of 2016, the majority of parents of 3-19-year-olds watch TV together with their children every week. Therefore, watching TV is the most common ICT activity parents do jointly with their children. In accordance with what children report, also listening to the radio/music are activities, parents often do together with their children. On the other hand, parents are much less likely to involve their children in other digital activities, such as gaming, watching online videos or looking something up on the Internet (MPFS 2016b).

3.3.2 Passive co-presence

Although children use digital devices more often in their bedroom, they are also used in the family's common areas, such as the living room (Tillmann & Hugger 2014; Livingstone et al. 2011). This is especially true when children do not want to be alone but want to spend co-pres-ent time with the family. For example, in their study, Voida and Greenberg (2009) report a case where the parent suggested moving the Wii console to a place where the son "could play more often by himself". The son rejected this suggestion because "he wanted to keep the game con-sole in the living room so that there would be people milling around and he would have more company" (Voida & Greenberg 2009: 1567). As Tillmann and Hugger (2014) argue, such situa-tions are crucial in terms of the concept of 'doing family' because they allow for emotional and physical contact and meaningful casual conversations, and thus create family life.

Compared to fixed devices, mobile handheld devices allow each family member to engage in their preferred digital content, while enjoying the co-presence of other family members which can, for example avoid conflicts over TV program selection (D'heer et al. 2012). Unlike using mobile devices individually, watching TV on a big screen in the living room while other family members are present, can serve an additional benefit. Giving all family members – also those who are not actively watching TV – the chance to catch the content consumed can create a collective experience that contributes to doing family, for example if the content viewed forms

---

2   0-4 years 31 %, 5-8 years 50 %, 9-12 years 50 % 13-17 years 38 % did this in the past week
3   0-4 years 34 %, 5-8 years 28 %, 9-12 years 31 %, 13-17 years 30 %
4   0-4 years 20 %, 5-8 years 41 %, 9-12 years 37 %, 13-17 years 25 %

the basis of future family conversations (Stevens & Takeuchi 2011; Brown & Barkhuus 2011). On the other hand, as will be shown in chapter 5, using ICT devices, and phones in particular, in social situations (e.g. during meals) also serves a significant source of conflicts.

3.3.3 Active co-use

The previously presented examples are in line with the research showing that the living room remains the dominant place for both co-present and co-using family activities (Chambers 2016). Apart from the location as a relevant criterion for the extent of social ICT engagement, the degree to which digital devices are co-used also depends on the characteristics of the digital device and the specific activity (Livingstone et al. 2017a; MPFS 2016a). Since different devices are not equally used for family activities, scholars started to examine the characteristics of devices and applications that support active family joint media engagement. In the following paragraphs, some of the most critical aspects supporting collective media engagement will be set out.

First, it has been shown that the (A) device itself needs to be suitable for joint engagement (e.g. having big screens ideal 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 made it harder to use the tablet together.

Second, in the same study Hiniker et al. (2018) argue that tablets go along with solitary use, not only because of the small screen, also (B) children's and parents' presumptions lead to solitary tablet use. More specifically, compared to analogue toys, parents widely demonstrated an apathetic attitude towards children's tablet use, and they did not try to take part in the children's tablet activity in most cases (Hiniker et al. 2018: 6). Also, the children immediately put the tablet in a position that made it hard to engage jointly with the game (e.g. they put it on the floor directly in front of their face, either crouched over it or lying down on their stomach) (Hiniker et al. 2018: 4).

A third vital condition to share digital applications within the family is the necessity that (C) all participants feel the motivation to participate. This means that parents and children can occupy meaningful roles and also implies that the application is appropriate for the skills of all family members. The rather flat learning curve and group-oriented games are two of the reasons why Nintendo Wii as a console preferred for joint family gaming over other available options (Chambers, 2016; Voida & Greenberg 2009).

The main result of Hiniker et al. (2018) was that children mainly played on the tablet alone. Conversely, with analogue toys, children and parents were actively playing together. Therefore, this example shows how different toy/device characteristics affect their shared use. It is, however, also worth mentioning that the acceleration of Internet networks made it possible to connect various handheld devices to engage in online activities together. For example, the availability of multiple computers at home has been shown to support online family activities (Hertlein 2012). Further research is needed to figure out whether this also applies to handheld devices.

Co-using: Watching TV and video/online gaming
Compared to other forms of digital media, **watching TV together** became a popular family activity already very early. In the 1970s the TV became a 'cultural form' by ritual social practices, such as watching TV every evening, and media research in the 1980 and 1990s has already confirmed media's capacity to bring families closer together (Chambers 2016). Until today, watching TV with the family is among the most common joint engagement activities and usually takes place in the evening or before bedtime (MPFS 2016b). Watching TV is viewed as the default family evening entertainment activity (Courtois & Nelissen 2018; Brown & Barkhuus 2011). However, Austrian data suggests that joint family TV evenings decreased significantly between 2011 and 2019 (Education Group GmbH 2019). This might be related to the fact that with the introduction of online streaming providers available to use on various internet-connected devices, also watching TV has become more privatised. Nevertheless, as Chambers (2016) revealed, a 'large TV screen remains the centrepiece of the home both technologically and in terms of composition and the layout of the living room' (Chambers 2016: 121). What has

changed, is that gathering together to watch TV on a large screen in the living room is nowadays increasingly perceived as a family event for selected shows or events that family members want to watch and experience together (Brown & Barkhuus 2011).

Especially for poorer families, watching TV together seems to be a favourable alternative to other, more expensive, family activities (Paus-Hasebrink et al. 2019; Clark 2013). Families where parents have lower levels of formal education, watch TV more often during meals (MPFS 2016b). Even though during meals, the TV usually attracts less attention and is rather perceived as a background activity, studies have shown that background TV watching is linked to a decreased quality of interaction among parents and children (Pempek et al. 2014a). For middle- and higher-income families it was found that mothers perceive watching TV as a waste of time, although their children would appreciate such joint activities and view a 'movie night' as a time for family bonding (Clark 2013).

As opposed to watching TV as a family activity, **family co-gaming** on digital devices is a more recent phenomenon. In her book, Deborah Chambers describes the expansion of video gaming as a family activity from the beginning of the 21st century. She points to the fact that due to a public debate about the solitary and uncommunicative nature of computer games, the gaming industry began to shift towards more family-centred gaming formats (Chambers 2016: 96). As a result, game consoles like the Nintendo Wii, Microsoft Xbox 360, Sony PlayStation 3 and corresponding games have been designed in a way they fulfil the previously described conditions for joint family engagement in ICT activities (Chambers 2016).
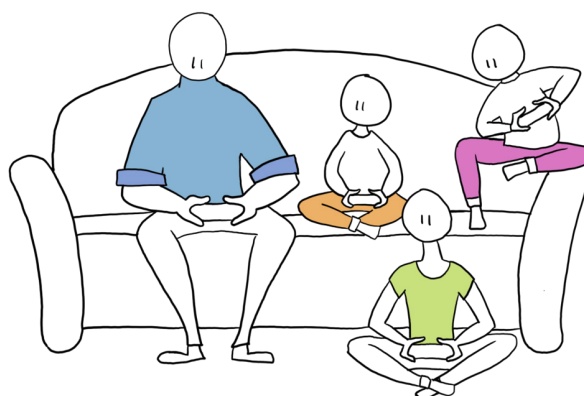
This shift corresponds with data showing the popularity of family video games at this time. In a UK survey of 2009, one third of parents reported that they played videogames with a 3-16-year-old in the last six months, mainly with primary school children and more frequently with their sons than their daughters. Mostly 11-15-year-old boys also played with older brothers and stepbrothers. Interestingly, it has been found that parents who are less worried about the adverse effects of video games and parents who play video games themselves are more likely to co-use video games together with their children (Chaudron et al. 2018; Nikken & Jansz 2013). The most frequently played family games were active technology, fitness games, sport and racing games. Among parents with younger children, also educational games were popular (Ulicsak & Cranmer 2010: 3). Again, working mothers felt guilty when they could not afford enough time to co-play with their children, whereas fathers who did not engage in gaming activities with their children chose to do so more consciously (Nash et al. 2018).

Co-gaming as well as watching TV together affect the family life in different ways which will be discussed in the following paragraphs.

The main reason for families playing video/online games and watching TV together is the **social interaction that leads to family bonding**. Because doing something together as a family forms a collective experience by talking about the TV show, movie or game but also by enforcing communication beyond the content seen (creating a feeling of 'we-ness'). Children appreciate that parents are interested in the media that is important to them. This in turn, brings parents and children with otherwise different interests closer together and forms family identity. Families report that due to family gaming they started to talk more and it allowed them to build bridges between themselves and their children (Wang et al. 2018; Sobel et al. 2017; Coyne et al. 2014; Ulicsak and Cranmer 2010; Voida & Greenberg 2009). For instance, in the study of Sobel et al. (2017), a 41-year-old mother who played Pokemon Go together with her 8-year-old son reported:

"I think it's just helping us find a common thing we can do together as a mom and a son, and

that's really awesome for me. I'm excited about that. I like that he wants to share with me and talk to me about it. As a boy coming home from school, they don't tell you what they ate, or they don't tell you what their teacher said, but now he's telling me this stuff so it's a good way to be communicating. I think hopefully it will keep transcending into him wanting to communicate about more things." (Sobel et al.:1488f)

As will become apparent in the course of this literature review, co-use is also a way to put **parental media mediation** into practice. This means that by engaging in children's ICT activities parents can review the games children are playing or other online activities, and they can discuss sensitive issues brought up by games, movies and shows (Coyne et al. 2014; Ulicsak & Cranmer 2010). In this way, media acts as a springboard for parents to talk about sensitive issues children and young people usually find difficult to talk about. Adolescent boys in particular seem to disclose themselves when media is used as a springboard for sensitive topics (Coyne et al. 2014). As a result, children's resilience is strengthened.

Another benefit often raised regarding family online gaming is an intergenerational aspect, the opportunity that **parents can learn from their children** because children typically have advanced knowledge in the games they are playing. Prior research has shown that if parents manage to allow the child to guide them through the game, the child is able to demonstrate their skills and the gaming activity is enjoyable for the parents and the child (Sobel et al. 2017; Ulicsak & Cranmer 2010; Aarsand 2007).

Whether these positive outcomes apply equally to all sorts of shared online games is questionable. For example, differences might occur if not all players physically share the same room, as the case of Max and his sister playing Mario Kart (see chapter 3.3.1). This is because players highlight the importance of an audience and companionship which makes playing a form of spectacle that could not be experienced in the same intensity if players were in different locations (Voida & Greenberg 2009; Ducheneaut et al. 2006;).

Scholars also found some potentially adverse effects regarding co-gaming and co-viewing. The study of Hiniker et al. (2018) about the gaming behaviour of parents and children on tablets, compared to analogue toys, shows evidence that the **extent and the quality of the conversation** during gaming depend on the characteristics of the game itself. For games that always demanded interaction, the communication between the parent and the child was less pronounced and the child waited for a 'natural stopping point' to share their gaming experience. Moreover, children tended to interrupt statements in the middle of a sentence or ignored a parent's comment when the game required their attention. Whereas for analogue toys, they observed continuous communication between the child and the parent without interruptions caused by interacting with the toy.

Referring to TV as a family activity, conflicts can arise if the family members have **different preferences** about the programs that are being watched (Comstock & Strzyzewski 1990). Furthermore, studying the interaction between 1-year-olds and their parents during co-viewing baby videos, revealed **a drop in the amount of time parents were speaking with its child**, but also showed an **increase in the parents' language quality** (Lavigne et al. 2015). Given that, the authors conclude that for toddlers, co-viewing can, on the one hand, enrich the spectrum of topics parents can engage in with their young children. On the other hand, adverse effects on children's language development due to parents' reduction in the quantity of communication might occur.

Co-using: Communication
Just a few years back in time, there was a marked difference in the preferred way in which parents and their children used ICT to communicate. While parents did phone calls, children and young people preferred sending text messages (Devitt & Roker 2009). At this time, the FIM study of 2016 shows that 36 % of parents with 3-5-year-old children spoke at least sometimes with their children on the phone. For older children, the share of parents who called their children increased to 47 % for parents with 6-11-year-olds and 68 % for parents with 12-19-year-olds (MPFS 2016b). Only 10 % of parents with 3-5 year-old children sent them text messages and 29 % of 6-11-year-olds and 62 % of 12-19-year-olds received text messages from their parents. Other forms of child-parent communication, such as voice messages and Skype, were less common just a few years ago. At the same time, a clear trend towards text messaging in

parent-child communication started (MPFS 2016b; Rudi et al. 2014). With the introduction of new online instant messaging applications, such as WhatsApp or Snapchat, a recent study by Taipale and Farinosi (2018) suggests that parents also started to send pictures, video clips and voice messages. This in turn, has maybe brought family online-communication closer together because "WhatsApp is marking a shift away from the straightforward division between 'texting teenagers' and their 'talking parents'" (Taipale & Farinosi, 2018: 543). This 14-year-old girl from Sweden makes a similar point:

"I never answer my phone and my parents think that is a problem. I do not notice if I have received a phone call. Instead, if my mom wants to reach me she will snap me. We just installed Snapchat on her phone so she can better reach me." (Telia Company, 2017: p. 52)

Given the recent developments towards a faster and more stable Internet connection, it can also be assumed that these trends towards internet-connected communication, which only began a few years ago, are today already part of the everyday conversation for families.

Children and young people are contacting their parents for **organizational purposes** and emergencies, and they appreciate that parents are less worried when they take their phone with them (Devitt & Roker 2009). Young children also enjoy the **variety of communication possibilities** offered by these instant messaging applications by exchanging voice messages, emojis, pictures and videos with their family members (Chaudron et al. 2018). Parents, on the other hand, emphasize the possibilities to **monitor and supervise** children (Devitt & Roker 2009), for example by creating social media profiles to remain updated about their children's social media activities (Hänninen et al. 2018). As Rudi et al. (2014) notes, for parents, these new communication possibilities seem to **strengthen family cohesion** because 25 % of parents report that through cell phones and the Internet, they feel closer to their family than they did in their childhood.
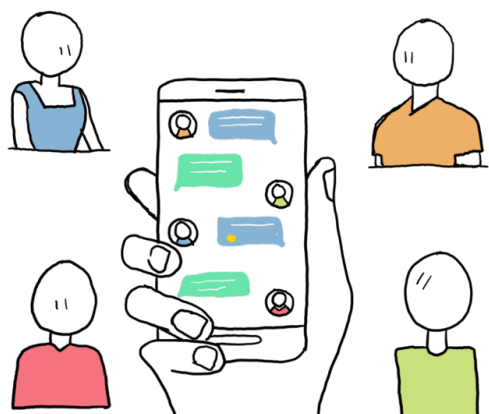
Moreover, for families with children who have intellectual disabilities that make communication via speech complicated, digital technologies can be helpful. Artificial intelligence and the Internet of things can be used to **learn from a child's movements and reactions** and can then translate them to their carers and parents. This approach is, for example, applied in the European research project 'Insension' and the technology will be available soon (Insension 2020).

New communication technologies also lead to significant advantages for families with non-resident and extended family members. Nowadays, non-resident family members and resident family members can easily exchange information about their everyday lives via phone, email, or – more recently – via family chat groups and family websites. These developments enable them to participate more actively in each other's lives (Taipale & Farinosi 2018; Rudi et al. 2014; Gonçalves & Patrício 2010; Tee et al. 2009). As Nedelcuand and Wyss (2016) point out, in this way, families create "feelings of **being and doing things together at a distance**" (Nedelcu & Wyss 2016: 202). In addition to the already mentioned ways of ICT communication, developments in the speed of Internet connection made live communication via video possible. Even very young children aged 0-8 with non-resident family members typically know live communication applications such as Skype and FaceTime (Chaudron et al. 2018). These new

developments offer the possibility of experiencing family life even more actively by creating a stronger feeling of family cohesion among geographically separated families. More specifically, scholars found that for grandparents who reside in nursing homes or other family members with mobility barriers video communication contributed to a sense of being less isolated (Mickus & Luz 2002; Charalambides 2019). Furthermore, technologies that combine video conferencing and joint activities offer the possibility to sustain the remote interaction between adults and toddlers who only have limited abilities to communicate via video chat. For example, Raffle et al (2011) found evidence that video calls with infants up to three years lasted five times longer than a standard video chat if the video application additionally allowed both users to control and see the same e-book on their respective devices. Similar supportive evidence for the family cohesion promoting aspect of communicating via digital technologies has been found for trans-national families (Nedelcu & Wyss 2016) and families with college students (Chen & Katz 2009). For families with divorced parents who practice effective co-parenting, the main advantage of ICT communication lies in a more straightforward way of organising parenting. For contentious parents, on the other hand, ICT communication might even reinforce their conflicts (Ganong et al. 2012). However, Nedelcu and Wyss (2016) also argue that the existence of new technologies also adds additional pressure in terms of being available at any point in time. At the same time, risks of social exclusion might emerge for elderly family members who lack the required skills for online communication (Hänninen et al. 2018). Furthermore, parent's practice of monitoring their children, especially by using GPS-tracking, also raises ethical concerns about the violation of children's privacy (see chapter 6.5).

4. How do parents guide their children's ICT consumption?

In the related literature, a wide range of scholars are investigating how parents try to assist and guide their children's media consumption. Referring to these publications, a classification into different parental mediation styles linked to children's ICT use emerged: (1) restrictive mediation (rules on time or content), (2) monitoring (control children's ICT activities nearby, after use or by control software), (3) active mediation (give advice, show interest), (4) co-use, (use ICT together for parental purposes) (Nikken & Jansz 2013; Livingstone & Helsper 2008). Since co-use and active mediation are often hard to distinguish, most scholars, dealing with this topic, analyse them together (Chaudron et al. 2018; Livingstone et al. 2011). Chaudron et al. (2018) introduced a fifth category, called (5) active distraction, to encourage children to do non-ICT activities which are mainly addressed to young children.

(1) Restrictive mediation: For the vast majority of European families at least one of the following restricting mediation rules applies to children and adolescents: restrictive allowance for content used and information published, time restrictions regarding digital devices and certain situations (MPFS 2016a; Holdampf-Wendel et al. 2014; Livingstone et al. 2011). Typically, these restrictions also include rules, such as no permission to use ICT during certain times of the day (e.g. during homework, during dinner, before bedtime) or until certain obligations (e.g. homework) are made (Chaudron et al. 2018; MPFS 2016a; Dias et al. 2016).

Restrictions on time spent online/on devices are more prevalent for children up to early adolescence (MPFS 2016a; Holdampf-Wendel et al. 2014; Livingstone et al. 2011). Whether time and content restrictions are employed for very young children up to the age of five years also depends on the type of digital activity because it seems that parents set up rules less often for activities that are less relevant for the respective age group (MPFS 2016b; Nikken & Jansz 2013).

(2) Monitoring: To supervise the rules set, parents can monitor their children's behaviour by themselves, or they can limit their access in advance by applying control software. Only a minority of parents use control programs, whereas controlling children's behaviour after use is slightly more common. For example, parents of 9-16-year-olds check the child's browsing history (46 %), social network profile (40 %), social network contacts (36 %) and the messages the child received (25 %) (Livingstone et al. 2011). The most common control tools are online control programs (e.g. filtering out adult websites, illegal activities and social networking sites) and program blockers to prevent the child from using certain programs (European Commission 2019a). A few parents also monitor their children's location by applying GPS tracking (Šmahel et al. 2020), which raises ethical concerns about the violation of children's privacy (see chapter 6.5).

The majority of parents of children at the age of primary school report that they sit/stay nearby when the child uses digital technologies. Once children reach the age of secondary school, this is only true for a much smaller share of children (European Commission 2019a; Holdampf-Wendel et al. 2014). When control programs are applied, their use starts with children's growing use of the Internet – which, as they grow older, increasingly takes place unaccompanied (DIVSI 2015). Then, as children grow into adolescence, their prevalence drops again (Šmahel et al. 2020; Education Group GmbH 2019; Livingstone et al. 2017b; MPFS 2016a; Livingstone et al. 2011).

(3) Active mediation and (4) co-use: Most parents talk with their children about online risks and help them regarding ICT use and thus pursue active mediation. For example, they explain

why websites are good or bad, suggest ways how to use the Internet safely or want to know what the child is doing on the Internet (European Commission 2019a; Livingstone et al. 2014; Livingstone et al. 2011).

Similar to restrictive mediation for younger children, parents think that children have not yet encountered many online risks they need to talk about. When children first come across ICT, parents usually guide them and provide them with skills required for digital technology use and engage more actively in ICT activities together with their child (European Commission 2019a; Chaudron et al. 2018). As children become more involved in ICT activities, parents reduce active co-use, yet they subsequently demand more information about what their children are doing online. Compared to children aged 7-12 years, for teenagers, parents' interest in their on-line activities seems to decrease again (European Commission 2019a; Livingstone et al. 2014; Livingstone et al. 2011). This is also in line with the fact that as children grow older, parents are less aware of what their children are doing online (European Commission 2019a; Livingstone et al. 2011).

(5) Active distraction: This category, introduced by Chaudron et al. (2018), extends parental mediation to more positively connoted strategies by suggesting alternative non-ICT activities rather than setting restrictions on ICT activities. This is achieved by parents undertaking many activities together with their children or by enrolling them in a variety of extracurricular cours-es. In this way, parents try to distract their children from tempting digital activities (Chaudron et al 2018: 49). It is worth mentioning that in their study, only parents of 0-8-year-old children participated. Whether teenagers would also accept this mediation strategy, remains highly questionable.

To sum up, on average the following parental mediation patterns seem to be dominant in Eu-ropean families: Parental mediation starts as soon as children engage in ICT activities. For younger children who use ICT, parent's mediation appears to happen in a more restrictive and controlling way. Time and content restrictions are most common among children up to early adolescence, although these rules are technically less controlled, as children grow older. With decreasing technical limitations, simultaneously active mediation strategies begin to gain rel-evance. Teenagers generally experience less parental mediation, both in terms of active and restrictive mediation.

4.1 The role of socioeconomic factors, skills, coun-try and gender in relation to ICT mediation styles

Regarding ICT, significant differences in the mediation styles can be observed between families with different (1) socioeconomic backgrounds, (2) personal attitudes, digital skills and (3) coun-try norms. Within families, the family member's (4) gender affects the type of parental media-tion methods. The role which these differences play for parental mediation will be discussed in the following paragraphs.

(1) The role of socioeconomic background: Livingstone et al. (2015) found that parents in lower income and less educated families are more worried about digital technologies, chil-dren in families with a lower socioeconomic background often have greater ICT competencies than their parents and a more authoritarian parental mediation style is applied. Also, in lower income and less educated families, parents utilise a more restrictive ad-hoc set of rules instead of having negotiated and agreed on an established routine. In these families, rules are also used as reward and punishment (Livingstone et al. 2015: 16). Lower income and less educated parents practice an 'ethic of respected connectedness' meaning to raise children who are 'loyal, respectful, patriotic and caring toward both their families and communities' (Clark 2013: 16).

As opposed to lower income and less educated families, Livingstone et al. (2015) found evi-dence that higher income and more educated families are characterized by implementing a mix of all the above described mediation methods with a focus on active mediation strategies. Their strategies are underlying an 'ethic of expressive empowerment' whose goal it is to raise children who are 'self-confident, caring, self-resilient, honest, and capable of expressing their views and emotions while expressing self-control' (Clark 2013: 16).

(2) The role of personal attitudes and skills: In the same study, Livingstone et al. (2015) highlighted one aspect that was independent of a parent's education and income but shapes the way media mediation is implemented. These are parents who 'because of their work or interests, have higher digital expertise and thus tend to be more actively engaged in and less restrictive of children's online activities (Livingstone et al. 2015: 22; Barron, Martin & Nguyen 2019). Likewise, in a study of children under the age of 9 in Germany, it has been shown that the parents' degree of media expertise is positively correlated with the extent to which the children are allowed to go online (DIVSI 2015).

Similarly, if parents have more positive attitudes towards ICT, young children are permitted to use these technologies more frequently (Lauricella et al. 2015).

(3) The role of country norms: Two studies, namely Chaudron et al. (2018) and Helsper et al. (2013), investigated European cross-country differences in ICT parental mediation practices and observed similar country patterns.

Northern European parents mainly highlight the positive aspects of ICT which translates into the most supportive and active parental mediation style among European countries. In Eastern European countries, parents perceive both the positive and negative effects of ICT. As a result, a variety of different mediation styles, composed of different combinations of active and restrictive mediation, is applied. As opposed to the previously mentioned country clusters, in southern and central European countries, it seems that parents see the use of digital technology for children more negatively. They rely on restrictive and less active ICT mediation, although restrictive mediation appears to be less pronounced in southern, compared to central European countries (Chaudron et al. 2018; Helsper et al. 2013). Besides that, Helsper et al. (2013) found out that parents in Central-Eastern countries (Austria, Hungary, Lithuania and Slovenia) are less involved in parental mediation than in other European countries.

(4) The role of gender: Apart from the above mentioned differences, parent's and child's gender is another aspect that explains variation in parental mediation strategies. Applying qualitative and quantitative methods Ferreira et al. (2017) studied the exposure of 3-8-year-old children and their parents' mediation strategies in Portugal. Their findings indicate that not only the way mothers and fathers use ICT is gender-stereotyped (see chapter 3.2), also their mediation strategies follow established gender norms. Mothers seem to be responsible for setting rules and enforcing their compliance (Hagen 2007). Fathers are in control of technical restrictions. Furthermore, it appears that girls receive more active mediation than boys do because technical restrictions are more frequently applied to boys, whereas girls are more likely to talk about things that upset them on the Internet (Ferreira et al. 2017). Likewise, EU-Kids Online data of 2019 suggests that in almost all participating countries, parents talk to girls about what they do online more often (Šmahel et al. 2020). In addition, parents expect boys to be more skilled in using ICT than girls (Ferreira et al. 2017). Ferreira et al. (2017) argue that this gender-stereotypical behaviour reinforces gender-typical roles because parents act as role models for their children who adopt these gender-typical norms in the use of technologies. It is, however, also worth mentioning that gender-related mediation differences are much smaller than age-related mediation differences (Livingstone et al. 2018a).

4.2 Parents are struggling with ICT mediation

Despite some attempts to participate in children's lives online, parents seem to know little about what their children are actually doing online (Zartler et al. 2018; Chaudron et al. 2015). For example, Zartler et al. (2018) found that parents assumed that their children were playing a game on the tablet but in fact, they were watching videos from YouTube stars. They point out that, from a parent's perspective, it is quite challenging to understand what is exactly going on in this world that is usually unknown to them (Zartler et al. 2018: 12). Also, parents admit that they know less about their children's online behaviour than they are supposed to know (Market Institut 2012). Many parents are overwhelmed and do not know how to deal with the media use of their children adequately. This feeling of uncertainty mainly affects parents with older children (European Commission 2019a).

Some reasons why parents struggle more with the mediation of new technologies have been

brought up by Haddon and Vincent (2014). New media require a certain level of know-how and rapid developments demand parents to constantly adapt to new situations that children sometimes cope faster with. In addition, devices have become increasingly privatised and mobile, which makes it harder for parents to monitor children's ICT activities. Altogether, these facts can lead to parents feeling a loss of authority and overload. Furthermore, Plowman (2015) and Mesch (2006a) argue that parents lack key references on ICT mediation they can draw on from their childhood because when parents of children today were growing up most of the technologies used nowadays did not exist. Hence, parents were not "able to develop ethnotheories around family practices relating to technologies in the same way as these other aspects (pocket money, bedtime or eating habits) of family life"[5] (Plowman 2015: 42). Generally speaking, parents would welcome additional advice and information regarding the media education of their children (Zartler et al. 2018; Chaudron et al. 2015).

In response to parents' lack of technological proficiency, Šmahel et al. (2020) argue that children started to 'explain and show' adults 'how digital technologies work'. In this way, parents and children are taking reversed roles, which is why the authors refer to it as 'reverse mediation' (Šmahel et al 2020: 117). For example, the EU Kids Online survey of 2019 showed that in Europe on average, 69 % of all 9-16-year-old children help their parents when they found something difficult online. According to Nelissen and Bulck (2018), the fact that children are influencing their parent's digital media use is not only the result of the parent's lack of competencies. Children are also role models for their parents because when children are coming across new technology inputs through their school or peers, they subsequently take this newly acquired knowledge home and share it with other family members (Correa et al. 2015; Correa 2014).[6] Especially in families with disadvantageous backgrounds, children guide their parents' media use and introduce them to new technologies because in these families the gap between children's and parent's knowledge is particularly pronounced (Correa et al. 2015; Correa 2014). As set out in chapter 5, if children have a technology knowledge lead over their parents, also conflicts might be more likely to arise. Apart from that, not a lot is known about the reversing mediation roles in families and how this affects intergenerational structures.

4.3 The effect of ICT mediation on children

The related literature consistently shows that children widely **follow and accept the rules** set for ICT activities and agree that parental mediation is helpful (Zartler et al. 2018; Chaudron et al. 2015; Livingstone et al. 2011). This is especially true for time limits (Zartler et al. 2018; Chaudron et al. 2015), whereas restrictions in certain situations, such as no phone during dinner, are less likely to be followed by children (Hiniker et al. 2016a). Furthermore, parents with young children experience less screen time conflicts when time limits are established routines instead of flexible ad-hoc rules that are not explained to the children. For instance, Hiniker et al. (2016b) interviewed a father who states:

"[Routine morning screen time] is such a regular thing that she knows basically. When it's on the weekend and she's watching something, it's looser … those are the times where we end up battling her more. The morning routine is pretty good, the other time it's totally hit or miss." (Hiniker et al. 2016b: 653)

In the same study, Hiniker et al. (2016b) found that young children accept to stop using ICT when they are forced to do so at a time that marks a 'natural transition point'. Such natural transition points are technologically characterised by battery dying, loss of internet connection or, more predictably, by the end of a movie (Hiniker et al. 2016b: 653). Also, active distraction (Hiniker et al. 2016b) and explanations and justifications regarding rules (Nevski & Siibak 2016) turned out to be successful for toddlers and preschoolers.

Young people are more inclined to see rules as unfair and they ignore them more often than younger children (Levy 2017; Livingstone et al. 2011).

Previous research has also shown that **active mediation and co-use**, as opposed to restrictive

---

5   Parental 'ethnotheories', are not defined as a social science theory. Instead, according to Harkness and Super, parental 'ethnotheories' are understood as parental believe systems, culturally constructed ideas about children's behaviour and development, family, parenting etc. (Harkness and Super 1992 & 2006).
6   In the related literature, this observation is called the 'child effect'.

mediation, are linked to **fewer conflicts between parents and children** (Beyens & Beullens 2017; Dubas & Gerris 2002). Besides that, not a lot of research has been done on children's perception of active mediation strategies. First, research suggests that the majority of children are satisfied with the extent of interest their parents show in their online behaviour, few wish for more and a few desire less attention (Livingstone et al. 2011).

Instead of worrying, children first **want their parents to understand** what is really going on in their online lives. For example, Telia (2019) performed workshops with 15-year-old adolescents working out what adults should know about gaming. In these workshops, it has been shown that, instead of just assuming that gaming is an antisocial activity, the teens would recommend parents trying to learn how the game works in order to realize the positive aspects of gaming, too. The teens primarily valued the formation of new friendships through gaming and the vast majority agrees that they learn new things from gaming (Telia 2019).

It is also crucial for them **to be taken seriously and be supported** by their parents in terms of their online dreams and goals. As presented by the workshops, the teens' message is that if they wish to become the best e-sports player parents should support them instead of judging this idea as stupidity "because having and pursuing a dream of becoming the best e-sport player can bring lots of joy, even if you do not make it all the way" (Telia 2019: 13).

Furthermore, children seem to appreciate mediation in a way that **provides an organized and safe online environment.** For parents, this includes providing the environment needed to go online, that is to say, making fast and stable Internet access available. Moreover, children and young people find it useful if their parents give reminders on how much time they have already spent online (Telia 2017). At the same time, from the children's point of view, it is the general responsibility of adults, not only their parents, to ensure a safe and enjoyable online experience. This involves, for example, administrators blocking users who do not behave accordingly, experts creating accurate content and programmers building a safe online environment (Telia 2017: 22).

Based on UK data, children come to a scathing judgement when it comes to talking with parents about **sensitive topics** they might come across online, especially in terms of sexual content. Only 2 % of children report that parents are doing a good job of speaking to their children about online porn. Moreover, 60 % report that their parents did not talk about sensitive topics at all (Levy 2017: 7). As studies show, children are increasingly demanding sexuality education, and in this respect, parents are among the most important sources (e.g. Bode & Heßling 2015). In addition, children report that they actively seek parent's advice when they come across upsetting content online (OFCOM 2020). Therefore, it can be presumed that young people would appreciate and feel comfortable with it if their parents would also talk more about sensitive topics.

What children **do not want is their parents to actively take part in their online life** by becoming too engaged in their children's online activities (e.g. commenting on a child's social network website) or by not respecting their children's privacy online (Telia 2017; Levy 2017). To give an example, the majority of young people perceive their mobiles as private space, similar to a diary. From their point of view, parents should not view the messages or call histories on their phones (Devitt & Roker 2009). Children's opinion on parents who practice GPS monitoring is double-edged. On the one hand, they consider GPS tracking useful in some situations (e.g. when they are picked up by parents). On the other hand, they experience tracking as an excessive restriction of their privacy (Haddon & Vincent 2014).

When children are interviewed, they report having **fewer rules** at home than stated by their parents. In addition, children sometimes have a **different view on specific rules than their parents** (Zartler et al. 2018; Hiniker et al. 2016a; Livingstone et al. 2011). Apparently, children either do not perceive all the rules that their parents make or do not consider them as such, or their interpretation varies. Especially for very young children due to their cognitive level development, it might be challenging to understand the concept of time which can lead to confusion with time restrictions (Chaudron et al. 2015). One example that illustrates different views between a mother and her daughter is given by a study of Zartler et al. (2018). The mother reports "that her daughter is not allowed to give her phone number to anyone – the daughter , on the contrary, believes that she can certainly pass on her number to friends, even without the consent of her mother (Zartler et al. 2018: 16). Likewise, as shown by Coyne et al. (2014), there is also

a big gap between parents and children reporting the use of media to talk about serious issues. As the authors explain, either adolescents partly do not realize that their parents are trying to use media in order to initiate discussions about serious topics or parents are over-reporting their mediation efforts (Coyne et al. 2014: 678).

Prior research has demonstrated that different varieties of parental mediation strategies are correlated with differences in the risks and opportunities children face online. Overall, this literature suggests that **restrictive mediation** corresponds with **less online risks but is at the cost of limited online opportunities**, too. The results of active mediation point in the exact opposite direction, arguing that children are more likely to experience more risks but also additional opportunities online when their Internet consumption is actively mediated (Livingstone & Helsper 2008; Lee 2012; Lee & Chae 2012; Daud et al. 2014; Livingstone et al., 2017).

4.4 ICT mediation by siblings

In the family, not only the parents but also siblings often take over an ICT mediation role for their younger siblings. Throughout the literature, three different leading mediation roles for older siblings have been identified (Siibak & Nevski 2019).

First, older siblings act as **gatekeepers** by protecting their younger siblings from online risks (Chaudron et al. 2015) also because, from their point of view, younger children are exposed to fewer rules than they were at their age (Telia 2017). In this case, older siblings select the content they perceive as adequate for their younger siblings. When consuming ICT together, this can also imply restricting their own preferred content in favour of their younger brother's or sister's protection (Nevski & Siibak 2016). Older siblings do not only act as gatekeepers to protect the younger siblings consciously. Because of their age, it is easier to dominate their younger siblings simply by preventing them from using their devices (Plowman 2015).

Second, older siblings take on the **role of a guide** when helping the younger ones to make sense of media content and assisting when problems occur. They demonstrate how to use the Internet, access virtual worlds and use social media websites (Barone 2012). Especially when parents do not have the skills to guide their child's ICT use, oftentimes older siblings step in (Paus-Hasebrink et al. 2019) and parents delegate their ICT mediation duties to older siblings (Vinter & Siibak 2012; Takeuchi 2011).

Third, prior studies have shown that children with older siblings start using ICT at earlier ages (Archer 2017; Teuwen et al. 2012) because siblings oftentimes act as **role models** thereby introducing new opportunities and content to their younger siblings (Siibak & Nevski 2019).

Gregory (2001) examined that if older siblings guide their younger siblings, both the younger and older sibling can benefit because "older children 'teach' younger siblings and at the same time develop their own learning […] through practising adult role play" (Gregory 2001: 309f). Nevski and Siibak (2016) relate this to a scene of analogue and digital media use they have been observed in their ethnographic case study of two siblings, 2-year-old Mia and 4-year-old Lily. They describe how the girls use their favourite book 'The Story of Anna and Elsa' as the starting point for a "joint mixed-media experience" arguing that the sister's behaviour corresponds to the reciprocity characteristics of siblings mediation, Gregory (2001) pointed at:

"During those co-viewing sessions (of the book), Lily sometimes imitated reading out loud by describing to Mia either what she was seeing on the pictures, or recalling the story from the cartoon film or from the reading sessions with her parents. Oftentimes the sisters' joint book-reading sessions turned into joint mixed-media experiences, especially when some of the book's pictures reminded the sisters about theme songs from Frozen. In these occasions, they searched for the songs on YouTube and played them on TV, often dancing and singing along. Lily frequently encouraged Mia to join in with her, and through their joint media experiences, Mia imitated Lily's movements, speech and emotive expressions when dancing and singing Frozen clips." (Siibak & Nevski 2019: 129)

To the best of our knowledge, the study of Siibak and Nevski is the only study that deals with the dynamics of siblings ICT mediation and its resulting benefits in detail.

Next to this positive effect, scholars claim that siblings' mediation role **can also be risky** because the content toddlers are introduced to by their siblings might not be age-appropriate (Siibak & Nevski 2019; Barone 2012). However, not a lot of research has been done on how this common family practice of brothers and sisters supervising, guiding and driving their younger siblings' ICT exposure affects young children's ICT use, particularly regarding possible risks and benefits (Holloway et al. 2013; Vinter & Siibak 2012). Furthermore, attempts regarding investigations on how this behaviour shapes a sibling's relation to one another should be accelerated.

# 5. What types of family conflicts arise from using ICT?

In the previous chapters some situations were addressed in which conflicts between parents and children are likely to occur: During family TV watching, disputes can arise if parents and children do not agree on the TV program, they want to watch. In addition, children and young people want to be taken seriously. From their perspective, parents should try to put themselves in the child's position and should learn what ICT means to their life. If parents' mediation of digital technologies is instead dominated by restrictive rules and if children feel that their online privacy is neglected, more family conflicts can be observed.

Besides that, a **child's amount of screen time** is amongst the biggest sources of parent-child conflicts. In fact, the amount of a child's screen time has a similar potential for conflicts as discussions about bedtime, eating habits, homework and chores (Livingstone et al. 2018a; Livingstone et al. 2017a). In some households' conflicts about children's screen time start at a very young age. However, they are becoming most dominant at children's age between 5 and 12 years (Livingstone et al. 2018a; Livingstone et al. 2017a).

Interestingly from a parent's perspective, the amount of screen time is considered as more problematic than what the child is actually doing on the screen (Livingstone et al. 2018a; Livingstone et al. 2017a). This might be related to the fact that in most cases, parents' complaints about child's screen time are caused by smartphones (MPFS 2016a; Haddon & Vincent 2014). The small screen usually does not allow others to follow the user's activities on the smartphone. As a result, parents are not fully aware of what the child is doing on the phone which makes it impossible to judge the child's phone activity in the first place. In the study of Oduor et al. (2016), a mother describes her concerns about smartphones as follows:

"I guess my frustrations is around that because it's such a personal device that there's no way to show other people what you're doing, or for other people to understand what you're doing, or how long you're going to be, or how distracted you are [...] It's not like the computer like I'm on now, everybody can see what I'm doing over my shoulder, and that's nice sometimes because I can see when it will be done, or you can understand what's happening, but you can't really with personal devices." (Oduor et al. 2016: 1320)

Even though the particular **online activity** is less important, Mesch (2006b) found that parents value their children's online activities for school and learning purposes more than using the Internet for social activities outside the family context, such as playing online games and communicating with friends. The authors explain this negative attitude towards social activities by the family boundaries perspective, suggesting that "social use is the kind that most exposes family information to others who are not members of the family unit [...] which weakens family boundaries and apparently is conceived by parents as a threat" (Mesch 2006b: 134). Furthermore, parents' worries concerning a higher likelihood of children being exposed to risky situations during online social, compared to online learning activities, is taken up by Mesch (2006b).
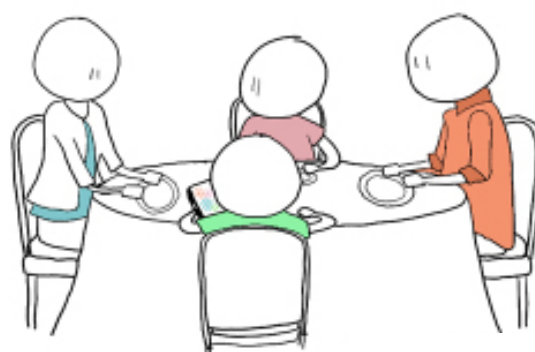
As already mentioned, smartphones are the primary source of screen time conflicts among parents and children but, as for example set out by Oduor et al. (2016), this is also the case among other family members. **The use of ICT when other family members are actively present**, for example during shared mealtimes (Moser et al. 2016), is considered to be particularly annoying. Reasons, why people are interacting with digital devices during the co-presence of other family members, are associated with receiving "notifications, boredom and a need to look up information" (Oduor et al. 2016: 1316). When family members had the impression that the

mobile device interaction would not have been urgent, they felt socially disconnected from the family members around, were frustrated or bothered often for long periods:

"There's probably been a couple of times, like if I got frustrated with my wife being on the phone, using the phone while I'm talking to her, and she claims that she's paying attention, but I don't think she is." (Oduor et al. 2016: 1319)

Regarding children's concerns, the AVG digital diaries study found that parents being distracted by their device during conversations was the most prominent grievance children reported from a list of possible bad device habits and more than half of the children interviewed said that their parents check their devices too often (AVG 2015). If parents spend a lot of time on the smartphone, children also start to question the rules they need to follow, and they are disappointed if this behaviour leads to less family time (Zartler et al. 2018). Likewise, scholars studying parent's technology habits while taking care of children showed similar findings regarding children's frustration about their parent's distraction (see chapter 6.5).

As the above statements suggest, instead of considering screen use only as a significant source of parent-child disputes, screen use during family time seems to be a broader issue affecting the family as a whole.

Phone activities when other family members are around are largely accepted if they serve a common need, such as looking up information for group purposes. Also, comprehension for such activities was higher if the content was shared on the TV display or if instead of using the phone, voice recognition and personal assistants (e.g. Siri, Echo) were applied (Mesch 2006b: 134).

Looking at family differences, prior research has shown that family **conflicts appeared more often in larger families.** Mesch (2006a) points out that the number of siblings in the family is likely to explain variations in the number of device users across families. Therefore, in larger families there is greater competition over the use of digital devices if there is only a limited number of devices available. Studies report cases in which child-sibling (Nevski & Siibak 2016; Mesch 2006a) or child-parent (Van den Bulck & Van den Bergh 2000) conflicts aroused from sharing one device or taking turns using the device.

Moreover, research consistently indicates that in **families in which children are considered as ICT experts and guide their parents'** ICT use, conflicts occur more frequently (Nelissen & Bulck 2018; Mesch 2006a). So far, the following attempts have been made to explain this. If children have higher ICT proficiency, parents might struggle with a potential authority shift that might lead to changes in the traditional balance of power in the family (Livingstone 2009; Nelissen & Bulck 2018). For instance, in the investigations of Kiesler et al. (2000) a teenage girl describes situations in which she notices that her father has trouble using the computer:

"Sometimes if I'm not doing anything, I'm just like washing dishes or something, oh, he can't access something, I can help him. Sometimes [he says] "I know what I'm doing" [she lifts her eyebrows, indicating scepticism]. I don't know, maybe he gets upset that I know more about this than he does" (Kiesler et al. 2000: 344).

Another possible reason is that children feel annoyed or frustrated by their parent's lack of ICT competencies which in turn might lead to conflicts (Nelissen & Bulck 2018). The following quote of a 13-year-old girl describing her challenge of teaching her father where he can find games on her mobile indicates that children and young people might lose their temper if their parents' need more time in understanding the ICT issue:

"He didn't know where to find games in my mobile. So, I told him 'Here, then here, and here.' Then, he asked 'but set it up,' 'But I already taught you,' 'No, you didn't.' Then (talking slowly) I had to say, 'You click here, you open the window, you start playing and the game appears.' He eventually got it." (Correa 2014: 113)

6. What is the impact of ICT use on different dimensions of well-being?

So far, scholars have identified a variety of risks and opportunities for children associated with the use of ICT in several areas. Most of these studies deal separately with the positive and negative effects of ICT. In this case, the obtained picture of challenges and opportunities children face in their digital lives is rather one-dimensional with a focus on either the positive or the negative consequences of single ICT activities.

To take into account the complexity of the topic and to avoid hasty judgement, ICT activities need to be analysed in a broader context to better understand the conditions under which harmful versus beneficial effects occur. To achieve this, we decided to base our analysis on a conceptual framework. In this framework, children's use of ICT has an impact on different dimensions of children's well-being (see Table 1). The overall effect of a child's ICT use on a specific dimension of well-being depends on the interplay of different aspects of activities that are assigned to this dimension but also other dimensions. The following example of the activity 'new contacts' in the 'interacting through ICT' well-being dimension should illustrate this: Social media is an excellent source to building new, vital friendships (aspect 'vital friendships'), yet implies risks, too. Online anonymity allows impersonating a fake identity which can bring about harmful experiences (aspect 'harmful experiences from meeting strangers'). Analysing different aspects of meeting new people online allows us to better understand under which conditions this activity is a risk or an opportunity. Nevertheless, one should also bear in mind that the effects of the same aspect of an activity can be positive or negative, depending on the specific context as well as the individual child, its resilience and family system. For example, when a child, who first got in touch with a stranger online, meets this person in real life, it can be enjoyable for some children in some situations but might be harmful to others. Hence whenever possible, we focus on online experiences that indeed lead to harm instead of only analysing risky behaviours that do not necessarily involve adverse effects for children and young people. It is, however, not part of this literature review to touch upon the topic of resilience, discussing the extent to which a child's resilience affects the well-being outcomes of ICT activities.

This well-being framework was introduced by the OECD (2019b), explaining the well-being impacts of the digital transformation on individuals. Since our focus is on children and young people, we adapted the OECD well-being framework for our purposes. Also, we extended it by using the Digital Competence Framework of the European Commission (2019b). As a result, we created a well-being framework with five dimensions shown in Table 1. For structural reasons, some broad dimensions, like dimension (3) communication and collaboration, include sub-dimensions. These (sub-)dimensions cover various ICT activities which are done by the individual child or several family members together. As mentioned above, the well-being outcome of an ICT activity for the child then depends on a number of interrelated aspects, which will be identified throughout this chapter.

To sum up, by applying the presented framework, this chapter will give an overview of some of the investigated challenges and opportunities for families and children which arise from being exposed to digital life and how they affect different dimensions of children's well-being.

Table 1: The well-being dimensions of digital technologies for children and young people

Dimension		Activity by	Activity indicator
(1) ICT access		child	ICT access and the digital divide
(2) information and data literacy		child	information and data literacy
(3) communication and collaboration	Interacting through digital technologies	family	co-presence co-use
		child	new contacts maintain existing contacts
	Collaborating through digital technologies	child	co-creation civic participation
	Developing and managing identity	child	experimentation with identity and children's expression online display family vs. sharenting*
		family	
(4) new skills and content creation		child	creativity
		child	new skills
(5) safety	Personal data and privacy	child	digital footprint
		parent	sharenting
	Psychological well being	child	harmful content
		child	cyberbullied
	Health	child	screen time
		child	online addiction
		parent	distraction by technology

Source: own illustration, inspired by OECD (2019b) and European Commission (2019b)
*Sharenting refers to the current trend where parents overshare information about their children on the Internet.

6.1 Dimension (1) ICT access

As the OECD (2019b) notes, ICT access is not a dimension of the well-being framework per se. However, having the possibility to access digital technologies is the prerequisite to being affected by the positive and negative effects of ICT in the first place. It is, therefore, crucial to know which children have access to ICT and which do not. In chapter 3.1, we already touched upon the almost universal Internet access for families with children in Europe. Similarly, when children are asked, they constitute the Internet as something that is a naturally given element of their everyday lives. Sometimes, it is even hard for children to distinguish between their online and offline lives (Telia 2017). Furthermore, as discussed in chapter 3.1, there are only small differences in children's access to digital devices related to parents' socioeconomic backgrounds (Paus-Hasebrink et al. 2019; DIVSI 2015). This implies that ICT access per se is not a compelling source to pass inequalities on to children with socioeconomically disadvantaged backgrounds. Instead, data indicates that the speed of the Internet connection at home differs across households in different European countries and regions (Markit 2017). Differences in the speed of internet connection might thus be a new source of an emerging digital divide, but this is something that needs to be further verified. Furthermore, as outlined in chapter 3.1, ICT usage patterns vary across children with different socioeconomic backgrounds and the same is true for the variation in information and data literacy skills (see dimension 2 Information and data literacy). Scholars, therefore, put increasing emphasis on the so-called 'second-level'

digital divide – the inequality of digital use and digital competencies (Ronchi & Robinson 2019; Hargittai 2002).

6.2 Dimension (2) information and data literacy (IDL)

According to the European Commission, Information and Data Literacy (IDL) is defined as the competence "to articulate information needs, to locate and retrieve digital data, information and content; to judge the relevance of the source and its content; to store, manage, and organise digital data, information and content" (European Commission 2019b: para 1). Children who have acquired a certain level of IDL can leverage the benefits of the extended information available online. They can embed reliable online information into their existing body of knowledge and make active use of it. On the other hand, children with lacking IDL might not be able to verify the content accuracy of online resources and thus are at risk to take up fake news and wrong information. Put differently, online resources have the potential to extend the children's body of knowledge if they have the required competencies but might also be detrimental if they are lacking IDL. In the International Computer and Information Literacy Study of 2018, adolescents' IDL has been assessed via a test scoring on a four-level ILD scale (Fraillon et al. 2019: 57f). One main finding was that the country's ICT development index was positively correlated with adolescents' achievement. However, the variation in proficiency levels was higher within a country than across countries. Furthermore, females scored higher than males and a higher socioeconomic background, as well as having access to multiple computers at home, and a child's experience using computers was associated with higher achievement (Fraillon et al. 2019). The same link between ICT experience and IDL has been found for younger children up to the age of 8 years. At this age, children acquire skills through learning by doing and the more they use ICT, the more they learn how to use it (Chaudron et al. 2018). For this reason, the concept of 'ladder of opportunity' developed, stating that the more children use ICT, the more ICT skills they are able to acquire which, in turn, facilitates more ICT activities and as a result, the further they climb up the 'ladder of digital opportunities' (Livingstone & Helsper 2007).

6.3 Dimension (3) communication and collaboration

6.3.1 Interacting through ICT

The effects for families resulting from interacting through ICT have already been discussed in the chapters passive co-presence and active co-use (for details and references see the chapters 3.3.2 and 3.3.3). To sum up, consequences emerging from co-present ICT activities are the chance of arising causal, meaningful conversations and a collective experience that strengthen family bonding. Likewise, experiencing ICT actively together can shape family identity and a feeling of we-ness. While parents can learn from their children's ICT experience, children enjoy that their parents are showing interest in things that are important to them. Co-use can also serve as a springboard for conversations regarding sensitive topics and is, therefore, a way to put parental mediation into practice that can strengthen children's resilience. On the other hand, studies also show increasing conflict potential if children and parents have different ICT preferences. Also, the quality and the amount of communication might be affected during active co-use. Whether this impact is positive or negative usually depends on specific characteristics of the activity. As a result of using ICT for every-day communication purposes, the organization has become more comfortable. Parents feel less worried when their children are available on their phones in the case of emergencies, which is also appreciated by children as long as parents do not proceed in a very controlling way. Moreover, digital technologies can make communication for families with children who have special needs more accessible. Next to the effects of every-day mobile phone communication, more recent development like video calls, led to significant changes for families with non-resident family members. For these families, live video calls give them a chance to actively take part in family life. Consequently, non-resident family members are likely to feel more integrated into the every-day family life. However, for family members who do not have access to ICT or who are lacking the skills required to apply the technology used for communication, online family communication might cause them to feel

socially excluded rather than promoting family cohesion.

Now, let us move away from the focus on the family effects of interacting through ICT to pass over to its risks and opportunities for children. In a study undertaken to examine the opinion of 12-year-olds in Northern European countries on ICT related topics, more than 50 % of the interviewed 12-year-olds reported that ICT had helped them to make new friends (Telia 2018). The EU Kids Online survey indicates that one third of the participating 9-16-year-olds had contact on the Internet with someone they have not met face-to-face before (Šmahel et al. 2020). From children's and young people's perspective, building new friendships is one of the most important benefits of using ICT. Especially children who feel lonely in the offline world can take advantage of connecting with like-minded people online who share their interests which can help them to feel more accepted (Telia 2018; Dedkova 2015). Other benefits scholars have put into context with meeting new people online are related to becoming acquainted with new cultures that broaden their horizons and receiving social support because children sometimes find it easier to talk about sensitive topics online (Dedkova 2015; Holmes 2009).

However, meeting new people on the Internet also goes hand in hand with possible risks, associated with psychological, "physical or sexual abuse stemming from meeting unknown people online, people who manipulate children using lies and pretending to be their peers" (Šmahel et al. 2020: 94). Especially meeting people face-to-face with whom children first came into contact on the Internet, is considered as a potential source of harm. According to EU Kids Online data, such behaviour is only done for a minority of children who made online contacts, though. After meeting the online contact in person, 9 % of the 9-16-year olds felt upset, indicating that for the vast majority of children, meeting new people online was an enjoyable rather than a bad experience (Šmahel et al. 2020). Other examples of possible psychological harm stemming from online interactions are online bullying and harmful content (see chapter 6.5.2).

The online world does not only offer the possibility to build new friendships, but existing ones can also be strengthened, too. Girls usually use social media to "hang out" with their friends online, while for boys, gaming is more frequently used as a source to keep in touch with their friends (Telia 2019).

As opposed to the positive effects of staying in contact with friends, adverse effects might occur if ICT creates a "nature of social expectations regarding 'anywhere, anytime' accessibility and obligations to reciprocate also causing "feelings of anxiety, exclusion and obligation" (Mascheroni & Vincent 2016: 322). This means, for example, if peers are continually communicating via their smartphones, children and young people who are not available full-time have a fear of missing out and are worried about being socially excluded.

Generally speaking, as long as online communication enriches and supplements offline communication, it can be perceived as widely positive. Still, it becomes unhealthy once offline communication is preferred over online interaction (see chapter 6.5.3 Internet addiction).

6.3.2 Collaborating through digital technologies

Scholars revealed that features of social media, such as commenting, following-up and forwarding information, seem to support participatory behaviour (Clark & Marchi 2017) and civic participation (Theocharis & Quintelier 2016) of adolescents (Boulianne & Theocharis 2018). Moreover, user-generated digital content (e.g. videos, music) that is shared among adolescents fosters political engagement due to the support received from peers, an increased likelihood for collaboration and deeper engagement with information (Östman 2012). From a youth's perspective, the online environment enriches their possibilities to express their opinions that are otherwise often not heard and allows them to contribute to decision-making which enables them to participate meaningfully (Telia 2017; Third et al. 2014). But as Middaugh and colleagues (2017) point out, more research is needed to examine in which ways online collaboration contributes to risks and opportunities for young people. Possible risks children and young people might encounter, are politically radical influence or false information (Middaugh et al. 2017).

6.3.3 Developing and managing identity

The development of identity is a psychosocial developmental task all adolescence and emerging adulthood face (Arnett 2015, Borca et al. 2015; Seiffge-Krenke 2014). The Internet can support this developmental process by providing opportunities for young people to experiment with their (online) identity through social networks but also by playing games or searching for information to cultivate their interests (Borca et al. 2015: 50). Due to greater anonymity online, young people can choose to present different aspects of their personality to find their place in the society amongst different reference groups (Davis & Weinstein 2017; Telia 2017; Perdew 2017; Borca et al. 2015). In this sense, the Internet provides a source for identity experimentation and formation for all adolescents. At the same time, this can be especially beneficial for some groups of young people:

First, many children and young people perceive the Internet is a gateway into a life in which they can escape from their daily life and problems. For instance, for children who are not growing up in the ordinary nuclear family but are looked after by others than their parents, it has been shown that the possibility of flexible self-identifications online, can help them to develop a feeling of belonging (Wilson 2015). After all, in their online environment, they are given the option to live the same life as other children of their own age and in this sense, the digital world can help children to remove barriers. An 18-year-old teenager from Russia points to this fact in a similar way when he says: "Online, my wheelchair is invisible" (UNICEF 2017: 33).

Second, adolescents with lower self-esteem, whose interests and personality are less in accordance with the mainstream peer group, often feel more comfortable in testing their identity in very anonymous online environments (e.g. where they can create pseudo nicknames) (Davis & Weinstein 2017). For example, Davis and Weinstein (2017) refer to an ethnographic study of Boyd & Ellison (2014) that sketches the experiences of a queer girl who did not feel comfortable to explore her sexual identity in her conservative offline environment. Online chatrooms helped her to exchange experiences with other queer girls (Davis & Weinstein 2017: 10). In a similar vein, online communities with non-mainstream interests support its members in the expression of themselves without being treated as an outsider.

However, new trends are moving away from almost full towards only very limited anonymity on many popular social media platforms. For example, "Facebook explicitly facilitates the creation of online profiles grounded in an individual's offline identity and connections" leading to an "overlap between young people's online and offline social networks" (Davis & Weinstein 2017: 5). In this environment, disclosing an online identity that is inconsistent with the identity presented offline is perceived as unauthentic and is, therefore, less accepted by the community (Davis & Weinstein 2017). On social media platforms with overlapping offline and online networks, there is less scope for a clear-cut separation between youth's online and offline identity experimentation. Instead, it facilitates the fusion of both worlds and gives rise to the question of whether this fact limits adolescent's possibilities to test their identity in a distinct, anonymous space.

When it comes to their public social media profiles, adolescents typically only show selected content that is also perceived as good/beautiful by the community. In a more private social media environment (e.g. WhatsApp), on the other hand, children's online appearance is more realistic and unfiltered (Telia 2017). This common practice of only showing the ideal version of oneself on social media can also lead to drawbacks, especially regarding young people's self-esteem. As scholars revealed, social comparison among teenagers is often ubiquitous in social media environments (Vogel et al. 2014; Chou & Edge 2012). This means that the dominance of the selected and pimped versions of the users' self-created online identity gives rise to the other users' beliefs that they are living a less fulfilling, less successful life. As Vogel et al. (2014) describe "It appears, then, that people might be comparing their realistic offline selves to the idealized online selves of others, which may be detrimental for well-being and self-evaluations" (Vogel et al. 2014: 2017). Moreover, teenagers who have so-called contingent self-worth are more likely to look for approval from others on social media platforms such as Instagram (e.g. by receiving likes and comments) because their self-esteem depends on how they are perceived by their peers. This in turn, again promotes social comparison with unrealistic ideals and corresponds with possibly detrimental effects on teenagers' self-esteem (Stapleton et al. 2017; Yang 2016).

In contrast to teenagers who construct their digital identity by themselves, for younger children, parents recently started to manage their children's online identity. As shown in an Austrian study of 2020, today it is part of the everyday life of young children that their parents take pictures of them which are then shared on the Internet. In addition, the children shown in these pictures online, are getting younger and younger – for example, 30 % of parents report that they have already sent an ultrasound image before birth (IFES 2020). The widespread practice among parents, and particularly mothers (Lazard et al. 2019; Bosch 2016), of oversharing information of their children online, is therefore referred to as 'sharenting' (Muge Marasli et al. 2016; Leckart 2012). Parents' motivation for sharenting is related to expressing their pride about children's achievements, showing their efforts in terms of socially expected norms of good parenting, social approval as well as the possibility to receive parental support and advice (Lazard et al. 2019; Wagner & 2018). As research on children's opinions demonstrates, children are not always satisfied by their parents sharenting behaviour. Indeed, children do not want their parents to send or post photos of them without being asked (Zartler et al. 2018) and they are frustrated if they perceive the pictures shared as embarrassing (Hiniker et al. 2016a). Nevertheless, in such unwanted situations, children often feel helpless and then simply resign (Institut für Jugendkulturforschung 2016). On the other hand, if family uploads are used in a way that is appreciated by all family members and permission for sharing is obtained from all family members, sharing family content on the Internet acts more in the sense of displaying family (see chapter 2). In this way, family togetherness can be supported as well (Lazard et al. 2019).

No matter whether the child/adolescent itself or the parents share information on social media platforms, concerns regarding the children's and young people's safety arise (see more details on this in dimension (5) safety).

6.4 Dimension (4) new skills and content creation

As already introduced by the concept of the 'ladder of opportunity', children who are familiar with the adequate application of digital technologies, which includes that have acquired a certain level of IDL, can take advantage of the possibilities that the Internet and ICT in general provide. They know how to obtain the information needed to acquire and then apply new skills, for example by using instruction videos or online forums (Telia 2017), to create new (digital) content. Using digital technologies in this way can encourage children's creativity. As Ito et al. (2019) show, many young people who are interested in digital technologies acquire advanced ICT skills first by themselves through playing around with technologies (e.g. by making home videos, modifying photos, or using a program such as Photoshop) and a trial and error approach (e.g. if they try to learn how to fix technology-related problems by their own). After a while, some of them are eventually becoming technical experts among their families and peers (Ito et al. 2019).

Online gaming is another example of how ICT can promote the development of new skills. Additional skills that can arise from gaming are the acquisition of visual-spatial skills (Hughes 2017; Freina et al. 2017), memory, strategy and fine motor skills (Kühn et al. 2014). For example, Kühn et al. (2014) provide evidence that playing Super Mario 64 for 30 minutes a day for two months significantly increased the grey matter in the right hippocampus which is responsible for memory, strategy, fine motor and spatial navigation skills.

6.5 Dimension (5) safety

6.5.1 Personal data and privacy

Every online activity leaves an individual specific digital footprint. This digital footprint represents an accumulation of data that are collected intentionally (e.g. by sharing information online), mostly unknowingly (e.g. via cookies or smart toys) or are derived from already existing personal data (e.g. for profiling via algorithms) (Ronchi & Robinson 2019). Basically, safety risks for this gathered online information affect all Internet users. Children, however, constitute an especially vulnerable group because they often lack the awareness and the capacity to foresee possible consequences of their behaviour. Livingstone et al. (2018b) argue that children today care a lot about what personal information is shared with their friends or parents. They also

know that they will receive advertisements after searching for a specific good, but often they cannot put this into a bigger context. In other words, they are aware of the commercial use of indirectly collected data but do not grasp its long-term implications such as the data's subsequent use for profiling (Livingstone et al. 2018b). For example, algorithmic systems can limit the information shown online, such as on the feed of social networking sites that are based on the individual's preferences identified through previous online activities (i.e. they apply profiling). On the one hand, this allows fast access to new content in the children's main area of interest. On the other hand, children are moving around in an online bubble that might narrow their views and can limit their online opportunities (Lupton & Williamson 2017).

In addition to the personal data privacy risks that arise from children's online behaviour, if parents practise sharenting (see (c) developing and managing digital identity) further issues might arise. Parents often disclose a lot of sensitive information about their child to a broad community already from a very early age. Once uploaded, the information becomes available to potential child predators and can be used for fraud or sexual reasons (Brosch 2016). As Kopecky et al. (2020) state "The problem is that parents build their child's online identity without the child's consent" (Kopecky et al. 2020: 1). Photos that are perceived as cute by adults are possibly embarrassing for the child and can be exploited for cyberbullying in the future (Kopecky et al. 2020; Bosch 2016). Furthermore, the creation of a child's online identity initiated by the parents also includes ways of sharenting in which parents abuse their children for creating extremist and hateful content or use them as a commercial tool (Kopecky et al. 2020).

As stated in chapter 4, many parents check the child's browsing history, their social network profile, the messages the child received and some even use control programs and GPS tracking. Parents supervise their children because they are concerned about their safety online. Nevertheless, parental monitoring is always a balancing act between protecting the child and undermining its privacy and individual development. The following example of GPS tracking as a tool to supervise children's movements is intended to illustrate the challenge parents face, as they regularly need to assess the proportionality of their controlling measures. On the one hand, GPS tracking can protect children in emergencies and can also extend children's freedom, for example if instead of forbidding the child a specific outdoor activity, the parents let the child go if the tracking system is used. On the other hand, if GPS tracking is used in an overprotective and very controlling way, children are denied their right to privacy, and it also raises concerns regarding children's possibility to develop into autonomous and responsible individuals (Fahlquist 2015 and 2016).

6.5.2 Psychological well-being

In Europe on average 20 % of 9-11-year-old, 27 % of 12-14-year-old and 34 % of 15-16-year-old children had negative online experiences in 2019 (Šmahel et al. 2020). Negative experiences children might come across online are, for example, associated with inappropriate/harmful content and cyberbullying.

Inappropriate/harmful content: EU Kids online data from 2019 indicates that 8 % to 17 % of 9-16-year-old children came across different types of possibly harmful online content (Šmahel et al. 2020). The types of harmful content included the categories 'committing suicide' (8 %), 'messages that attack certain groups or individuals' (17 %), 'ways of physically harming or hurting themselves' (10 %), 'ways to be very thin' (12 %), 'experiences of taking drugs' (11 %), gory or violent images' (13 %). In this respect, gender differences are small and the likelihood of being exposed to harmful content is higher for older children (Šmahel et al. 2020). The fact that younger children are also exposed to inappropriate content is often associated with younger children's use of their parent's devices (Chaudron et al. 2015). Indeed, many parents allow their toddlers to use their digital devices to keep them occupied or calm when the parent itself is busy with chores or other obligations (Nevski & Siibak 2016; Dias et al. 2016). In these situations, digital devices are used as a 'babysitter' (Dias et al. 2016). Because of this practice children's effectively unsupervised technology use leads to increased risk of encountering inappropriate content or unintentional in-app purchases (Chaudron et al. 2015). In the same vein, older children introducing their younger siblings to new media content might be age-inappropriate (see also chapter 4.4).

Besides the exposure to harmful content already outlined, 15 % of 9-11-year-old children, 39 %

of 12-14-year-old adolescents and 61 % of 15-16-year-old teenagers have seen sexual images in the past year which most children discovered on devices connected to the Internet (Šma-hel et al. 2020). Interestingly, for sexual images very significant differences in the emotional response among girls and boys and different age groups can be observed. While 51 % of girls felt upset by seeing sexual images, the same is valid only for 26 % of the boys. Children in the youngest age category felt more upset from seeing sexual pictures than adolescents. On aver-age in Europe 17 % of 12-16-year-old teenagers received unwanted sexual requests on the In-ternet in the last year. In most countries, gender differences are small but usually, girls receive slightly more unwanted sexual offers (Šmahel et al. 2020).

Cyberbullying: According to Šmahel et al. (2020), in Europe on average 14 % of 9-16-year-old children were exposed to victimization online, and 5 % have been bullied online (which is de-fined by longer experiences of victimization) with no significant age differences. Only in Poland and Malta, more than 10 % of children were exposed to cyberbullying. Moreover, for a big ma-jority (80 %) of children who were victimized online, this behaviour caused them to feel upset, with 19 % reporting quite intense harmful feelings (Šmahel et al. 2020). Other scholars who applied a similar definition of online victimization and cyberbullying, found similar numbers of children and adolescents who are exposed to this behaviour online (see e.g. Athanasiou et al. 2018, Del Rey et al. 2015, Inchley et al. 2016; Ortega et al. 2012, Lobe et al. 2011).

Since some of these studies were carried out several years ago and no big gap in the exposure to cyberbullying across countries with different levels of digitalization has been detected (Liv-ingstone et al. 2011), this is first supportive evidence that a higher degree of digitalization does not make children more prone to cyberbullying.

The body strand of literature dealing with the consequences of cyberbullying for health and well-being of cyberbullying encountered a higher likelihood of depressions, stress and suicidal ideation among cyberbullied victims (Hamm et al. 2015; Nixon 2014; Kowalski et al. 2014). Other proposed devastating effects are increased anxiety, loneliness, somatic symptoms, in-creased substance use, aggression, and delinquent behaviours (Nixon 2014), which are less consistent, though (Hamm et al. 2015; Kowalski et al. 2014).

6.5.3 Health

The standard proxy applied to assess the overall health outcome of digital technology exposure is the time children and young people spend on digital screens. Next to screen time, as one broad measure, scholars have investigated the health effect of ICT by another broadly defined quantity, namely excessive use of ICT. In the following paragraphs, the findings derived from these studies will be highlighted. More specifically, the section regarding screen time refers to the effect of a marginal increase in the time a child or an adolescent spends interacting with screens on their health. In contrast to that, the section on Internet addiction outlines the exist-ing research on health effects due to addictive use. Furthermore, not only the child's screen time but also parents' screen behaviour can affect children's well-being. Thus, the impact of parents who are distracted by technology will be discussed as well.

Screen time: In her meta-analysis of 23 reviews on the relation between screen time and ado-lescents' health outcomes, Orben (2020) found that overall screen time and unfavourable psy-chological results are positively correlated. For 0-4-year old children, meta-analyses show that increased screen is associated with adverse or null effects (unlikely to have positive effects) on psychological health, cognitive development, motor development and adiposity (Poitras et al. 2017; LeBlanc et al. 2012). However, the findings of studies using screen time as a measure for exposure to ICT are highly conflicting (Orben 2020; Hancock et al. 2019). Usually, the effects shown are correlational, rather than causal because it is hard to isolate the direct impact of ICT exposure empirically. Health effects are usually only detected in cross-sectional studies, where-as in longitudinal studies, no effect or positive ones are identified. Moreover, studies which find a small effect size tend to receive a lot of attention, even though their relevance must be questioned (Orben 2020; Gottschalk 2019). Also, focussing on screen time to measure the ef-fects of ICT falls short. Due to the activity-specific consequences of technology use, evaluating the total effect of ICT on health without considering the particular activities done on the screen is almost impossible. As Reeves et al. (2020) claim, researchers need to move beyond screen time and capture what children are precisely doing on their devices to assure reliable results.

Consequently, Orben (2020) argues that evidence is not robust enough to allow a uniform interpretation of the health consequences of screen time which calls for the application of more sophisticated, causal research methods. Since many studies rely on health as a self-reported measure, also medical investigations are a possible source to provide more reliable evidence. To the best of our knowledge, Hutton et al. (2019) are the first assessing the correlation between neurobiological outcomes and screen time for preschool-aged children. For preschoolers whose screen time was higher than recommended, they found lower measures of microstructural organization and myelination of brain white matter tracts that support language and emergent literacy skills and corresponding cognitive assessments (Hutton et al. 2019). Even though the effects of a marginal increase in children's and young people's screen use are conflicting, when it comes to excessive use, clearly a more consistent picture of harmful consequences emerges.

Internet addiction: In most cases, Internet addiction involves excessive use of social media (Neverkovichet al. 2018) or online games (Cerniglia et al. 2017). In workshops with 15-year-olds, Telia (2019) showed that adolescents are aware of the possible adverse effects of excessive gaming. Detrimental effects of extreme gaming the adolescents enlarge on are neglecting important things such as homework, social relationships and physical health. Unfavourable outcomes that researchers warn against addictive Internet use are manifold, including social, psychological or academic difficulties (Neverkovichet al. 2018). Internet addicts also frequently suffer a loss of control, feelings of anger, symptoms of distress, social withdrawal, family conflicts and depression (Cerniglia et al. 2017). Recent studies suggest that a share of 1 % to 10 % of adolescents who are suffering from Internet addiction (Casaló & Escario 2019; Malak et al. 2017; Atoum & Al-Hattab 2015; Cheng & Li 2014). According to an EU-funded study 21 % of adolescents in Spain, 11 % in the Netherlands, and 10 % in Germany are at risk of Internet addictive behaviour (Tsitsika, Tzavela, & Mavromati, 2013). As compared to adolescents, much less is known about children's addictive ICT use. First research established a link between problematic digital media use of 4-11-year-old children and psychosocial difficulties (Domoff et al. 2019). In the related literature, different prerequisites for the formation of addictive Internet behaviour have been identified, including forms of frustration, the chance to feel free and interpersonal problems. In addition, problematic situations within the family are a vital risk driver for addictive Internet behaviour (Neverkovichet al. 2018). For example, Casaló & Escario (2019) relate the extent of adolescent's excessive Internet use to different types of parental mediation styles. They found that parents who provide an environment that allows adolescents to approach them for advice and parents being aware of their children's whereabouts and activities (as a proxy for good communication) are associated with less excessive Internet use. Likewise for children, it has been demonstrated that supportive active mediation styles are (weakly) correlated with lower excessive use (Šmahel & Blinka 2012).

To conclude on the health consequences of children's and young people's ICT use, one of the key messages of the report UNICEF – The state of the world's children 2017 – is as follows: "Taking a 'Goldilocks' approach to children's screen time – not too much, not too little – and focusing more on what children are doing online and less on how long they are online, can better protect them and help them make the most of their time online (Przybylski & Weinstein 2017)." (UNICEF 2017: 2)

Parent's distraction by technology: Scholars who studied adults' technology behaviour while taking care for children, found that mobile devices lead to a significant change in the carer-child interaction with possibly detrimental effects on a child's development (Pempek et al. 2014b; Ginsburg et al. 2007; Christakis 2009). Hiniker et al. (2015) investigated caregivers' phone use at playgrounds and they revealed that although for most caregivers smartphone use was not dominant, including 41 % who did not use the phone at all. However, when caregivers were distracted by phones, more than half did not respond to the child attempting to interrupt them or gain attention. This contrasts with 11 % of adults who did not use the phone
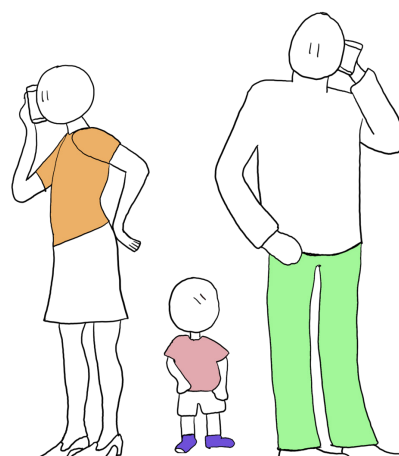
and did not respond to the child. Moreover, children were more likely to demand attention when the caregiver was not preoccupied with the phone. In the next step, the authors wanted to learn more about caregivers' perception of using phones in the presence of the child. They concluded that most caregivers agree that while looking after children, their phone use should be minimal. At the same time, they find it challenging to meet their own claims. Few caregivers see no need to limit their phone use, as long as the child is safe and playing independently. Radesky et al. (2014) observed caregivers with children while they are eating in a fast-food restaurant. Consistent with Hiniker et al. (2015), they showed that the main reason for caregivers to shift their attention away from the child was the use of mobile devices. Somehow different to what Hiniker et al. (2015) found, children responded to this behaviour either by demanding more engagement or by accepting the lack of attention. In the case of proactive bids of attention, caregivers oftentimes reacted negatively with a scolding tone of voice or in an inattentive way without looking at the child. Also, related research indicates that infants seem to experience distress (Khourochvili 2017) and children seek parents' attention more actively even by engaging in risky activities (Kildare & Middlemiss 2017) when they are distracted by mobile devices. Furthermore, similar findings are also seen for other technologies that occupy parents' attention, such as watching TV or using a computer (Boles and Roberts 2008).

References

Aarsand, P. A. (2007). Computer and Video Games in Family Life. Childhood, 14(2), 235–256. doi: 10.1177/0907568207078330

AGF (2019). DIGITAL CHANGE AND ITS IMPACT ON FAMILIES. Retrieved from https://www.ag-fami-lie.de/news/1574957425-papier-digitalisierung.html?en

Alanen, L. (1997). Soziologie der Kindheit als Projekt: Perspektiven für die Forschung. Zeitschrift für Sozialisationsforschung und Erziehungssoziologie, 17(2), 162-177.

Archer, K. (2017). Infants, toddlers and mobile technology: examining parental choices and the impact of early technology introduction on cognitive and motor development (dissertation). Retrieved from Theses and Dissertations (Comprehensive) (No. 1925).

Arnett, J. J. (2015). Identity development from adolescence to emerging adulthood: What we know and (especially) don't know. In K. C. McLean & M. U. Seyed (eds). The Oxford Handbook of Identity Development (pp. 53–64). Oxford: Oxford University Press.

Atay, A. (2020). Millennial generation, new media, and convergence culture. In A. Christiano & A. Atay (eds.). Millennials and Media Ecology. Culture, Pedagogy, and Politics (pp. 21-34). New York: Routledge.

Athanasiou, K., Melegkovits, E., Andrie, E. K., Magoulas, C., Tzavara, C. K., Richardson, C., … Tsitsi-ka, A. K. (2018). Cross-national aspects of cyberbullying victimization among 14–17-year-old adolescents across seven European countries. BMC Public Health, 18(1). doi: 10.1186/s12889-018-5682-4

Atoum, P. A. Y., & Dr. Leen Hakam Wasffi Al- Hattab. (2015). Internet Addiction and its Relation to Psychosocial Adaptation among Jordanian High Basic Stage Students. Journal of Psychology and Behavioral Science, 3(1). doi: 10.15640/jpbs.v3n1a10

Barron, B., Martin, C. K., & Nguyen, J. (2019). Family Collaboration in the Digital Age: Parent Learning Partner Roles Are Linked to Child Expertise and Parents' Work. In K. Lund, G.P. Niccolai, E. Lavoué, C.H. Gweon & M. Baker (eds.), A Wide Lens: Combining Embodied, Enactive, Extended, and Embedded Learning in Collaborative Settings, 13th International Conference on Computer Supported Collaborative Learning (CSCL) 2019, Volume 1 (pp. 344-351). Lyon, France: International Society of the Learning Sciences.

Barone, D. (2012). Exploring home and school involvement of young children with Web 2.0 and social media. Research in the Schools 19(1), 1-11.

Baumrind, D. (1991). The Influence of Parenting Style on Adolescent Competence and Substance Use. The Journal of Early Adolescence, 11(1), 56–95. doi: 10.1177/0272431691111004

Bergold, P., Buschner, A., Mayer-Lewis, B., & Mühling, T. (2017). Familien mit multipler Elternschaft. Entstehungszusammenhänge, Herausforderungen und Potenziale. Opladen: Barbara Budrich.

Beyens, I., & Beullens, K. (2016). Parent–child conflict about children's tablet use: The role of parental mediation. New Media & Society, 19(12), 2075–2093. doi: 10.1177/1461444816655099

Bode, H. & Heßling, A. (2015). Jugendsexualität: Die Perspektive der 14-25-Jährigen. Ergebnisse einer aktuellen repräsentativen Wiederholungsbefragung. Bundeszentrale für gesundheitliche Aufklärung (BzGA), Köln.

Boles, R. E., & Roberts, M. C. (2008). Supervising Children During Parental Distractions. Journal of Pediatric Psychology, 33(8), 833–841. doi: 10.1093/jpepsy/jsn021

Borca, G., Bina, M., Keller, P. S., Gilbert, L. R., & Begotti, T. (2015). Internet use and developmental tasks: Adolescents' point of view. Computers in Human Behavior, 52, 49–58. doi: 10.1016/j.chb.2015.05.029

Boulianne, S., & Theocharis, Y. (2018). Young People, Digital Media, and Engagement: A Meta-Analysis of Research. Social Science Computer Review, 38(2), 111–127. doi: 10.1177/0894439318814190

Boyd, D. M., & Ellison, N. B. (2007). Social Network Sites: Definition, History, and Scholarship. Journal of Computer-Mediated Communication, 13(1), 210–230. doi: 10.1111/j.1083-6101.2007.00393.x

Bronfenbrenner, U. (1979). The ecology of human development. Cambridge, MA: Harvard university press.

Brosch, A. (2016). When the child is born into the internet: sharenting as a growing trend among parents on Facebook. The New Educational Review, 43(1), 225–235. doi: 10.15804/tner.2016.43.1.19

Brown, B., & Barkhuus, L. (2011). Changing practices of family television watching. In The connected home: The future of domestic life (pp. 93-110). London, UK: Springer.

Van den Bulck, J., & Van den Bergh, B. R. H. (2000). Parental guidance of children's media use and conflict in the family. In Children and media: multidisciplinary approaches (pp. 131-150). Leuven, Belgium: Garant.

Casaló, L. V., & Escario, J.-J. (2019). Predictors of excessive internet use among adolescents in Spain: The relevance of the relationship between parents and their children. Computers in Human Behavior, 92, 344–351. doi: 10.1016/j.chb.2018.11.042

Cerniglia, L., Zoratto, F., Cimino, S., Laviola, G., Ammaniti, M., & Adriani, W. (2017). Internet Addiction in adolescence: Neurobiological, psychosocial and clinical issues. Neuroscience & Biobehavioral Reviews, 76, 174–184. doi: 10.1016/j.neubiorev.2016.12.024

Chambers, D. (2016). Changing media, homes and households: Cultures, technologies and meanings. London: Routledge.

Charalambides, A. (2019). Promoting Digital Literacy and Active Ageing for Senior Citizens: The GRANKIT Project–Grandparents and Grandchildren Keep In Touch. Emphasys Centre: Centre of Education, ICT Training Research (Cyprus) Retrieved 10.03.2020 from https://conference.pixel-online.net/ICT4LL/files/ict4ll/ed0008/FP/1952-SLA1219-FP-ICT4LL8.pdf

Chaudron, S., Beutel, M., Cernikova, M., Navarette, V. D., Dreier, M., Fletcher-Watson, B., ... & Marsh, J. (2015). Young children (0-8) and digital technology. A qualitative exploratory study across seven countries. Joint Research Centre. European Commission.

Chaudron, S., Di Gioia, R., & Gemo, M. (2018). Young children (0-8) and digital technology, a qualitative study across Europe. JRC Science for Policy Report. EUR 29070. doi: 10.2760/294383.

Chen, Y.-F., & Katz, J. E. (2009). Extending family to school life: College students' use of the mobile phone. International Journal of Human-Computer Studies, 67(2), 179–191. doi: 10.1016/j.ijhcs.2008.09.002

Cheng, C., & Li, A. Y.-L. (2014). Internet Addiction Prevalence and Quality of (Real) Life: A Meta-Analysis of 31 Nations Across Seven World Regions. Cyberpsychology, Behavior, and Social Networking, 17(12), 755–760. doi: 10.1089/cyber.2014.0317

Children's Commissioner (2017). Life in 'Likes': Children's Commissioner Report into Social Media Use among 8–12 Year Olds. Retrieved from: https://www.basw.co.uk/resources/life-%E2%80%-98likes%E2%80%99-children%E2%80%99s-commissioner-report-social-media-use-among-8-12-year-olds

Chou, H.-T. G., & Edge, N. (2012). "They Are Happier and Having Better Lives than I Am": The Impact of Using Facebook on Perceptions of Others Lives. Cyberpsychology, Behavior, and Social Networking, 15(2), 117–121. doi: 10.1089/cyber.2011.0324

Christakis, D. A. (2009). The effects of infant media usage: what do we know and what should we learn? Acta Paediatrica, 98(1), 8–16. doi: 10.1111/j.1651-2227.2008.01027.x

Clark, L. S. (2013). The parent app: Understanding families in the digital age. Oxford, UK: Oxford University Press.

Clark, L. S., & Marchi, R. (2017). Young people and the future of news: Social media and the rise of connective journalism. Cambridge University Press.

Comstock, J., & Strzyzewski, K. (1990). Interpersonal interaction on television: Family conflict and jealousy on primetime. Journal of Broadcasting & Electronic Media, 34(3), 263–282. doi: 10.1080/08838159009386742

Correa, T. (2013). Bottom-Up Technology Transmission Within Families: Exploring How Youths Influence Their Parents Digital Media Use With Dyadic Data. Journal of Communication, 64(1), 103–124. doi: 10.1111/jcom.12067

Correa, T., Straubhaar, J. D., Chen, W., & Spence, J. (2013). Brokering new technologies: The role of children in their parents' usage of the internet. New Media & Society, 17(4), 483–500. doi: 10.1177/1461444813506975

Courtois, C., & Nelissen, S. (2018). Family Television Viewing and Its Alternatives: Associations with Closeness within and between Generations. Journal of Broadcasting & Electronic Media, 62(4), 673–691. doi: 10.1080/08838151.2018.1523907

Coyne, S. M., Padilla-Walker, L. M., Fraser, A. M., Fellows, K., & Day, R. D. (2014). "Media Time = Family Time" positive media use in families with adolescents. Journal of Adolescent Research, 29(5), 663–688. doi: 10.1177/0743558414538316

Cristiano, A., & Atay, A. (2020): Millennials and Media Ecology. Culture, Pedagogy, and Politics. New York: Routledge.

Daly, M. (2017). Parenting: Critical insights from a sociological perspective. In Betz, T., Honig, M.-S. & Ostner, I. (2017) (Hrsg.). Parents in the spotlight. Parenting practices and support from a comparative perspective. Special Issue/Sonderheft, Journal of Family Research/Zeitschrift für Familienforschung 11. Opladen: Barbara Budrich, 41-56.

Daud, A., Omar, S. Z., Hassan, M. S., Bolong, J., & Teimouri, M. (2014). Parental mediation of children's positive use of the Internet. Life Science Journal, 11(8), 360-369.

Davis, K., & Weinstein, E. Identity Development in the Digital Age: An Eriksonian Perspective. Identity, Sexuality, and Relationships among Emerging Adults in the Digital Age Advances in Human and Social Aspects of Technology, 1–17. doi: 10.4018/978-1-5225-1856-3.ch001

Dedkova, L. (2015) Stranger Is Not Always Danger: The Myth and Reality of Meetings with Online

Strangers. In P. Lorentz, D. Smahel, M. Metykova, & M. Wright, F (eds.), Living in the Digital Age: Self-Presentation, Networking, Playing, and Participating in Politics (pp. 1–222). Masarykova univerzita: Muni Press.

Del Rey, R. D., Casas, J. A., Ortega-Ruiz, R., Schultze-Krumbholz, A., Scheithauer, H., Smith, P., … Plichta, P. (2015). Structural validation and cross-cultural robustness of the European Cyberbullying Intervention Project Questionnaire. Computers in Human Behavior, 50, 141–147. doi: 10.1016/j.chb.2015.03.065

Devitt, K., & Roker, D. (2009). The Role of Mobile Phones in Family Communication. Children & Society, 23(3), 189–202. doi: 10.1111/j.1099-0860.2008.00166.x

D'heer, E., Courtois, C., & Paulussen, S. (2012). Everyday life in (front of) the screen: the consumption of multiple screen technologies in the living room context. Proceedings of the 10th European conference on Interactive tv and video (pp. 195-198).

Dias, P., Brito, R., Ribbens, W., Daniela, L., Rubene, Z., Dreier, M., … Chaudron, S. (2016). The role of parents in the engagement of young children with digital technologies: Exploring tensions between rights of access and protection, from 'Gatekeepers' to 'Scaffolders.' Global Studies of Childhood, 6(4), 414–427. doi: 10.1177/2043610616676024

DIVSI (2015). DIVSI U9-Studie: Kinder in der digitalen Welt. Retrieved from https://www.divsi.de/wp-content/uploads/2015/06/U9-Studie-DIVSI-web.pdf

Domoff, S. E., Harrison, K., Gearhardt, A. N., Gentile, D. A., Lumeng, J. C., & Miller, A. L. (2019). Development and validation of the Problematic Media Use Measure: A parent report measure of screen media "addiction" in children. Psychology of Popular Media Culture, 8(1), 2–11. doi: 10.1037/ppm0000163

Dubas, J. S., & Gerris, J. R. M. (2002). Longitudinal changes in the time parents spend in activities with their adolescent children as a function of child age, pubertal status and gender. Journal of Family Psychology, 16(4), 415–427. doi: 10.1037/0893-3200.16.4.415

Ducheneaut, N., Yee, N., Nickell, E., & Moore, R. J. (2006). "Alone together?" Exploring the social dynamics of massively multiplayer online games. Proceedings of the SIGCHI conference on Human Factors in computing systems (pp. 407-416).

Education Group GmbH (2018). 6. OÖ. Kinder-Medien-Studie. Retrieved from https://www.edugroup.at/detail/6-ooe-kinder-medien-studie-2018.html.

Education Group GmbH (2019). 6. OÖ. Jugend-Medien-Studie: Medienverhalten der Jugendlichen im Trend. Retrieved from https://www.edugroup.at/innovation/forschung/jugend- medien-studie/detail/6-ooe-jugend-medien-studie-2019.html.

European Commission (2019a). 2nd Survey of Schools: ICT in Education – Objective 1: Benchmark progress in ICT in schools. Luxembourg.

European Commission (2019b). The Digital Competence Framework 2.0. Retrieved from https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework

Eurostat (2019). Households - level of internet access. Retrieved from https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=isoc_ci_in_h&lang=en

Fahlquist, J. N. (2015). Responsibility and privacy—ethical aspects of using GPS to track children. Children & Society, 29(1), 38-47. doi: 10.1111/chso.12016

Fahlquist, J. N. (2016). Ethical concerns of using GPS to track children. In E. Taylor & T. Rooney (eds.). Surveillance futures: social and ethical implications of new technologies for children and young people (pp. 122-131). London: Routledge.

Ferreira, E., Ponte, C., & Castro, T. S. (2017). ICT and gender: Parental mediation strategies. 2017 International Symposium on Computers in Education (SIIE) (pp. 1-6). doi: 10.1109/siie.2017.8259671

Finch, J. (2007). Displaying Families. Sociology, 41(1), 65–81. doi: 10.1177/0038038507072284

Fraillon, J., Ainley, J., Schulz, W., Friedman, T., & Duckworth, D. (2019). Preparing for life in a digital world: the IEA International Computer and Information Literacy Study 2018: International report. The Netherlands: International Association for the Evaluation of Educational Achievement (IEA).

Frau-Meigs, D., O'Neill, B., Soriani, A., & Tomé, V. (2017). Digital citizenship education: Volume 1: Overview and new perspectives. Council of Europe Publishing. Retrieved from https://rm.coe.int/prems-187117-gbr-2511-digital-citizenship-literature-review-8432-web-1/168077bc6a

Freina, L., Bottino, R., Ferlino, L., & Tavella, M. (2017). Training of Spatial Abilities with Digital Games: Impact on Mathematics Performance of Primary School Students. Proceedings of the Game and Learning Alliance International Conference (GALA) (pp. 25–40). doi: 10.1007/978-3-319-71940-5_3

Galvin, K. (2006). Diversity's impact on defining the family: Discourse-dependence and identity. In L. H. Turner & R. West (eds.). The Family Communication Sourcebook (pp.3-20). Thousand Oaks/CA: SAGE

Gamson, J. (2017). Modern Families. Stories of Extraordinary Journeys to Kinship. New York: New

York University Press.

Ganong, L. H., Coleman, M., Feistman, R., Jamison, T., & Markham, M. S. (2012). Communication Technology and Postdivorce Coparenting. Family Relations, 61(3), 397–409. doi: 10.1111/j.1741-3729.2012.00706.x

Gestrich, A. (2008): Sozialgeschichte der Familie in der Neuzeit. In Schneider, Norbert F. (Hrsg.), Lehrbuch moderne Familiensoziologie: Theorien, Methoden, empirische Befunde (pp. 79 – 97). Opladen: Budrich.

Ginsburg, K. R. (2007). The Importance of Play in Promoting Healthy Child Development and Maintaining Strong Parent-Child Bonds. Pediatrics, 119(1), 182–191. doi: 10.1542/peds.2006-2697

Golombok, S. (2015). Modern Families: Parents and Children in New Family Forms. Cambridge: Cambridge University Press.

Gonçalves, V., & Patrício, M. R. (2010). Information technology for grandparents and grandchildren. In International Conference of Education, Research and Innovation (pp. 3328-3332). International Association of Technology, Education and Development.

Gregory, E. (2001). Sisters and Brothers as Language and Literacy Teachers: Synergy between Siblings Playing and Working Together. Journal of Early Childhood Literacy, 1(3), 301–322. doi: 10.1177/14687984010013004

Greil, A. L., & McQuillan J. (2017): Reproductive Technology: Possibilities and Paradoxes. In O. Kapella, N. F. Schneider & H. Rost (eds.): Familie – Bildung – Migration. Familienforschung im Spannungsfeld zwischen Wissenschaft, Politik und Praxis (pp. 42-50). Tagungsband zum 5. Europäischen Fachkongress Familienforschung. Opladen: Barbara Budrich.

Griffiths, M. (2000). Does Internet and Computer "Addiction" Exist? Some Case Study Evidence. CyberPsychology & Behavior, 3(2), 211–218. doi: 10.1089/109493100316067

Groß, A. (2012). Die Bowensche Familiensystemtheorie: Eine Einführung in Theorie und Praxis. Kontext, 43(1), 4–21. doi: 10.13109/kont.2012.43.1.4

Haddon, L., & Vincent, J. (2014). Net Children Go Mobile: European children and their carers' understanding of use, risks and safety issues relating to convergent mobile media. Milano: Educatt. Retrieved from: http://eprints.lse.ac.uk/60147/1/__lse.ac.uk_storage_LIBRARY_Secondary_lib-file_shared_repository_Content_Net%20Children%20Go%20Mobile%20Project_Reports_European%20children%20and%20their%20carers%E2%80%99%20understanding_2014.pdf

Hagen, I. (2007). 'We can't just sit the whole day watching TV.' Negotiations concerning media use among youngsters and their parents Young, 15(4), 369–393. doi: 10.1177/110330880701500403

Hamm, M. P., Newton, A. S., Chisholm, A., Shulhan, J., Milne, A., Sundar, P., … Hartling, L. (2015). Prevalence and Effect of Cyberbullying on Children and Young People: A scoping review of social media studies. JAMA Pediatrics, 169(8), 770–777. doi: 10.1001/jamapediatrics.2015.0944

Hancock, J.T., Liu, X., French, M., Luo, M., Mieczkowski, H. (2019). Social media use and psychological well-being: A Meta-analysis. 69th Annual International Communication Association Conference, Washington, D.C.

Hänninen, R., Taipale, S., & Korhonen, A. (2018). Refamilisation in the broadband society – the effects of ICTs on family solidarity in Finland. Journal of Family Studies, 1–17. doi: 10.1080/13229400.2018.1515101

Hargittai, E. (2002). Second-Level Digital Divide: Differences in Peoples Online Skills. First Monday, 7(4). doi: 10.5210/fm.v7i4.942

Hargrove, D. S. (2009). Psychotherapy Based on Bowen Family System Theory. In J.H. Bray, & M. Stanton (eds.). The Wiley-Blackwell Handbook of Family Psychology. Malden (pp. 286-299). Malden, MA: Wiley-Blackwell.

Harkness, S., & Super, C. M. (1992): Parental Ethnotheories in Action. In I. E. Sigel, A. V McGillicuddy-DeLisi., & J. J. Goodnow (eds.). Parental Belief Systems: The Psychological Consequences for Children (pp. 373-391). Lawrence Erlbaum Associates, Inc.

Harkness S., & Super, C. M. (2006): Themes and Variations: Parental Ethnotheories in Western Cultures. In K. H./C. Rubin, & B. Ock (eds.). Pareting Beliefs, Behaviours, and Parent-Child Relations: A Cross-Cultural Perspective (pp. 61-80). New York: Taylor & Francis.

Helsper, E. J., Kalmus, V., Hasebrink, U., Sagvari, B., & De Haan, J. (2013). Country classification: Opportunities, risks, harm and parental mediation. London: EU Kids Online, LSE

Hertlein, K. M. (2012). Digital Dwelling: Technology in Couple and Family Relationships. Family Relations, 61(3), 374–387. doi: 10.1111/j.1741-3729.2012.00702.x

Hiniker, A., Sobel, K., Suh, H., Sung, Y.-C., Lee, C. P., & Kientz, J. A. (2015). Texting while Parenting. Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems - CHI 15 (pp. 727-736). doi: 10.1145/2702123.2702199

Hiniker, A., Schoenebeck, S. Y., & Kientz, J. A. (2016a). Not at the Dinner Table: Parents- and Children-s Perspectives on Family Technology Rules. Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing - CSCW 16 (pp. 1376-1389). doi: 10.1145/2818048.2819940

Hiniker, A., Suh, H., Cao, S., & Kientz, J. A. (2016b). Screen Time Tantrums: how families manage screen media experiences for toddlers and preschoolers. Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (pp. 648-660). doi: 10.1145/2858036.2858278

Hiniker, A., Lee, B., Kientz, J. A., & Radesky, J. S. (2018). Lets Play! Digital and Analog Play between Preschoolers and Parents. Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems - CHI 18 (pp. 1-13). doi: 10.1145/3173574.3174233

Hockly, N. (2011). The digital generation. ELT Journal, 65(3), 322–325. doi: 10.1093/elt/ccr041

Holdampf-Wendel, A., Shad, M., & Hampe, K. (2014). Jung und vernetzt -Kinder und Jugendliche in der digitalen Gesellschaft. Retrieved from https://www.bitkom.org/sites/default/files/file/import/BITKOM-Studie-Jung-und-vernetzt-2014.pdf.

Holloway, D., Green, L., & Livingstone, S. (2013). Zero to eight: Young children and their internet use. London, UK: EU Kids Online. Retrieved from http://eprints.lse.ac.uk/52630/1/Zero_to_eight.pdf

Holmes, J. (2009). MYTHS AND MISSED OPPORTUNITIES. Information, Communication & Society, 12(8), 1174–1196. doi: 10.1080/13691180902769873

Honig, M.-S. (2008). Lebensphase Kindheit. In H. Abels, M.-S. Honig, I. Saake & A. Weymann, (eds.), Lebensphasen: Eine Einführung (pp. 9-76). Wiesbaden: VS, Verlag für Sozialwissenschaften.

Honig, M.-S. (2017). Review: Children and their parents in childhood studies. In T. Betz, M.-S. Honig & I. Ostner (eds.). Parents in the Spotlight: Parenting Practice and Support from a Comparative Perspective. Special Issue/Sonderheft, Journal of Family Research/Zeitschrift für Familienforschung 11. Opladen: Barbara Budrich, 57 – 79.

Hugger, K. U., Tillmann, A., Bader, J., Cwielong, I., & Kratzer, V. (2013). Kids Mobile Gaming: Mobiles Spielen bei Kindern im Alter von 6 bis 13 Jahren. Diskurs Kindheits-und Jugendforschung. Journal of Childhood and Adolescence Research, 8(2). 205-222

Hughes, L. A. (2017). Video games help to prepare girls for a competitive future in STEM: An analysis of how video games help to build visual-spatial skills and the positive influence early childhood gaming can have on girls (dissertation, Kent State University). Retrieved from https://etd.ohiolink.edu/!etd.send_file?accession=kent1480345885015147&disposition=inline

Hutton, J. S., Dudley, J., Horowitz-Kraus, T., Dewitt, T., & Holland, S. K. (2020). Associations Between Screen-Based Media Use and Brain White Matter Integrity in Preschool-Aged Children. JAMA Pediatrics, 174(1), 1–10. doi: 10.1001/jamapediatrics.2019.3869

IFES (2013). Internetnutzung und digitale Kompetenz im Vorschulalter, Saferinternet.at. Retrieved from https://www.saferinternet.at/news-detail/aktuelle-studie-41-prozent-der-3-bis-6-jaehrigen-regelmaessig-im-internet/

IFES (2020). Die Allerjüngsten und digitale Medien, Saferinternet.at. Retrieved from https://www.saferinternet.at/fileadmin/redakteure/Projekt-Seiten/Safer_Internet_Day/Safer_Internet_Day_2020/Praesentation_PK_Safer_Internet_Day_2020.pdf

Inchley, J., Currie, D., Young, T., Samdal, O., Torsheim, T., Augustson, L., ... Barnekow, V. (2016). Growing up unequal: Gender and socioeconomic differences in young people's health and well-being. Health Behaviour in School-aged Children (HBSC) study: International report from the 2013/2014 survey. Copenhagen, Denmark: WHO Regional Office for Europe. Retrieved from https://apps.who.int/iris/handle/10665/326320

Insension (2020). Insension EU Horizon 2020 Project. Retrieved from http://www.insension.eu/overview/

Institut für Jugendkulturforschung (2016). Jugendliche Bilderwelten im Internet, Saferinternet.at. Retrieved from https://www.ispa.at/wissenspool/studien/studien-detailansicht/studienansicht/detail/saferinternetat-jugendliche-bilderwelten-im-internet.html

Ito, M., Baumer, S., Bittanti, M., Boyd, D., Cody, R., Stephenson, B. H., ... Tripp, L. M. (2019). Hanging out, messing around, and geeking out: kids living and learning with new media. Cambridge, MA: The MIT Press.

James, A. (2013). Socialising children. Basingstoke: Palgrave Macmillan.

Johnson, G. M. (2010). Internet use and child development: Validation of the ecological techno-subsystem. Journal of Educational Technology & Society, 13(1), 176-185.

Johnson, G. M., & Puplampu, K. P. (2008). Internet use during childhood and the ecological techno-subsystem. Canadian Journal of Learning and Technology / La Revue Canadienne De l'Apprentissage Et De La Technologie, 34(1). doi: 10.21432/t2cp4t

Jurczyk, K. (2014): Familie als Herstellungsleistung. Hintergründe und Konturen einer neuen Perspektive auf Familie. In K. Jurczyk, A. Lange & B. Thiessen (eds.). Doing Family: Warum Familienleben heute nicht mehr selbstverständlich ist. 1. Aufl (pp. 50-70). Weinheim: Beltz Juventa.

Jurczyk, K. (2017). Familie als Herstellungsleistung. Elternschaft als Überforderung? In K. Jergus, J. O. Krüger & A. Roch (eds.). Elternschaft zwischen Projekt und Projektion. Aktuelle Perspektiven der Elternforschung (pp.143-166). Wiesbaden: Springer.

Keller, M. N. (2020). Bowen Theory: A System Model for Family Research. In: M. N. Keller Mignon-

ette & R. J. Noone (eds.). Handbook of Bowen Family System Theory and Research Methods (pp. 49-62). New York: Routledge.

Khourochvili, M. (2017). Technology and Caregiver-Child Interaction: The Effects of Parental Mobile Device Use on Infants (dissertation, York University Toronto). Retrieved from https://york-space.library.yorku.ca/xmlui/handle/10315/34309

Kiesler, S., Zdaniuk, B., Lundmark, V., & Kraut, R. (2000). Troubles with the Internet: The Dynamics of Help at Home. Human–Computer Interaction, 15(4), 323–351. doi: 10.1207/s15327051hci1504_2

Kildare, C. A., & Middlemiss, W. (2017). Impact of parents mobile device use on parent-child interaction: A literature review. Computers in Human Behavior, 75, 579–593. doi: 10.1016/j.chb.2017.06.003

Kopecky, K., Szotkowski, R., Aznar-Díaz, I., & Romero-Rodríguez, J.-M. (2020). The phenomenon of sharenting and its risks in the online environment. Experiences from Czech Republic and Spain. Children and Youth Services Review, 110, 1–6. doi: 10.1016/j.childyouth.2020.104812

Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., & Lattanner, M. R. (2014). Bullying in the digital age: A critical review and meta-analysis of cyberbullying research among youth. Psychological Bulletin, 140(4), 1073–1137. doi: 10.1037/a0035618

Kühn, S., Gleich, T., Lorenz, R. C., Lindenberger, U., & Gallinat, J. (2014). Playing Super Mario induces structural brain plasticity: gray matter changes resulting from training with a commercial video game. Molecular Psychiatry, 19(2), 265–271. doi: 10.1038/mp.2013.120

Laslett, P. (1977). Characteristics of the Western Family Considered Over Time. Journal of Family History, 2(2), 89–115. doi: 10.1177/036319907700200201

Lauricella, A. R., Wartella, E., & Rideout, V. J. (2015). Young children's screen time: The complex role of parent and child factors. Journal of Applied Developmental Psychology, 36, 11–17. doi: 10.1016/j.appdev.2014.12.001

Lavigne, H. J., Hanson, K. G., & Anderson, D. R. (2015). The influence of television coviewing on parent language directed at toddlers. Journal of Applied Developmental Psychology, 36, 1–10. doi: 10.1016/j.appdev.2014.11.004

Lazard, L., Capdevila, R., Dann, C., Locke, A., & Roper, S. (2019). Sharenting: Pride, affect and the day-to-day politics of digital mothering. Social and Personality Psychology Compass, 13(4). doi: 10.1111/spc3.12443

Lazard, L., Capdevila, R., Dann, C., Locke, A., & Roper, S. (2019). Sharenting: Pride, affect and the day-to-day politics of digital mothering. Social and Personality Psychology Compass, 13(4), e12443.

LeBlanc, A. G., Spence, J. C., Carson, V., Gorber, S. C., Dillman, C., Janssen, I., … Tremblay, M. S. (2012). Systematic review of sedentary behaviour and health indicators in the early years (aged 0–4 years). Applied Physiology, Nutrition, and Metabolism, 37(4), 753–772. doi: 10.1139/h2012-063

Lee, S.-J. (2012). Parental restrictive mediation of children's internet use: Effective for what and for whom? New Media & Society, 15(4), 466–481. doi: 10.1177/1461444812452412

Lee, S.-J., & Chae, Y.-G. (2012). Balancing participation and risks in Children's internet Use: The role of internet literacy and parental mediation. Cyberpsychology, Behavior, and Social Networking, 15(5), 257–262. doi: 10.1089/cyber.2011.0552

Levy, E. (2017). Parenting in the Digital Age: How Are We Doing?, Parent Zone: Making the Internet work for Families. London, UK. Retrieved from https://parentzone.org.uk/sites/default/files/Parenting%20in%20the%20Digital%20Age%20conference%20report.pdf.

Livingstone, S. (2009). Children and the Internet: Great Expectations, Challenging Realities. Cambridge, UK: Polity Press.

Livingstone, S., Blum-Ross, A., Pavlick, J., & Olafsson, K. (2018a). In the digital home, how do parents support their children and who supports them?. LSE, London: Survey Report 1 Parenting for a Digital Future

Livingstone, S., Haddon, L., Görzig, A., & Ólafsson, K. (2011). Risks and safety on the internet: The perspective of European children. Full Findings. LSE, London: EU Kids Online.

Livingstone, S., & Helsper, E. (2007). Gradations in digital inclusion: children, young people and the digital divide. New Media & Society, 9(4), 671–696. doi: 10.1177/1461444807080335

Livingstone, S., & Helsper, E. J. (2008). Parental Mediation of Childrens Internet Use. Journal of Broadcasting & Electronic Media, 52(4), 581–599. doi: 10.1080/08838150802437396

Livingstone, S., Mascheroni, G., Dreier, M., Chaudron, S., & Lagae, K. (2015). How parents of young children manage digital devices at home: The role of income, education and parental style. LSE, London: EU Kids Online.

Livingstone, S., Mascheroni, G., Olafsson, K., & Haddon, L. (2014). Children's online risks and opportunities: comparative findings of EU Kids Online and Net Children Go mobile. LSE, London. Retrieved from http://www.netchildrengomobile.eu/wp-content/uploads/ 2014/11/EU-Kids-On-

line-Net-Children-Go-Mobile-comparative-report.pdf

Livingstone, S., Sefton-Green, J., & Blum-Ross, A. (2017a). Parenting for A Digital Future: Data tables for reports 1-4. LSE, London. Retrieved from http://www.lse.ac.uk/media-and-communications/assets/documents/research/preparing-for-a-digital-future/P4DF-Data-tables.pdf

Livingstone, S., Stoilova, M., & Nandagiri, R. (2018b). Conceptualising privacy online: what do, and what should, children understand?, 1–4. LSE, London: Parenting for a Digital Future. Retrieved from http://blogs.lse.ac.uk/parenting4digitalfuture/2018/09/06/theorisingprivacy-how-do-and-how-should-children-know/

Livingstone, S., Ólafsson, K., Helsper, E. J., Lupiáñez-Villanueva, F., Veltri, G. A., & Folkvord, F. (2017b). Maximizing opportunities and minimizing risks for children online: The role of digital skills in emerging strategies of parental mediation. Journal of Communication, 67(1), 82-105, doi: 10.1111/jcom.12277

Lobe, B., Livingstone, S., Ólafsson, K., & Vodeb, H. (2011). Cross-national comparison of risks and safety on the internet: Initial analysis from the EU Kids Online survey of European children. LSE, London: EU Kids Online

Lupton, D., & Williamson, B. (2017). The datafied child: The dataveillance of children and implications for their rights. New Media & Society, 19(5), 780–794. doi: 10.1177/1461444816686328

Marasli, M., Suhendan, E., Yilmazturk, N. H., & Cok, F. (2016). Parents' Shares on Social Networking Sites About their Children: Sharenting. The Anthropologist, 24(2), 399–406. doi: 10.1080/09720073.2016.11892031

Malak, M. Z., Khalifeh, A. H., & Shuhaiber, A. H. (2017). Prevalence of Internet Addiction and associated risk factors in Jordanian school students. Computers in Human Behavior, 70, 556-563, doi: 10.1016/j.abrep.2017.10.003

market Institut (2012). Digitale Medien im Volksschulalter. Perspektiven von Kindern und ihren Eltern. Retrieved from https://docplayer.org/80643840-Safer-internet-day-7-februar-2012.html.

Markit, I. H. S. (2017). Broadband coverage in Europe 2016-Mapping progress towards the coverage objectives of the Digital Agenda: final report–Study. Retrieved from https://doi.org/10.2759/679477.

Mascheroni, G., & Vincent, J. (2016). Perpetual contact as a communicative affordance: Opportunities, constraints, and emotions. Mobile Media & Communication, 4(3), 310–326. doi: 10.1177/2050157916639347

Mesch, G. S. (2006a). Family characteristics and intergenerational conflicts over the Internet. Information, Communication & Society, 9(4), 473–495. doi: 10.1080/13691180600858705

Mesch, G. S. (2006b). Family Relations and the Internet: Exploring a Family Boundaries Approach. Journal of Family Communication, 6(2), 119–138. doi: 10.1207/s15327698jfc0602_2

Mickus, M. A., & Luz, C. C. (2002). Televisits: Sustaining long distance family relationships among institutionalized elders through technology. Aging & Mental Health, 6(4), 387–396. doi: 10.1080/1360786021000007009

Middaugh, E., Clark, L. S., & Ballard, P. J. (2017). Digital Media, Participatory Politics, and Positive Youth Development. Pediatrics, 140 (Supplement 2), 127-131. doi: 10.1542/peds.2016-1758q

Mitterauer, M. (2009). Sozialgeschichte der Familie: Kulturvergleich und Entwicklungsperspektiven. Wien: Braumüller.

Moser, C., Schoenebeck, S. Y., & Reinecke, K. (2016). Technology at the Table. Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (pp. 1881-1892). doi: 10.1145/2858036.2858357

MPFS (2016a). KIM 2016 – Kinder und Medien, Computer und Internet. Basisunter-suchung zum Medienumgang 6- bis 13-Jähriger. Retrevied from http://www.mpfs.de.

MPFS (2016b). FIM 2016 – Familie, Interaktion, Medien: Untersuchung zur Kommunikations-und Mediennutzung in Familien. Retrevied from http://www.mpfs.de.

Mullis, I. V. S., Martin, M. O., Foy, P., & Hooper, M. (2017). ePIRLS 2016 International Results in Online Informational Reading. Retrieved from Boston College, TIMSS & PIRLS International Study Center. Retrieved from http://timssandpirls.bc.edu/pirls2016/international-results/

Nash, C., O'Malley, L., & Patterson, M. (2018). Wii are family: consumption, console gaming and family togetherness. European Journal of Marketing, 52(9/10), 2005–2025. doi: 10.1108/ejm-06-2017-0425

Nedelcu, M., & Wyss, M. (2016). 'Doing family' through ICT-mediatedordinary co-presence: transnational communication practices of Romanian migrants in Switzerland. Global Networks, 16(2), 202–218. doi: 10.1111/glob.12110

Nelissen, S., & Bulck, J. V. D. (2017). When digital natives instruct digital immigrants: active guidance of parental media use by children and conflict in the family. Information, Communication & Society, 21(3), 375–387. doi: 10.1080/1369118x.2017.1281993

Neverkovich, S. D., Bubnova, I. S., Kosarenko, N. N., Sakhieva, R. G., Sizova, Z. M., Zakharova, V. L., & Sergeeva, M. G. (2018). Students' Internet Addiction: Study and Prevention. Eurasia

Journal of Mathematics, Science and Technology Education, 14(4), 1483-1495. doi: 10.29333/ejmste/83723

Nevski, E., & Siibak, A. (2016). Mediation practices of parents and older siblings in guiding toddlers' touchscreen technology use: An ethnographic case study. Media Education Studies & Research,7, 320–340.

Nikken, P., & Jansz, J. (2013). Developing scales to measure parental mediation of young childrens internet use. Learning, Media and Technology, 39(2), 250–266. doi: 10.1080/17439884.2013.782038

Nixon, C. L. (2014). Current perspectives: the impact of cyberbullying on adolescent health. Adolescent Health, Medicine and Therapeutics, 5, 143–158. doi: 10.2147/ahmt.s36456

Oduor, E., Neustaedter, C., Odom, W., Tang, A., Moallem, N., Tory, M., & Irani, P. (2016). The frustrations and benefits of mobile device usage in the home when co-present with family members. Proceedings of the 2016 ACM Conference on Designing Interactive Systems (pp. 1315-1327)

OECD (2019a). PISA 2018 Results (Volume I): What Students Know and Can Do. OECD Publishing, Paris: PISA. doi: 10.1787/5f07c754-en

OECD (2019b). How's Life in the Digital Age?: Opportunities and Risks of the Digital Transformation for People's Well-being. OECD Publishing, Paris. doi: 10.1787/9789264311800-en

OECD (2016). Trends Shaping Education 2016. OECD Publishing, Paris. doi: 10.1787/trends_edu-2016-en

OFCOM (2019a). Adult's media use and attitudes report. Retrieved from https://www.ofcom.org.uk/__data/assets/pdf_file/0021/149124/adults-media-use-and-attitudes-report.pdf.

OFCOM (2019b). Children and parents: Media use and attitudes report. Retrieved from https://www.ofcom.org.uk/__data/assets/pdf_file/0023/190616/children-media-use-attitudes-2019-report.pdf.

OFCOM (2020). Children's Media Lives – Wave 6. Retrieved from https://www.ofcom.org.uk/__data/assets/pdf_file/0021/190524/cml-year-6-findings.pdf

Orben, A. (2020). Teenagers, screens and social media: a narrative review of reviews and key studies. Social Psychiatry and Psychiatric Epidemiology. doi: 10.1007/s00127-019-01825-4

Ortega, R., Elipe, P., Mora-Merchán, J. A., Genta, M. L., Brighi, A., Guarini, A., … Tippett, N. (2012). The Emotional Impact of Bullying and Cyberbullying on Victims: A European Cross-National Study. Aggressive Behavior, 38(5), 342–356. doi: 10.1002/ab.21440

Östman, J. (2012). Information, expression, participation: How involvement in user- generated content relates to democratic engagement among young people. New Media & Society, 14(6), 1004–1021. doi: 10.1177/1461444812438212

Panova, T., & Carbonell, X. (2018). Is smartphone addiction really an addiction? Journal of Behavioral Addictions, 7(2), 252–259. doi: 10.1556/2006.7.2018.49

Parke, R. D., & Buriel, R. (1998). Socialization in the Family: Ethnic and Ecological Perspectives. In N. Eisenberg & W. Damon (Hrsg.). Handbook of Child Psychology. 3. Social, Emotional, and Personality Development. 5. ed. (pp. 463-552). New York: Wiley.

Parke, R. D., & Buriel, R. (2001). Socialization in Infancy and Childhood. In N. Smelser & P. B. Baltes (Hrsg.), International Encyclopedia of the Social & Behavioral Sciences (pp. 14516–14522). Oxford: Pergamon.

Paus-Hasebrink, I., Kulterer, J., & Sinner, P. (2019). Social Inequality, Childhood and the Media. Social Inequality, Childhood and the Media, 11–43. London, UK: Palgrave Macmillan. doi: 10.1007/978-3-030-02653-0_2

Pempek, T. A., Kirkorian, H. L., & Anderson, D. R. (2014). The Effects of Background Television on the Quantity and Quality of Child-Directed Speech by Parents. Journal of Children and Media, 8(3), 211–222. doi: 10.1080/17482798.2014.920715

Perdew, L. (2017). Online Identity. Minneapolis, Minnesota: Abdo Publishing.

Peukert, R. (2019). Familienformen im sozialen Wandel. Wiesbaden: Springer.

Plowman, L. (2015). Researching Young Children's Everyday Uses of Technology in the Family Home. Interacting with Computers, 27(1), 36–46. doi: 10.1093/iwc/iwu031

Poitras, V. J., Gray, C. E., Janssen, X., Aubert, S., Carson, V., Faulkner, G., … Tremblay, M. S. (2017). Systematic review of the relationships between sedentary behaviour and health indicators in the early years (0–4 years). BMC Public Health, 17(S5). doi: 10.1186/s12889-017-4849-8

Prout, A. (2011). Taking a Step Away from Modernity: Reconsidering the New Sociology of Childhood. Global Studies of Childhood, 1(1), 4–14. doi: 10.2304/gsch.2011.1.1.4

Przybylski, A. K., & Weinstein, N. (2017). A Large-Scale Test of the Goldilocks Hypothesis: Quantifying the Relations Between Digital-Screen Use and the Mental Well-Being of Adolescents. Psychological Science, 28(2), 204–215. doi: 10.1177/0956797616678438

Qvortrup, J. (2014). Sociology: Societal structure, development of childhood, and the wellbeing of children. In B.-A. Asher, F. Casas Feran, I. Frønes Ivar & J. E. Korbin (eds.). Handbook of Child Wellbeing: Theories, Methods and Policies in Global Perspective (pp. 663-707).

Radesky, J. S., Kistin, C. J., Zuckerman, B., Nitzberg, K., Gross, J., Kaplan-Sanoff, M., … & Silver-

stein, M. (2014). Patterns of mobile device use by caregivers and children during meals in fast food restaurants. Pediatrics, 133(4), e843-e849. doi: 10.1542/peds.2013-3703

Raffle, H., Go, J., Spasojevic, M., Revelle, G., Mori, K., Ballagas, R., … Freed, N. (2011). Hello, is grandma there? let's read! StoryVisit: family video chat and connected e-books. Proceedings of the SIGCHI conference on human factors in computing systems - CHI 11 (pp. 1195-1204). doi: 10.1145/1978942.1979121

Reeves, B., Robinson, T., & Ram, N. (2020). Time for the Human Screenome Project. Nature, 314–317. doi: 10.1038/d41586-020- 00032-5

Ronchi, E., & L. Robinson (2019), Child protection online. Educating 21st Century Children: Emotional Well-being in the Digital Age. OECD Publishing, Paris. doi: 10.1787/796ac574-en

Rudi, J., Dworkin, J., Walker, S., & Doty, J. (2014). Parents' use of information and communications technologies for family communication: differences by age of children. Information, Communication & Society, 18(1), 78–93. doi: 10.1080/1369118x.2014.934390

Schneewind, K. A. (2010). Familienpsychologie. 3., überarbeitete und erweiterte Auflage. Stuttgart: Kohlhammer.

Segalen, M. (2010). Questions about the contemporary family in Europe. In: O. Kapella, c. Rille-Pfeiffe, M. Rupp & N. Schneider (eds.). Family Diversity. Collection of the 3rd European Congress of Family Science (pp. 49-57). Opladen & Framington Hills: Barbara Budrich.

Seiffge-Krenke, I. (2014). Psychoanalytische Entwicklungsbetrachtung der Jugend. In A. Liselotte (eds). Theorien in der Entwicklungspsychologie (pp. 380–403). Heidelberg: Springer VS.

Siibak, A., & Nevski, E. (2019). Older siblings as mediators of infants' and toddlers' (digital) media use. The Routledge Handbook of Digital Literacies in Early Childhood, 123–133. Routledge. doi: 10.4324/9780203730638-9

Šmahel, D., & Blinka, L. (2012). Excessive internet use among European children. Children, Risk and Safety on the Internet, 191–204. doi: 10.1332/policypress/9781847428837.003.0015

Šmahel, D., MacHackova, H., Mascheroni, G., Dedkova, L., Staksrud, E., Olafsson, K., … & Hasebrink, U. (2020). EU Kids Online 2020: Survey Results from 19 Countries. EU Kids Online, 1–156. LSE, London: EU Kids Online. doi: 10.21953/lse.47fdeqj01ofo

Sobel, K., Bhattacharya, A., Hiniker, A., Lee, J. H., Kientz, J. A., & Yip, J. C. (2017). It wasn't really about the Pokémon: Parents' Perspectives on a Location-Based Mobile Game. Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (pp. 1483–1496). doi: 10.1145/3025453.3025761

Stapleton, P., Luiz, G., & Chatwin, H. (2017). Generation Validation: The Role of Social Comparison in Use of Instagram Among Emerging Adults. Cyberpsychology, Behavior, and Social Networking, 20(3), 142–149. doi: 10.1089/cyber.2016.0444

Stevens, R., & Takeuchi, L. (2011). The New Coviewing: Designing for Learning through Joint Media Engagement. New York: The Joan Ganz Cooney Center.

Taipale, S., & Farinosi, M. (2018). The Big Meaning of Small Messages : The Use of WhatsApp in Intergenerational Family Communication. In J. Zhou, & G. Salvendy (eds.), Human Aspects of IT for the Aged Population. Acceptance, Communication and Participation (pp. 532-546). Lecture Notes in Computer Science, 10926. Cham: Springer. doi: 10.1007/978-3-319-92034-4_40

Takeuchi, L. (2011). Kids Closer Up: Playing, Learning, and Growing with Digital Media. International Journal of Learning and Media, 3(2), 37–59. doi: 10.1162/ijlm_a_00068

Tee, K., Brush, A. B., & Inkpen, K. M. (2009). Exploring communication and sharing between extended families. International Journal of Human-Computer Studies, 67(2), 128–138. doi: 10.1016/j.ijhcs.2008.09.007

Telia (2017). Life online through children's eyes: Findings from the Children's Advisory Panel. Retrieved from https://www.teliacompany.com/globalassets/telia-company/documents/about-telia-company/life-online---through-childrens-eyes-cap-report-2017.pdf

Telia (2018). Children's advice for a healthy life online: Findings from the Children's Advisory Panel. Retrieved from https://www.teliacompany.com/globalassets/telia-company/documents/sustainability/children-online/childrens-advice-for-a-healthy-life-online.pdf

Telia (2019). WHAT ADULTS SHOULD KNOW ABOUT GAMING: Findings from the Children's Advisory Panel. Retrieved from https://www.teliacompany.com/globalassets/telia-company/documents/sustainability/children-online/cap-2019-final-report-gaming.pdf

Teuwen, J., De Groff, D., & Zaman, B. (2012). Flemish Preschoolers Online: A mixed-method approach to explore online use, preferences and the role of parents and siblings. Proceedings of the Etmaal van de Communicatiewetenschap (pp. 1-20). Retrieved from https://lirias.kuleuven.be/bitstream/123456789/350708/1/Flemish+Preschoolers+Online_Eng lish+version.pdf

Theocharis, Y., & Quintelier, E. (2014). Stimulating citizenship or expanding entertainment? The effect of Facebook on adolescent participation. New Media & Society, 18(5), 817–836. doi: 10.1177/1461444814549006

Third, A., Bellerose, D., Dawkins, U., Keltie, E., & Pihl, K. (2014). Children's rights in the digital age:

a download from children around the world. Melbourne: Young and Well Cooperative Research Centre.

Tillmann, A., & Hugger, K. U. (2014). Mediatisierte Kindheit–Aufwachsen in mediatisierten Lebenswelten. In Handbuch Kinder und Medien (pp. 31-45). Wiesbaden: Springer VS.

Tsitsika, A., Tzavela, E. & Mavromati, M. (2013). Research on internet addictive behaviours among European adolescents. Athens. Retrieved from https://www.socialweb-socialwork.eu/content/research/index.cfm/action.showfull/key.1001/secid.25/secid2.49/secid3.0

Ulicsak, M., & Cranmer, S. (2010). Gaming in families: Final report. Bristol: Futurelab, Innovation in Education. Retrieved from https://www.nfer.ac.uk/publications/FUTL28/FUTL28.pdf

UNICEF (2017). The State of the World's Children 2017. Children in a Digital World. 1–211. New York: Division of Communication, UNICEF.

Vandenbroec, M., Geens, N., Geinger, F., Schiettecat, T., Van Haut, D., & Roets, G. (2017). Parenting Newspeak. In: T. Betz, M.-S. Honig & I. Ostner (eds.): Parents in the Spotlight: Parenting Practice and Support from a Comparative Perspective. Special Issue/Sonderheft, Journal of Family Research/Zeitschrift für Familienforschung 11. Opladen: Barbara Budrich, 23-40.

Vaskovics, L. A. (2009). Segmentierung der Elternrolle. In G. Burkhart (eds.). Zukunft der Familie. Prognosen und Szenarien (pp. 269-296). Opladen: Barbara Budrich.

Vinter, K., & Siibak, A. (2012). The role of parents in guiding pre-school children's use of computers and the Internet: Analyzing perceptions of Estonian children and parents. Lifelong learning and teacher development, 78-94.

Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. Psychology of Popular Media Culture, 3(4), 206–222. doi: 10.1037/ppm0000047

Voida, A., & Greenberg, S. (2009). Wii all play: the console game as a computational meeting place. Proceedings of the 27th International Conference on Human Factors in Computing Systems - CHI 09 (pp. 1559-1568). doi: 10.1145/1518701.1518940

Wagner, A., & Gasche, L. A. (2018). Sharenting: Making Decisions about Other's Privacy on Social Networking Sites. Publications of Darmstadt Technical University, Institute for Business Studies (BWL), 90477.

Wang, B., Taylor, L., & Sun, Q. (2018). Families that play together stay together: Investigating family bonding through video games. New Media & Society, 20(11), 4074–4094. doi: 10.1177/1461444818767667

Wilson, S. (2015). Digital technologies, children and young people's relationships and self-care. Children's Geographies, 14(3), 282–294. doi: 10.1080/14733285.2015.1040726

Yang, C. C. (2016). Instagram Use, Loneliness, and Social Comparison Orientation: Interact and Browse on Social Media, But Dont Compare. Cyberpsychology, Behavior, and Social Networking, 19(12), 703–708. doi: 10.1089/cyber.2016.0201

Zartler, U., Kogler, R., & Zuccato, M. (2018). Digitale Medien im Vorschulalter. Perspektiven von Kindern und ihren Eltern. Retrieved from https://www.saferinternet.at/fileadmin/redakteure/Footer/Presse/Studienbericht_Digitale_Medien_im_Volksschulalter.pdf

DigiGen

www.digigen.eu

OSLOMET

PANTEION UNIVERSITY
DEPARTMENT OF
SOCIAL POLICY

UNIVERSITY OF
LEICESTER

Universitat
de Girona

Österreichisches Institut für Familienforschung
Austrian Institute for Family Studies

universität
wien

PADERBORN UNIVERSITY
The University for the Information Society

UNIVERSITATEA
BABEȘ-BOLYAI

TALLINN UNIVERSITY
School of Governance,
Law and Society

FAMILIES
EUROPE

Contact:
Theresa Lorenz, Olaf Kapella
Austrian Institute for Family Studies
University of Vienna
Universitatsring 1, 1010 Vienna
Austria
Email: theresa.lorenz@univie.ac.at, olaf.kapella@oif.ac.at