Chapter 3
Technological Drivers and Sociocultural Change

Abstract In this chapter, the suggestion is made that the relevance and timeliness of the concept of digital family is owing to certain advances in personal communication technologies that, together with wider social changes in the developed world, facilitate people's participation in a digital society. First, we take a look at recent technological advancements in personal communication technology and social media applications, after which we examine more in-depth some of the major sociocultural transformations to have paved way for the emergence and rise of the digital family.

The rise of the digital family has been propelled by a number of parallel forces impacting different social groups differently and moving at a different pace from one country to the next. Among these forces are processes of technological advancement and sociocultural development, most usefully looked at as expressions of the kind of global trends studied in-depth by Castells (2010). According to the latter, new technologies such as microprocessors, Internet technology, telecommunications networks and genetic engineering have, from the 1960s onwards, been adding up to a new social morphology of networks around which communication and power relationships organize themselves across countries. It is, claims Castells (2010), the forms and compositions of families that, under the joint impact of the new technologies of reproduction and the crisis of patriarchalism, have been reshaped in the course of the past half-century, at the same time as networking technologies have only more and more begun to influence the way family members relate to one another and experience family connection. Since these large-scale technological and sociocultural changes have been well documented by not only Castells but also others (e.g. van Dijk, 2012), this chapter provides only a brief overview of the wide and multifaceted developments in question, concentrating on recent advancements in mobile communications and one country case, Finland. In what follows, I will first take a look at technological advances in the field of personal communication technologies and social media, before examining a little more in-depth some of the major sociocultural transformations that paved way for the emergence and rise of the digital family.

Tools, Connections, Content

For many people, the smartphone is the most concrete reflection of the fast pace of technological advancement. Due to its limited internal memory or processor capacity, or steadily weakening battery, it grows old in just a couple years, reminding us about how rapidly everything in mobile communication technology keeps changing around us. In retrospect, it may seem like the shift from the basic feature phones to Internet-enabled smartphones was swift and easy. While, in fact, it took several years to complete, the process was carried through incrementally, through a series of small steps and involving no major compatibility problems between the old and the new versions of the technology. Some may, however, still recall the period as that of competing network standards (CDMA/GSM/LTE) and locked SIM cards that prevented the use of certain devices and subscription plans outside of their home domain, in other countries and continents.

For mobile device users who regularly switched to newer models as these became available, technological advances both in mobile hardware and software were, indeed, relatively easy and effortless to adopt into use. The previously small screen become gradually bigger, the dialling keyboard was replaced first by a full-sized QWERTY keyboard, later a virtual keypad. Simultaneously, the mobile phones became more and more closely linked with the Internet, beginning with the Wireless Application Protocol (WAP) and General Packet Radio Service (GPRS), all the way to the recent 3G and today's 4G technology. The mobile phone turned into the smartphone, or, indeed, just 'the phone', as, parallel with this process, landline telephones became increasingly rare.

From the perspective of digital families, it was of particular significance that the improvements in mobile communications *tools* and *infrastructure* enabled a potentially wider reach of people. Soon enough, in Europe and in many other parts of the developed world, family members of all ages had gradually become users of mobile phones, at least of basic feature phones. In families, the technological advances have meant a possibility to transmit larger amounts of data and to extend the modes of communication from voice-only and text-only to also include images and teleconferencing. In extended families, however, the asynchronous uptake of newest technologies and applications has also translated into new mechanisms of social inclusion and exclusion. Depending on their motivation, needs and desire, family members have voluntarily opted either in or out of using certain mobile communication applications or social media tools, but sometimes they can also be purposely kept outside the online family circle, such as when children want to avoid their parents' watchful eyes on social media platforms.

Connections through faster mobile broadband technology have also meant new technological affordances[1] compared to the feature phone, fixed broadband con-

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[1]The concept of affordance, originally coined by the perceptual phycologist Gibson (1979) and later developed by Norman (1988) in the field of human–computer interaction studies, refers to the intended and unintended uses of a technology that unfold to people as they interact with technologies in a certain environment.

nections and wireless Internet hotspots. What the smartphone offered for its users was both new asynchronous (email, voice messaging services, etc.) and synchronous (chats, video calls, etc.) modes of communication. These made it possible to select the most appropriate communication tools for each family member, taking into account the individually differing skills levels and preferences (cf. Taipale & Farinosi, 2018). Thanks to high-quality built-in cameras, smartphones also took the aspect of visuality in family communication to a completely new level. In many families, the exchange of images and videos quickly became part of people's daily routine of keeping in touch with one another, complementing the text- and voice-based communication. In extended families, regular exchange of small messages has subsequently become essential for social connectivity and the family members' continual sense of togetherness (Chap. 7).

As the history of technology has repeatedly demonstrated, a new technological innovation only seldom replaces its predecessors completely. This was the case also with mobile broadband technology, which has not fully substituted fixed broadband connections, laptop computing and desktop computers at homes and workplaces. Fixed Internet connections have persisted as a fast and often more reliable way to connect to the Internet than mobile net subscriptions. In consequence, people often draw upon a large selection of personal technologies instead of employing just one type. At times, a communicative act may even call for its successful accomplishment the use of many communication technologies providing different affordances in a consecutive manner. For example, an email may first be read on a mobile screen, then the file attachment is printed out using a separate printer, while, finally, a reply is sent from one's desktop computer (Fortunati & Taipale, 2017).

To better grasp this ever-expanding catalogue of personal media technologies, Madianou and Miller (2011, 2012) have coined the term polymedia. In a situation of wide accessibility and low-cost barriers of contemporary communication technologies, the notion is intended to help clarify the social, moral and political consequences of our choices when selecting from among the available technologies in different social contexts. High adoption rates and wide accessibility do not mean that geographical inequalities in network coverage or the costs of communication would have become inconsequential for existing and would-be technology users. There are still remote and sparsely populated areas in all developed countries where both fixed broadband and high-speed mobile networks remain unavailable, due to the low number of (potential) paying customers. Because of this, to be sure, many practical measures have been introduced, for instance, within the European Union, to improve accessibility and increase competition all across the continent, with political decisions taken to lower the prices and make the networks more uniform and predictable to their users (e.g. the European 'Roam Like at Home' regulation of 15 June 2017).

The switch from feature phones to smartphones and mobile Internet applications has also had consequences for the actual and potential reach of the communication (see Baym, 2015; Gurak, 2003; Taipale & Farinosi, 2018). Early mobile phone communication was mostly about voice calls and text messaging, with especially young people embracing the two. As concerns their reach, however, the new means were still

largely restricted to one-to-one communication. It was only with Internet-enabled smartphones that the possibility to reach several people or large groups at once became real: instant messengers and social networking applications made one-to-many and many-to-many communication finally possible. For distributed extended families, this opened up an entirely new world of possibilities, enabling one to reach all family members at once with the help of the smartphone.

In addition to the new tools and infrastructures, there was also a third major technological driver behind the developments, one that had to do with the *contents* of communication. Compared to feature phones, smartphones incorporate into themselves a far greater number of old-media features, enabling good quality access to television, radio, camera and newspaper functions (Fortunati & Taipale, 2017). In that sense, the smartphone is an example of technological convergence. Moreover, while feature phones were decorated with covers, stickers and mobile jewellery on the outside, smartphones are personalizable and customizable also inside. Apart from enabling the personalization of the interface to the core, however, also the contents availed by the smartphone are personalized, based on a multiplicity of algorithms that track users' prior online behaviour to decide what information the applications will display and what they will not.

Within families, this internal personalization of smartphones has at least two main implications. First of all, family communication may become compartmentalized according to the modes of interaction and applications, such as when children decide to use a certain application with parents and another one with siblings and friends (Hänninen, Taipale, & Korhonen, 2018). Second, families can also actively seek common platforms for their family communication, ones that meet the different communicative preferences and styles of their members. Instant messengers like WhatsApp have shown themselves to be quite adaptable in this regard (Rosales & Fernández-Ardèvol, 2016; Siibak & Tamme, 2013; Taipale & Farinosi, 2018).

Overall, advances in mobile communication and broadband technology have resulted in a new technical basis on which extended families can manage multiple family ties, both on the move and when stationary. While smartphones as a multipurpose communication tool are emblematic of this development, they have not, however, fully replaced all other forms of communication and communication tools, such as laptops and desktop computers, which continue to play an important role in family communication. Moreover, with the ever-widening spectrum of personal and household technologies that require constant maintenance, updating and reconfiguration, families have also been forced to take on new household duties and practices related to the maintenance of the digital home (for more on this, see Chap. 6).

The Changing Home, Skills and Family Roles

While technological advances have provided the new tools, infrastructures and contents necessary for families to be able to become 'digital ready', much has also needed to happen to the family members themselves, their respective roles and their

home equipment to enable the transition. In this section, I take a brief look at some of the major developments impacting the domestic sphere, developments that have effected a reconfiguration of family relationships and roles and improved families' abilities to stay connected via digital media and digital communication tools. First, evidence of the swift digitalization of homes is presented, concentrating on the case of Finland. After that, the focus is turned to certain changes in people's digital skills, in particular those that contribute to individuals' ability to use new technologies for the benefit of family communication. The section then ends with a concise overview of previous research on the redistribution of family roles, especially in connection to the management of digital technologies at home.

The Equipped and Connected Home

Like individuals, also the homes as places have quickly become more connected and equipped with digital ICTs. For example, in just 2 years, from 2014 to 2016, the share of Finnish households owning smartphones went up from 69 to 82%, while those with a wide-screen television in them went up from 81 to 86%, a smart television from 19 to 30%, at least one tablet computer from 39 to 56%, and a wireless LAN connection from 54 to 66%. Some older technologies, like desktop computers, digital cameras and printers, had already reached a saturation point by 2014, with no significant increases in ownership levels after that (Statistics Finland, 2017)

Despite their quick diffusion, however, the distribution of even the most widely adopted digital technologies has not been uniform within families and across age groups. The mobile phone provides a case in point. Today, it an almost universal communication tool owned by virtually everyone in families. In Finland, all persons under 75 years used a mobile phone in 2017, and among those in the oldest age category, or 75–89 years, the share of mobile phone users was as high as 91% that same year (Statistics Finland, 2017). All the same, the age gap was still very prominent when it came to smartphone ownership. Among all those aged 65 or under, the smartphones were already very common in 2017, with 77–99% of all those surveyed owning one, but in the older categories ownership was less common: among those aged 65–74 and 75–89 years, the figures were 49 and 15%, respectively (Statistics Finland, 2017).

The data from Finland appears to confirm that the size of household matters when it comes to digital media and communication technology ownership. Compared to single-person households, Finnish households with three or more members have clearly more often in them at least some kind of computer (99% of them did in 2017, compared to 73% of single-person households), at least one laptop computer (89% vs. 55%), a desktop computer (48% vs. 22%), a tablet computer (82% vs. 27%), an Internet connection (99% vs. 77%), and an in-house WLAN network (82% vs. 33%) (Statistics Finland, 2017). Also, studies from other countries have shown the size of household to be linked to the degree of accumulation of digital technologies. In

Table 3.1 Share of Finnish households with computer (any), by net household income and location, 2013–2017 (in percentage points)

	2013	2014	2015	2016	2017
Net income, €/month					
2100 or less	61	65	66	71	75
2099–3099	86	88	91	94	99
3100–5099	97	98	98	98	99
5100 or more	99	99	99	99	100
Capital region	87	87	88	89	93
Major cities	84	82	82	87	89
Other cities and towns	80	80	83	85	87
Small and rural municipalities	75	76	77	79	82
All households	81	81	82	85	87

Source Statistics Finland (2017)

general, households with children appear to outperform all other types of households in this regard (Venkatesh, Dunkle, & Wortman, 2011).

As Table 3.1 shows, the share of Finnish households with at least one computer of any kind continued to rise slowly between 2013 and 2017. During this period, moreover, low-income households caught up wealthier household. At the same time, the speed of household computerization remained almost the same in urban and rural areas, being only slightly lower in small and rural municipalities. In this particular connection, it is worth noting, however, that households in urban and rural areas, just as low and high-income households, differed from each other in terms of their composition. Higher income households typically had more (two) income earners, and in rural areas the shares of those under 15 and those aged 65 or older were larger than in the capital region and in major cities (Statistics Finland, 2017).

Table 3.2, for its part, shows the share of Finnish households connected to the Internet through a mobile or fixed-line broadband subscription. Between 2013 and 2017, this share went up slowly, from 81 to 88%. During the period, the gap between the high and the low-income households narrowed considerably. With the exception of households with a net income of 2100 euros or less a month, many of which can be presumed to have included low-income pensioners, all households in the country had access to the Internet by the end of 2017. Households in rural areas remained somewhat less connected than those in the cities and towns, presumably, again, at least in part due to the relatively higher presence of older people in the countryside.

Apart from acquiring a greater variety of equipment and appliances and becoming better connected to the Internet, the digitalization of homes also comes about through

Table 3.2 Share of Finnish households with Internet connection (any), by net household income and location, 2013–2017 (in percentage points)

	2013	2014	2015	2016	2017
Net income, €/month					
2100 or less	61	65	76	72	77
2099–3099	87	89	91	93	94
3100–5099	97	98	98	99	100
5100 or more	99	99	99	99	100
Capital region	88	87	89	91	93
Major cities	84	84	82	86	90
Other cities and towns	80	80	84	86	88
Small and rural municipalities	77	76	77	78	83
All households	81	81	82	85	88

Source Statistics Finland (2017)

the sheer numerical accumulation of same equipment/appliances and services. New digital devices are increasingly intended for personal usage, which means that having just one unit of each kind in the household is typically not enough (except in one-person households, of course). One indication of such accumulation is the increase in the number of Internet subscriptions per household. Table 3.3 shows the development in Finland in this regard, in the time period 2012 through 2015. Assuming that the overall relative distribution of households of different sizes did not radically change during this period, one can observe that more and more households acquired multiple Internet connections in the course of it. In just 4 years, the share of households with only one Internet subscription halved, from 41 to 20%. At the same time, the share of households with three or more subscriptions doubled, from 21 to 45%. The overall trend was the same in both rural and urban areas, although households in small and rural municipalities made considerable progress in catching up with others.

Parallel to the increase in the number of digital communication tools and the expansion of the Internet connectivity, more and more people have begun to consider new media and ICTs as necessities in life. As Venkatesh et al. (2011, p. 61) found, the share of US Americans claiming themselves unable to imagine life without a home computer increased from 44 to 61% between 1999 and 2010. Also the share of those considering computers to have made it easier for them to organize their family and social life also increased, from 34 to 43%, between 2003 and 2010. Along the same lines, Wilska and Kuoppamäki (2018) found the number of Finns viewing personal computers, access to the Internet and mobile phones to constitute a necessity in life to have increased steadily between 1999 and 2014. During the same period, the differences between age cohorts in the perceived necessity of ICTs became smaller, apart from the pre-existing gap between pre and post-World War II generations that

Table 3.3 Number of Internet subscriptions per household in Finland, by location, 2012, 2014 and 2015 (in percentage points)

	2012			2014			2015		
	Only one	Two or more	Three or more	Only one	Two or more	Three or more	Only one	Two or more	Three or more
Capital region	34	33	26	17	26	44	17	22	49
Major cities	40	28	19	19	29	35	18	28	35
Other cities and towns	39	23	21	21	20	38	20	21	42
Small and rural municipalities	48	18	18	23	19	33	21	16	39
All households (persons aged 16–74)	41	25	21	21	28	40	20	25	45

Source Statistics Finland (2017)

kept widening. All in all, the homes, at least in Finland, have thus become well equipped and ready for the digital families to begin inhabiting them. Yet, without elaborating on the question further, we may also assume country differences to likely be notable in this regard, too.

Improvements in Digital Skills

Digital skills are required if one is to make good use of new media and communication technologies in everyday life (Martínez-Cantos, 2017). The literature in the field is replete with concepts geared to identifying and describing the phenomenon at stake and what is novel in it (e.g. 'new media literacy', 'digital literacy', 'ICT skills'). At the most general level, digital skills can be divided into operational skills needed to use a range of technologies for social and creative purposes, and strategic skills, required to understand the social and commercial risks and opportunities involved (see Helsper & Eynon, 2013). Following van Deursen and van Dijk (2015), one can also make a further distinction between medium-related skills and content-related skills. In extended families, a cross-generational increase in family members' digital skills can be considered as one prerequisite for better intergenerational communication via new media and communication technologies.

While much is written about digital skills on a general plane, longitudinal studies on the development of skills over time and across age groups are still lacking. Yet, the perspective that kind of research could offer would be particularly useful to understanding the rise of digital families. As van Deursen and van Dijk (2015), for example, have shown, operational and formal Internet skills of those aged 18–65 in

the Netherlands increased evenly across the entire age spectrum over the time period 2010–2013. The reason why those skills matter is that they are prerequisites for the acquisition of higher level skills related to informational and strategic Internet skills. In terms of their information seeking skills, as van Deursen and van Dijk (2015) also found, Dutch respondents aged 65 or older had by 2013 caught up with their younger counterparts. In another study, van Deursen, van Dijk, and Peters (2012) could, furthermore, note that, when older people attained a certain level of operational and formal Internet proficiency, they also managed to translate these into higher level informational and strategic Internet skills.

Fortunati, Taipale, and de Luca (2017), for their part, investigated possible changes in self-reported ICT skills in five European countries (France, Germany, Italy, Spain and UK) in the time period 1996–2009. Given the study period involved (going back in time even more than two decades), their findings concerned rather basic ICT skills in using significantly more primitive technology than what people generally use today (relatively early-generation personal computers). The study found those claiming themselves not to know how to use a personal computer to have slightly decreased over the time period, while in the youngest age groups, those aged 14–17 and 18–24, the share of respondents considering themselves as 'Expert at using computers' slightly increased. However, even among all those aged 25 or over, the total share of respondents stating that 'I can get by' increased. This was, moreover, especially prominent in the age group 65 years or older.

Research has also sought to investigate any changes in the digital skills gap between European men and women. In one study, Martínez-Cantos (2017), scrutinizing Eurostat data on digital economy and society, found that, while both men's and women's digital skills improved between 2017 and 2013, gender differences in this regard did not vanish completely. Among those with less advanced digital skills, the gender gap remained pronounced in the oldest and less educated groups. Interestingly, when it came to those with higher level digital skills, gender differences were, instead, most prominent among middle-aged and younger respondents. On the other hand, earlier studies have found that, even though women's self-perception of their digital skills is comparatively poorer than that of men, there are no significant differences in the two genders' actual capabilities of using the Internet (van Deursen & van Dijk, 2015).

In addition to gender and age, education appears to be another major social-demographic factor connected to individuals' digital skills levels. It has even been suggested that, globally speaking, the level of education is perhaps the most consistent determinant of Internet skills levels: the higher one's level of education, the more capable one is in using the Internet for various purposes (van Deursen & van Dijk, 2011, 2015). The findings form a large-scale international adult-skills survey by the OECD point in the same direction, showing higher levels of education to be connected to, among other things, greater proficiency in problem-solving in technology-rich environments more in general (OECD, 2013; see also Hämäläinen, De Wever, Malin, & Cincinnato, 2015). What is, however, alarming in this regard is that while Internet skills have increased overall, at the same time also the gap between those with more education and those with less education has tended to increase. Indeed, that trend

has been so solid that the inequality it expresses has been predicted to remain a long-lasting feature of the ongoing developments (van Deursen & van Dijk, 2015).

What we may then conclude is that one notable result from the generally positive development of digital skills is that the so-called *age divide* has grown old. The largest age gap in ICT adoption, use and skills are now between 'old' and 'oldest old' groups (Friemel, 2016; Hargittai & Dobransky, 2017; Petrovčič, Slavec, & Dolničar, 2018). Many studies confirm the primary reason for digital disengagement among older users to no longer be lack of access or equipment, but, rather, lack of skills and, even more often, lack of interest and self-confidence in ICT matters (van Deursen & Helsper, 2015; Siren & Knudsen, 2017; van Deursen & van Dijk, 2015).

In short, research shows digital skills to have improved across all age groups, almost regardless of the measure used. As for the developments affecting families more specifically, of paramount importance has been that older people have gained more skills and self-confidence, leading many of them to begin using ICTs as an integral part of their daily life (e.g. Khvorostianov, 2016). In practice, the improved digital skills have enabled parents and grandparents to better gear up for, and put to use in their everyday life, the same communication and media technologies that their children and grandchildren use (e.g. Siren & Knudsen, 2017). Moreover, for family connectivity, it has been crucial that the share of those able to 'get by' with new technologies has grown, even if at the same time certain skills gaps between younger and older users and between more and less educated are likely to persist. A positive attitude shown in the family towards technology ensures a fertile ground for further digital skills learning. As some studies have already been able to observe, the family seems to be a more important place for adolescents to learn ICT use than the school, as at home they are freer to explore devices and programmes, and parents can provide more direct and personal support than a teacher when difficulties emerge (Zhong, 2011). Similarly, it can be expected that a supportive, pro-technology atmosphere in the home encourages also older and less-skilled family members' uptake of, and experimentation with, new technologies.

Changes in Family Roles

Classical sociological theories stress parents' central role as agents of socialization in families (e.g. Parsons, 1951). Parents' influence on the norms and values that children adopt and on the way they act is at its strongest during the first few years of the young person's life. The influence of peers, siblings and the media begins to gradually grow and become more pronounced as children grow older. More recently, family studies have begun to also pay more attention to two-way influences between older and younger family members (e.g. Kuczynski & De Mol, 2015). Although parents and children are differently positioned within the line of family generations, both are involved in the shaping of their own and others family members' everyday relationships (e.g. Alanen, 2009, p. 161). This continuous shaping of family roles forms part of the wider process of 'doing family' (Chap. 2).

Already from early on, studies on changing family roles in digital technology adoption and usage pointed to a reversal of traditional roles in these areas: children, it was found, had become teachers for their parents in technical matters. In one study of computer help-seeking among 93 US families, for instance, it was teenagers rather than they parents who most often provided technical help and know-how to others in the family (Kiesler, Zdaniuk, Lundmark, & Kraut, 2000). Also, research in the United Kingdom has found traditional adult–child relationships in many households to have been reversed in this regard, with the children possessing more technological competence than their parents (Holloway & Valentine, 2003). More in general, children have also been found to be far more able than older family members to define the meaning and uses of the computer in the home (Facer, Furlong, Furlong, & Sutherland, 2003).

In distributed and extended digital families, family relationships and roles are constantly reproduced in and through intergenerational practices that increasingly more are related to, or mediated by, digital technologies. Nevertheless, many researchers still tend to choose just either parents or children as their point of departure in their research. There is, for instance, a large body of research on the ways in which parents guide and mediate their children's use of digital communication technologies and media. Focusing mainly on parents' role as educators and caretakers, such studies have concentrated on the kind of parenting styles that facilitate children's healthy and risk-free use of new media (e.g. Clark, 2013; Livingstone & Haddon, 2009; Livingstone et al., 2015; Wartella et al., 2013). Another branch of research has proceeded from an opposite standpoint, looking at children's impact on their parents' media consumption and media usage behaviour (e.g. Correa, 2014; Correa, Straubhaar, Spence, & Chen, 2015; Eynon & Helsper, 2015). While the two approaches, separately and jointly, have brought to light many interesting aspects of children's comparatively high level of agency vis-à-vis their parents, and highlighted parents' strategies of using new technology to monitor and support their children, they have nevertheless largely failed to adequately address the two-way child–parent influences.

Indeed, studies combining the two viewpoints are not many. One of few doing so is a recent study by Nelissen and Van den Bulk (2018) that investigated the nature of child–parent interactions around new technology use in 187 cases from Belgium. In the study, also the children (and not just the parents) saw themselves (the children) as active agents teaching digital media use to their parents. Furthermore, the parents and the children reported also the extent of the technological guidance provided by the latter identically. In this study, the child–parent digital media guidance mainly involved the use of personal mobile media tools, such as smartphones, tablets and their applications, but not computers, computer programmes, email and online purchases. What this may imply is that children's ability to guide and assist their parents might, to a larger extent than researchers have thus far understood, be limited to those devices and applications that children themselves use actively. Adulthood entails tasks involving the use of devices, programmes and solutions that children either use not at all or are not familiar with (e.g. professional computer programmes, online banking or e-government services), and thus, from the parents' perspective,

this circumstance might then not always allow them to receive the amount of assistance they need.

The gender issue discussed above also applies to ICT guidance and help provision in families, although, over time in many developed countries, the gendered patterns in ICT adoption and use in families have become considerably less distinct, sometimes even completely disappearing (see, e.g. Plowman, McPake, & Stephen, 2010; Rideout & Hamel, 2006; Venkatesh, Dunkle, & Wortman, 2011). Nevertheless, there still seem to be some specific gender differences left, also pertaining to the reversed family roles. Correa's (2014) study, for instance, suggests that women's media and technology use might be more influenced than men's by their children's guidance. Given this finding, it is then interesting that, for instance, in Nelissen and Van den Bulck's (2018) study media-related family conflicts were reported similarly by both men and women, by both parents and their children.

In this connection, it is worth stressing that any possible or real changes in family roles, whether related to new technology or other things in family life, do not, however, mean the end of child–parent conflicts. Quite the contrary: already more than a decade ago, Mesch (2006) noted how in fact more media-related family conflicts were reported in families where teenagers' digital expertise was perceived as greater than that of their parents. More recently Nelissen and Van den Bulck (2018) have confirmed this finding, discovering that, in families where there was much child–parent guidance around digital media use, more family conflicts were reported. Indeed, that children's more advanced skills in ICT use often cause discomfort in parents and can hence foster family conflicts was already noticed some twenty years ago (e.g. Kiesler et al., 2000; Watt & White, 1999). However, what makes technology-related conflicts different from other family conflicts is the fact that especially older parents lack a reference model for how to deal with them (see Plowman, McPake, & Stephen, 2010). Since digital technologies arrived rather late in their lives, the parents of today's children, when they were young, never themselves experienced comparable conflicts with their own parents about, say, excessive screen time or playing games not suitable for children.

Moreover, the extent to which technology and media-related conflicts occur in families is likely to vary across countries, depending on the prevailing family culture and values. Nevertheless, previous research suggests that the spread of digital technologies may have led to more democratic, and perhaps more intimate, child–parent relationships, at least in Europe (e.g. Livingstone, 1998). In societies with a more conservative family culture (as, for instance, in Asia), the use of new communication technologies may have, in addition, led to gendered practices being challenged and family hierarchies becoming less rigid (Lim & Soon, 2010). On the other hand, however, research has also indicated that, in the presence of an authoritarian family culture, expressions of sentiments in technology-related interactions are less likely (Cardoso, Espanha, & Lapa, 2012; Haddon, 2009).

In general, to be sure, the above-presented reconfigurations of family roles ascribable to ICT usage seem to co-occur with wider and more comprehensive changes in family values. In Europe, traditional child–parent power hierarchies appear on the whole to be slowly eroding. As the 2018 European Values Study reveals, Europeans

today in general consider family as something either very important or quite important in their lives. Yet, the differences from country to country in this regard remain notable, as observed earlier. While in Finland 73% of those surveyed agreed with the statement 'adult children have a life of their own and should not be asked to sacrifice their own well-being for the sake of their parents', only 39% of respondents in Slovenia and 21% in Italy gave the same answer (European Values Study, 2018). At the same time, however, other studies have shown Europeans to increasingly value children's well-being over that of their parents. The change, to be sure, has been slower in Germany than in, say, the Netherlands, Sweden, France or the United Kingdom, as measured for the time period 1990–2008 (Ivan, Da Roit, & Knijn, 2014). Overall, as Park and Lau (2016) have showed, child independence tends to be appreciated more in wealthy nations and among highly educated people, with child obedience being the stronger value in poorer societies with characteristically lower levels of education. Having said that, it nonetheless appears likely that children on the whole have gained more power to influence decision-making in their families when it comes to technology purchases and use. Yet, given the existing differences in family structure and perceptions about who belongs to the family, it seems plausible that this new power and the new family roles associated with it are differently manifested in, not least, the three countries involved in this particular study.

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