# Chapter 5
# Warm Experts 2.0


**Abstract** This chapter focuses on family roles in digital families, drawing upon, and updating for the present day, the concept of the warm expert. First, the impact of information and communication technologies on family roles is investigated, based on qualitative research material collected from Finland, Italy and Slovenia in 2014 and 2015. After that the analysis looks at how family roles and responsibilities can change over the human life course. Three types of warm experts are identified, with their characteristics described and discussed. Lastly, the argument is made that intimately knowing the other family members is an essential quality of those acting in the role of warm experts, and that while acting in the role of an warm expertise is often demanding, it can also be rewarding to not just those benefiting from it, but also those in it.

**Keywords** Family relationships · Family roles · Information and communication technology · Life course · Proxy user · Technology co-use · Warm expert

The concept of the warm expert has continued to attract many new media and communication researchers. Introduced by Bakardjieva (2005), it was intended to help investigate the first wave of ordinary technologies in the early 2000s that allowed people to access the Internet from their homes. Warm experts, for Bakardjieva, were people with relatively advanced skills and knowledge about new technology who were readily available to assist novice technology users taking only their first steps in using digital technologies.

In contrast to outside professional helpers—'cold experts'—the warm experts Bakardjieva (2005) described share their daily lifeworld with people needing their help, and are thus readily at hand for them to demonstrate, drawing upon their own experience, the advantages of being digitally connected. In her study, such everyday help and support by these experts were typically favoured over professionalized forms of assistance, including those provided through telephone helplines and computer service shops. The larger the knowledge gap between the helper and the helped, however, the higher the threshold for asking assistance would appear to be (Barnard, Bradley, Hodgson, & Lloyd, 2013). This much seemed evident also from the account provided by the Finnish key informant Lucas (aged 38). As he reported, his mother-



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in-law found it much more convenient for her to ask for help from her own children than, for instance, from a relative who worked as an IT professional:

> When it comes to [mother-in-law's, aged 62] mobile phone use, it's been one of her children who's been helping her, for example by showing her how you save phone numbers to the phone memory and how to turn off auto correction for text messages. One of her male relatives is an IT professional and so could certainly help with a lot of things, but she finds his IT advice to often be pretty difficult for her to understand, so she rather turns to her own children in these matters.

After Bakardjieva's seminal study, the landscape of new media technologies has transformed quite radically, however. The formerly predominant stationary equipment has been replaced by small-sized and mobile personal devices that are today everywhere. In families, the primary function of warm experts is no longer to convince other family members about the usefulness of the new technologies, but to help others to update their devices, keep up with technological developments and manage software contents and applications. Such *digital housekeeping* has come to form an essential part of families' everyday life and a prerequisite for their smooth functioning, as will be noted in more detail in Chap. 6.

Given the changing domestic technology landscape, the role of warm experts must be revisited. The rest of this chapter is dedicated to an examination of how the role of the warm expert is assigned, adopted and performed in digital families today, a decade and a half after Bakardjieva's original formulation of the term. As I will show, the role is still typically assigned to one of the younger family members, who in turn appreciate the recognition of their usefulness as one of merit. However, among these younger family members the role of the warm expert also entails the presence of contradictory feelings. On the one hand, in digital families, there is an expectation that all family members should continuously learn and develop new personal skills, and hence be able to sort out at least some of the technical problems they face in their IT use on their own. On the other hand, younger family members, too, are aware of the limited nature of the digital skills they personally have, confined as those typically are to certain technologies, applications and operating systems only. In consequence, when warm experts are unable to provide the assistance they would like when called upon to help, feelings of inadequacy arise.

## Family Roles: What Has Changed?

The key informants for this study in Finland, Slovenia and Italy were instructed to investigate, among other things, how ICTs shaped or had shaped family members' roles within their own families. In doing so, they were to look at all kinds of digital communication tools and applications used today for the purposes of staying in touch and communicating with other family members—mobile telephony, email, Facebook, Twitter, WhatsApp, and Instagram, and the like. Although the informants' views regarding this seemed extremely diverse at first glance, with much variance

in the understandings about the matter also within families, two main themes could nevertheless be gleaned from their reports.

First of all, there was a double suggestion that ICTs had not changed family roles at all, or had done so only very little, but that they had nonetheless transformed the way families communicated within themselves. This was an understanding put forth by key informants in all three of the countries studied, with some of them appending a view that family roles and relationships are, at least to a certain degree, structured by the human life course and thus given, for which reason new technology as such could not change anything essential in them. As the Slovenian key informant Natalija (aged 30) put it, 'Family roles are assigned at birth, which means that parents will always be parents and children will always be children, and the roles don't change when we look at them through the prism of the ICT use.'

Another informant from Slovenia, Sandra (aged 25), provided an account of how family roles change as time passes, claiming, however, that this had nothing to do with new technologies. According to her, it was part of the normal life course that parents act as their children's teachers, but that when children grow up, they are given, and themselves claim, more freedom:

> The use of ICT technologies has not changed any roles in our family. The same was said also by my uncle [aged 46] and my grandfather [aged 82] …. Regarding who buys the mobile phones, when my sister and I were younger, it was our parents who decided for us. Now we choose ourselves, discussing it amongst ourselves without consulting our parents, since our parents are not so up-to-date in these matters.

There were also families who went on to provide reasons for why they thought technology to not have changed family dynamics in them. In Finland, for instance, the key informant Paula (aged 26), explained that, in her family, 'communication technology was not seen to have any profound effect in family roles…probably because some sort of dialogue and open sharing of opinions has always been a feature of our family life'. Somewhat along the same lines, Ella (aged 24), another key informant in Finland, stated that '[t]echnological devices don't have an impact on those roles; they only facilitate communication'. Italy was no different from Finland in this regard. There the key informant Antonio (aged 30), for example, reported everyone apart from his grandfathers to think that ICTs did not have a significant influence, 'as long as they don't completely replace all immediate physical relationships'. Similar views presenting relatively unaffected family roles were put forth also by Sabrina (aged 23), another key informant in Italy:

> While the use of ICTs has not at all changed the roles of parents and children in our family, ICTs have nevertheless changed the way we communicate: WhatsApp, for example, tends to bring a certain playfulness to both the conversations topics and the tone of our messages, so, I'd guess, it makes our dialogue kind of friendlier in nature than how it usually is in exchanges between parents and children.

There was, however, another view that held that digital technologies indeed had changed the family roles, but only in the realm of technology use. In many of their accounts, key informants sought to maintain that the impact of digital technologies on intergenerational relations had remained limited at most, and anyway only concerned

some narrow areas of life. For example, the Italian key informant Martina (aged 21) proposed that ICT had made it possible that 'the younger generations are able to control a much broader area [of their lives]' than before, but no more than that. Interestingly, even when parents and grandparents seemed to think that child–parent relationships had changed, younger family members were reluctant to admit to such changes in family roles. The point was eloquently put by Carla (aged 23) from Finland:

> In the interviews with my parents, this thing came up that the 'the egg is smarter than the chicken'…. The younger people in the family think that technology doesn't influence or change anything about the roles of the family members. Rather, it brings family members more to the same level, so to speak. One can, let's say, teach some skills to the others, and, on the other hand, people can together think what the good and bad aspects of devices and software might be.

In some families, there was a firmer consensus about the impact of technology on family roles. Claudia (aged 21) from Italy, for instance, reported a view in her family that 'teaching the use of ICTs does bring new roles for family members on a general level, but only in relation to communication and the purchase of new mobile devices or PCs for using the applications'. Elaborating on the same observation, the Slovenian Tina (age 25) put forth that '[r]egarding the impact of ICTs on the roles of the individual members of our family, we have noticed a bit of a reversal in them. When it comes to technology, the children have definitely taken over the main roles in the family.'

A closer look reveals that the changes identified in family roles were, in particular, linked to how the educational relationships within the family looked like and, in some cases, how hardware purchase decisions were made. The Finnish key informant Isabella (aged 22) was very outspoken on this point, explaining that it was no longer the oldest person in the family who had the final word:

> Technological skills greatly affect the roles within the family, at least in situations where technology-related problems are being discussed. In them, the tasks that previously belonged to the head of the family are handed over to the person who has most knowledge, and even the oldest member of the family, which is our grandfather, is no longer listened to. Usually the one who is asked to take over is me. Normally in my family, it's the father who makes all the big decisions, then the mother, and the children are only listened to after all the others have had their say. But of course, it's become a bit different also for other reasons since the children have become adults.

In Slovenia, the key informant Sandra (aged 25) explained that '[W]hen it comes to choosing and actually buying, say, a new mobile phone, our parents turn to us and we tell them what we think about the quality and usefulness of the new phone they're maybe having in mind.' Overall, the Slovenian informants were more careful in their assessments regarding possible changes in their family roles, compared to their Finnish and Italian counterparts. As one of them, Mia (aged 25), for instance, stated, 'ICTs change family roles only in the sense that parents begin to more often have certain kinds of questions for us, or things that they want to learn from us, because we are young.'

## Changes Across the Life Course

Although perceptions about the impact of digital technology on family roles varied from country to country, there was nonetheless a fairly uniform view that family roles, in general, change over the human life course. This was seen to apply to every facet of family life, including also the appropriation and use of digital technologies. When family members reach a certain life stage or pass through certain key points in their lives, the role of the warm expert is usually passed from one generation to another. As in life more in general, both young children and old persons are dependent on the help of others also in their technology use, but young people gradually grow more independent as they gain more knowledge.

First, however, when children are small, parents serve as warm experts for their minors. The key informants in this study who had small children typically already anticipated in their accounts how and when they would begin guiding their youngsters into the world of mobile communications and the Internet. This was the case, for instance, with the Slovenian Katarina (aged 26), who had a 1-year-old son whom she expected to soon start to become interested in her smartphone:

> I'm planning to teach him how to use the Internet safely, and also how to use ICTs like the mobile phone, tablet computers, and PCs. When he's a bit older, of course, maybe four or five, I'm going to start teaching him how to play educational games, maybe also some games developed by the company that my partner and my father work for.

Another Slovenian key informant, Tina (aged 25), noted that her female cousin was already teaching her 3-year-old daughter to play games and watch cartoons on YouTube. In Finland, Rita [aged 34], too, was already thinking ahead to what would happen when her daughter would be a little older. 'For starters', she explained, 'I and my husband are going to start slowly teaching her how to use the phone and text; she'll get her own phone when she starts school.' A little later in her report, Rita shifted her attention further ahead: 'I'm thinking that as my daughter [aged 7] grows up, she will then later on teach me, like, how to use the latest programmes. Right now, she still needs a lot of adult guidance in the use of communication technologies.'

When reflecting on the changes in family roles and relationships, the key informants also looked back in time to how things used to be when they themselves were young. Rita from Finland made a note on this, writing that '[w]hen I was younger myself, I learnt from my parents, but today this is no longer how it goes.' Indeed, it was easy to see that teaching children the basics of current technology had always in the past been the parents' duty. This kind of intra-family help was regarded as something natural by the key informants, as the following quote from the report of the Slovenian Tina (aged 25) makes clear:

> It's somehow normal and it goes without saying that we now help and teach our parents, considering that they first raised us for so many years and taught us all the important things. Parents give advice to their kids when they're young, also in technology-related matters.

Also Italian and Finnish key informants explained that the way technology and technology use were taught in their families, and who was responsible for that

was based on family members' current life stage. As the Italian Monica (aged 25) described it, 'Previously it was my father who would teach me how to use the technology, now I teach him.' In Finland, Teresa (aged 24) reported rather similarly that '[e]verybody in my family holds the view, however, that parents have to teach their children the basics of how to use computers and phones'. A little further on in her report, she specified that such 'teaching includes things like when the phone must be on or in silent mode, and how to answer the phone and take good care of your devices.' In other words, what she suggested was that the parents' role as teachers was limited to the very basics intended to help the children to be able to get started.

As children grow up somewhat, they become warm experts to one another. Often, the knowledge they have of new technology is shared with other siblings, along with the digital skills one has acquired. As Maria (aged 24) from Finland elaborated on this stage of the life course:

> We, the siblings, we got guidance from our parents very early on how to use the computer and telephones, but since those times we've learnt a lot on our own, experimenting by ourselves, and actually even more from those amongst us who were more advanced. My youngest sister said she got most help from the second youngest amongst us. On the other hand, sometimes that same youngest sister found some application or another that the rest of us, us older sisters, had never even heard about before.

Later, when parents and grandparents grow older in the family, younger people's role as warm experts for them becomes 'officially' acknowledged. Their new role is not only owing to their more up-to-date knowledge of new devices and applications, it is also called for because of age-related cognitive and physical limitations experienced by older family members. A good example of this was provided by the Finnish key informant Emilia (aged 24):

> My grandpa's [aged 85] vision has gotten so much worse that he nowadays can barely read or write. And he has also begun to forget how different gadgets work, so he doesn't use anything anymore, other than his phone…. In the past, he told us, he used to use Skype a lot.

Older family members benefit from the support provided by the warm experts in the family in at least three different ways. To begin with, some older people receive continuous support from warm experts to help them sustain and sometimes even improve their digital skills in later life. The Finnish key informant Marika (aged 20), for instance, was able to note the following of the effect of such support on her grandmother (aged 75): 'she's not that bad [with her skills] anymore, she's improved; in fact she's constantly becoming better as a user, with help from us younger people'.

Second, other family members sometimes *co-use* digital technologies and applications with warm experts, being hence more dependent for their ability to put them to use on these members' physical presence. As Emma (aged 24) from Finland described one such situation: 'Sometimes when one of my grandmas comes visiting us, we use Skype together. That, they say, is very special and exotic for them, since they've never used any technological devices or made video calls before in their lives.' Another case, that of the Italian key informant Emilio (aged 30), involved an aunt who 'thanks to her children learnt to use the smartphone, the computer,

Facebook, and Skype', although she did not, for instance, have a personal Facebook account; instead, she used her sons' accounts.

Third, there are always some older family members who remain unable to use any of the new technology, whether on their own or with help of others. Such older people may then take advantage of so-called *proxy users* who use it for them or on their behalf (see, e.g. Dolničar, Grošelj, Hrast, Vehovar, & Petrovčič, 2018; Selwyn, Johnson, Nemorin, & Knight, 2016). In this study, this was the case, for instance, with the family of Emilia (aged 24) in Finland: in it, one grandfather's bills were paid online by a cousin of Emilia's. In Slovenia, too, such proxy use was described by the key informant Tia (aged 26), whose mother (aged 54) had expressed her desire that 'for the time being it's fine for her if any information that's only available on the Internet is accessed there by either my brother [aged 35] or me [Tia].' Also, the Italian key informant Matteo (aged 24) told that her grandmother relied completely on younger people for her technology use. According to Matteo, this grandmother, though:

> [w]ould like to learn how to use a computer, so that she could get a Facebook account and do Skype calls to her relatives in America, but then she keeps complaining that she still hasn't even figured out yet how to use her mobile phone. So then she gives up learning before even trying, and instead asks my cousins and me to do everything for her.

As the last two quotes reveal, when the challenges of learning a new technology are estimated to be significant, people are inclined to look for help. The support sought is then expected to help minimize the time and effort that learning the new technology would likely otherwise take (Barnard et al., 2013). In the context of extended digital families, the trusted persons in them, their warm experts, are then the first ones to resort to when the need for help or support in the use of digital media and communication technologies arises.

## Three Types of Warm Experts

Who, more exactly, then acted as the warm experts in the geographically distributed and extended families in this study? Based on the key informant reports, the role of the warm expert was most often assigned to one or two persons in the family. In the family of the Slovenian Tia (aged 26), there was only one such person: 'As for teaching ICT use and introducing new ICTs in our family, my father (aged 67), my mother (aged 54), and my brother (aged 35) all agree that it's me who's to do it and ensure that everything is used properly.' (The same was true of the families of the Slovenian Mia, aged 22, and Aleksej, aged 25; the Italian Alice, aged 23; and the Finnish Sofia, aged 24, Lucas, aged 38, and Karin, aged 27).

The largest and most prominent category of warm experts were also in this study made up of younger family members who provided information to their parents and siblings on technical aspects and helped them with software issues. In the three countries in question, it was normally the key informants themselves, or one of their

siblings, all aged between 20 and 35, who acted as warm experts in their families. In Slovenia, the key informant Erik (aged 25) described the role of such younger warm experts in his family as follows:

> My brother and I act as a source of information on all things related to ICT, answer questions like what does this thing do, what is this all about, how can I turn this machine on and off, and so on and so forth. We are especially sought after when the others need to upgrade to a new ICT device or newer software version. In short, we deal with the small problems encountered by the other family members who're not so interested in technology.

The key informants' parents, who were typically in their late middle age, were, however, actually quite often capable of installing basic digital devices such as televisions and laptops. As Veronika (aged 27) from Slovenia described her father (aged 52), '[he] is responsible for installing all devices and setting up their network connections. He also decides when and where to send a device for repair when that's needed.' When there were software issues or problems with some applications in the family, it was nevertheless the younger people who stepped in as trusted persons (see Software and Application Installations in Chap. 6).

Skipped-generation warm experts were the second category of warm experts who could be identified in the key informant reports. The term refers to the help provided by grandchildren to their grandparents without parents' involvement in the interaction. As such it, in fact, describes a situation opposite to that alluded to by its root adjective 'skipped generation', which is used for situations where grandparents raise their grandchildren in the absence of parents. Skipped-generation help in technology use was in this study, especially, common in Slovenian families, in which multiple generations frequently lived on the same property and even in the same house, or otherwise physically proximate to one another. Compared to their Italian and Finnish counterparts, grandchildren in Slovenian families were thus to a far larger extent available to their grandparents and their needs. Such close intergenerational relationships were exemplified by the Slovenian Mia (aged 25), who wrote that '[m]y grandfather said that he prefers to ask his grandchildren since we know where to look when something is wrong with his mobile phone and we know what he is trying to say.' The similarly Slovenian Klara (aged 28) told about how 'my younger sister [aged 24] and I taught our grandmother [aged 80] how to use a mobile phone designed for the elderly'. A third Slovenian informant, Julija (aged 25), described more at length what kind of help she and her cousin provided for the oldest members of her family:

> When I visit my grandparents, I often show them how to use certain ICTs. Recently, I taught my grandfather [aged 70] how to save images from his digital camera to his laptop computer, and how to use a programme for viewing photos electronically. It's often the case that I also advise my mom on similar issues. In addition, my younger cousin [aged 18] often teaches my grandfather and grandmother to use ICTs.

In the reports by the Italian and Finnish key informants, there were only few examples of skipped-generation warm experts and help. As regards Italy, Silvia (aged 25) stated that her great-uncle often had problems with his computer and called her up to have her help solve them. In Finland, the relationships between grandchildren

and grandparents were even more sporadic and distant. An exception in this regard was the family of the key informant Isabella (aged 22), who described her grandfather as very receptive to new technology, which made him to request her help from time to time. In her report, Isabella noted how '[l]ast time we learned how to use email, which has been my regular means of communication for a long time already. My grandfather, however, had never used it before, so he specifically asked me to help him with it'.

The third category of warm experts in my material consisted of older family members, who were either the key informants' parents or grandparents serving as warm experts for their age-mates. While peer support and learning are commonly associated with young people, also older age-mates provided support in digital technology use in the three countries studied. Moreover, it was both men and women who supplied this help to their spouses. The Slovenian key informant Angela (aged 27), for example, described such warm expert support between her parents. Starting with the characterization 'my mother comes to the rescue of my father when he needs someone with ICT skills', she then concluded, 'it's enough if one of the parents is skilful in the use of ICT tools'. In the family of the Finnish key informant Rita (aged 34), it was Rita's father who served in this role vis-à-vis Rita's mother: 'If she want to talk on Skype, she makes sure that my father is there to guide her through it.' For the Italian Monica (aged 25), too, it was 'my father who teaches my mother, even though she is younger,' demonstrating that was not just the person's age that mattered in this regard; more than that, it was personal interest, motivation and sense of attachment to certain technologies that determined who acted as the expert within the family. As the above Monica further explained, her mother felt emotionally quite attached to the family's landline phone, and so needed help from others when it came to using newer technology. Help-giving between approximately same-age persons was also common among the key informants' grandparents. The Slovenian Boris (aged 26) spoke about his grandmother (aged 79) as someone who 'thinks that she knows much more [about technology] than other people her age', leading to a situation where 'her partner always asks her about how to make calls and so on, and she is also better at using their TV.' Where one of the older persons in the family was more versed in digital technology use than the others, they appeared to be able to serve, at least to an extent, as warm experts for the others, provided they lived in the same household. They shared their daily lifeworld with those they helped, used the same terminology that the latter did and were to be more readily available than more distant family members when help was needed.

## Knowing Me, Knowing You

As already evident by now, intimately knowing the other family members, including their preferred modes of communication and their personal best ways to learn new things, was an essential quality of those acting in the role of warm experts in this study. This was because, as the Slovenian key informant Franc (aged 25) explained

it, 'everyone in the family decides for themselves what's the best way for them to communicate with others in view to their knowledge level and their ability to use new technologies.' The older people in the families appeared to be highly aware of the ability of the younger people in them to adapt to their comparatively lower skills and know-how. The Slovenian Mia (aged 25) was one to point this out in her report:

> My grandmother thinks that she can stay away from ICTs, since she belongs to the older generation and is mostly in contact with other older people who do not use many ICTs, either. However, she also thinks that younger people are good at adapting to their seniors, and are therefore able to spend a lot of time talking to them without ICTs.

When the differences in the family members' skill levels and the kind of technologies used within the family were relatively small, one could usually just choose from among the various communication modalities the one that was best suited for the needs and capabilities of others. An example of such a situation was provided by the family of the Italian key informant Melissa (aged 25). As Melissa explained it, in her family even grandparents owned 'more or less recent-model' mobile phones. This enabled Melissa to stay in touch with everyone via mobile phone. However, this she did 'in different ways, depending on the person that I'm contacting'. When someone in the family purchased a piece of new technology or started using a new application, the established manners of intra-family communicating could, accordingly, change, with particular attention again paid to individual needs and capabilities to select a suitable mode of communication. The Italian Alice (aged 23), to take one example, had recently purchased a new smartphone that included many new features, while the others in her family still preferred to text message one another. According to Alice, thanks to her modern phone she could nevertheless adjust her communication behaviour to that of the rest of the family: 'With the new phone, I could adapt myself to the habits of the others: if someone was only writing regular text messages, I did that, too, with that person, and I could do the same with email, WhatsApp, and other online messaging applications as well'.

When the generational gaps in skill levels and the way technology was used were large, the need to adjust one's ways and modes of communication was more pronounced. Keeping the family connected via communication technologies then required that one was ready and able to go back to older modes of communication since those could provide the only way to reach others. Erik (aged 25) from Slovenia referred to this need in his report:

> [T]he common denominator in all our family communication is that we all make an effort to keep communication as easy as possible for those least knowledgeable amongst us. What that means is that, although my brothers, my cousin, and my father are all highly ICT educated, they will all opt for out-dated forms of communication if that makes it easier for my grandmother.

In addition to actual skill differences between generations, the key informants' reports also, explicitly or implicitly, spoke of certain ageists thinking and even practices in the extended families. In families in which young people were less frequently in touch with their grandparents, there appeared to be more stereotypical thinking

regarding the latter, for instance. The Finnish key informant Marika (aged 20) indirectly contemplated on this possibility in her report, noting that 'the recipient's age and my own image of his/her technical skills' influenced the means she used for making the contact. She then went on to wonder whether in fact 'older people's interest in new communication possibilities has increased' and whether she should perhaps encourage her elder family members to adopt new technologies. Similarly, the Finnish Paula (aged 26) noted that '[p]eople of different ages employ different apps, so you choose the one that enables the best reach. Age and contactability influence a lot which app you choose'.

Sometimes the personal technical preferences could be so strong that they simply led to a certain way of communicating within the family circle being imposed on also the other members of it. A good example of this was provided by Sabrina (aged 23) from Italy, who spoke of her grandmother's (aged 76) strong attachment to her iPad: if photos were shared in the family, they had to be sent to her by email. The grandmother refused to have anything to do with a computer and lacked a mobile Internet connection. All this was because she 'finds her iPad simpler to use than a PC', and because 'in the iPad mail application she does not have to login every time and then remember her password and username.'

Intimately knowing others makes it also easier to ask and give help. Indeed, the ease of asking was a major topic discussed in the reports by the Slovenian key informants, whose families, as already noted above, were on average less geographically distributed and had more frequent in-person contacts. In them, close relationships and regular face-to-face encounters allowed help to be requested without having to fear losing one's face due to 'digitally disability'. The Slovenian Klara (aged 28) testified to exactly this advantage, writing as follows:

> Older family members don't find it difficult to ask for help and they don't feel that their doing so burdens other family members, as we in the younger generation try to help them to the best of our abilities and be as kind as possible. But it may still be that they secretly feel 'incompetent' about having to do so.

In the key informant reports, asking for help was, however, also thought of as something resulting from sheer necessity: one had in reality no choice other than to rely on younger family members' assistance. The Slovenian key informant Jakob (aged 26) suggested first that the older members of his family perhaps felt that asking for help from others was not that easy, but that '[w]hen they realize that they have no other choice but to ask for it, they do that and are very grateful for the help.' Franc (aged 25), also from Slovenia, had a similar observation: 'My grandparents and parents generally have no problem asking for help, as they are perfectly aware that they can't use ICTs fully without the younger generation's help'. While there was a common agreement that, overall in Slovenia, older people did not hesitate to request help, it was also stressed that the help was given to them without considering it as a big burden. Examples supporting this view included Sandra's (aged 25) grandfather:

> My grandfather says that he does not feel capable enough to teach someone else how to use the different functions of a mobile phone, but my parents and my uncle are a bit surer of themselves…. None of the people who help him [the grandfather] accept any payment for it. He knows that he can count on all of his loved ones in case of problems, and he knows that he is not a burden to any of us.

All in all, the role of a warm expert was thus presented as something natural next to all the other family roles: in it, too, those more capable than others helped and provided guidance to other family members in need of such. In Slovenian families, the physical proximity of others made help-giving and help-receiving seem like an organic practice. As Erik (aged 25) put it, '[w]hen it comes to asking for help, none of my family members feel shy about doing so, and they are happy with any sort of help they receive from either one of us.' When the distances between family members were longer and the in-person encounters between them less frequent, as in Finland, help was often provided over the phone or one simply waited until someone came around and provided hands-on help, face to face.

## Rewarding but Challenging

The key informant reports, however, also revealed warm experts to not be fully convinced about whether solving technological problems for others was always a good thing from the point of view of the latter's learning prospects. In general, helping other was felt to be rewarding, although acting in the role of the warm expert also entailed challenges and feelings of frustration. For example, Katja (aged 25) from Slovenia made a very clear distinction between what she liked and did not like about helping others: 'Buying new ICT tools is, by far, most entertaining for me, whereas teaching them to use them a bit less so.' She went on to specify what made teaching others less fun: 'Basic questions get repeated over and over again, explaining how to operate any device can take a year or more before they get fully comfortable with it.'

The most frustrating aspect of the warm expert's work appeared to be the fact that it required a lot of time. The older the helped family members were, the more time and effort it took to make them learn things. Moreover, teaching older family member also often required from warm experts that they were willing to be physically present, as suggested, among others, by the Slovenian Marija (aged 25):

> Based on a one-week observation period that I've had now, I can say that my older family members learn new ICT operations very slowly and that they need a lot of help with that, and that they need help over longer periods of time, prefer face-to-face assistance, and so on.

Especially, the younger ones among the warm experts in the families considered it tiresome that they had to demonstrate the same things repeatedly, while the learning outcomes might still not be that notable. The following quote by the Slovenian key informant Angela (aged 27) is one of the many (in addition to, e.g. the Slovenian

Franc, aged 25, Mia, aged 25 and Katja, aged 25; the Italian Claudia, aged 21) speaking of this frustration: 'Although I think I've shown her [Angela's mother-in-law, aged 62] how to send an email at least 100 times, she still calls me with problems. Sometimes that annoys me, but of course I still like helping her.'

If having to teach the same things over and over again was sometimes annoying to the warm experts in the families, the slow pace of the learning process could be that to the recipients of the help as well. According to the above Slovenian key informant Marija, the older people in her family 'expressed feelings of dependency, inferiority' when they realized themselves needing help and received help from others. Another Slovenian key informant, Mia (aged 25), noted the following about her grandmother (aged 77) who, she believed, had realized that she was possibly bothering her grandchildren with her requests for help:

> They [the grandchildren] are tired of constantly having to explain the same things again and again. My grandmother has no problems asking for help, but she does sometime get the feeling that she annoys her grandchildren with her repeated questions. She cannot help it, though, as she does not use the functions she needs often enough to remember them.

Reports by some key informants also described certain responsibilities of warm experts that had changed along with the developments in digital technology. Natalija (aged 30) from Slovenia was one to speak of such, describing here how things used to be before:

> When mobile phones first came to the market, it was easy for me to jump into using text messaging, but my parents found that difficult and it took a while for me and my sister [aged 23] to teach them how it was done. Now they find it easier and simply take it for a basic functionality of mobile phones.

After switching from basic mobile phones to smartphones Natalija's parents, however, again began to need more help, although now more with the 'soft contents' of their devices:

> My parents very rarely use any applications on their smartphones. But it sometimes happens that they want to know something about a certain application they have on their phones, and then my sister and I give them a detailed explanation of how it works and why it could be useful for them. But because they don't use them anyway that often, they soon forget what we tell them. Then, after a while, we have the same conversation again, just about a different application maybe. That kind of situations take a lot of energy from all of us, as the process of learning is not easy. Especially if it's necessary to repeat the same thing again pretty soon afterwards.

When it came to teaching technology use to older people, some warm experts had, moreover, found the proverb 'Repetition is the mother of all learning' to not be that reliable in the end. Thus, they had come up with alternative teaching methods. The Finnish key informant Maria (aged 24), for instance, told that members of her family had together written down step-by-step instructions on paper for their grandmother. Before that, the grandmother needed help constantly, with often the same basic things repeated over and over again.

The reports by the key informants Erik (aged 25) in Slovenia, Simon (aged 24) in Finland and Alice (aged 23) in Italy told of another strategy used to facilitate older

family members' learning. The three of them relied on encouragement, although sometimes they forced their help recipients to learn by trial and error. Of them, Erik, who himself was the warm expert in his family, described how that could work:

> Sometimes we feel it's better to let someone google the answer to their problem and try to resolve it on their own, rather than giving it to them right away. That might seem a bit harsh to those with the problem, or unnecessary—to my father especially—but I myself feel it's vital for their becoming more independent as ICT users. Doings so has, moreover, brought very good results in our family. These days it might be my father who sometimes comes and teaches me something new, and he shows a lot more interest in technology than before.

When speaking of this strategy, the Finnish Simon described himself as 'sparring partner' in it, rather than a problem solver who would simply do the thing for the other person. In Italy, Alice (aged 23) and her sister had solved the problem with finding the right teaching method by making their parents watch tutorials on the Internet. All these three examples speak of how warm experts, upon the realization that their efforts do not really pay off, often start looking for other ways to obtain learning results and manage their own workload. At times it could also be that such alternative strategies were, in fact, their only options since warm experts do not always have ready answers of their own to the sometimes unexpected or difficult questions directed at them. When that happens, warm experts may then guide the help-seeker in the right direction, as in the case of the Slovenian Aleksej (aged 25) who, hinting of his occasional frustration, explained that:

> I do not like to help with applications I'm not familiar with or those that I don't use myself. The most recent example of those was when my father installed JStock, an application for monitoring shares, and he wanted me to help him use it. In that case, I found a guide online and told him to go look for the answers to his questions there.

Also, the expertise of the warm experts has its limits, sometimes very concretely. When these limits are met, even good intentions and all the willingness in the world to help out are not enough. This had happened to the Slovenian key informant Sebastjan (aged 26), among others: 'There are situations when both my mother [aged 47] and my sister [aged 21] encounter a problem that neither I or my father [aged 50] know the context of, and then they get frustrated when we cannot help them.' The Italian Bruno (aged 27) expressed frustration in this regard, too. He strongly felt that his older relatives tended to overestimate his actual digital skills, only because he worked on a computer daily. Also, the Slovenian Sonja (aged 25) moaned that '[s]ometimes it's hard because both of our parents expect us to know everything and want a reply immediately when they stumble upon a problem'. The Finnish key informant Jenny (aged 25), however, had parents who acknowledged that 'it's often hard for young family members to help [others] with communication devices'.

Compared to early 2000s, warm experts' scope of work has thus considerably expanded, including no longer just help in hardware purchasing and installation, or in convincing others about the advantages of next technology. The work of what we could call the Warm Expert 2.0 increasingly consists of assisting family members with software and programme management and ensuring the functionality of the networked home. When the responsibility for the provision of help in digital

technology use is more and more placed on the shoulders of one or two experts in the family, it seems clear that warm experts' personal limits, both technical and mental, will be tested. Caught in a squeeze between high expectations from family members and a constantly evolving personal media and communication technology landscape, the warm experts' relationships with their help recipients do not remain free of intergenerational ambivalence and even conflicts. Young family experts grow frustrated when they are not listened to and their repeated teaching efforts fail to produce long-lasting learning outcomes (as, e.g. in the family of the above Klara, in Slovenia). Correspondingly, older family members may become frustrated when realizing that all the help in technology use that they need is not readily available through warm experts (as, e.g. in the family of Sebastjan, also in Slovenia).

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