

Stories of Technology

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Abstract

Individuals over 65 years were targeted to examine the meaning of narratives throughout their lives to investigate factors for (non-)adaptation to technology and the meaning of past experiences in current use of phones. In order to investigate these problems, six German participants between the ages of 67 and 88 have been interviewed, based on a life story interview by McAdams (1995). Questions about different technological stages in the individual's life, their experiences regarding communication technology, current use of and attitudes towards phones were asked about to investigate the questions at hand. Within ATLAS.ti 8.4 a holistic content analysis and the method of constant comparison were used in order to analyze the interviews and find patterns of technology usage throughout the individuals' lives and experiences influencing these. It was found that adaptation patterns of communication technology of the individuals in question remain relatively stable between early adulthood and the present. Here, mostly patterns of adaptation similar to those proposed by Rogers' *Diffusion of Innovation* theory (2010) sustain from teenage years through adulthood while the childhood patterns of adaptation do not seem to have as much influence. This finding can be supported by the model of *Technology Generations* (Sackman & Winkler, 2013). Further, positive experiences like entertainment, joy and feelings of safety throughout the individuals' lifetimes were found to influence current usage of communication technology. Negative experiences like anger, annoyances, difficulty of use and fear were also considered to be related to the older adults' current use of phones. Similar findings have been proposed by Davis (1989) with the *Technology Acceptance Model*.

Introduction

As to attain a feeling of purpose and meaning in life, people construct narrative identities (McAdams & McLean, 2013). These identities are a concept combining the persons' autobiographical past and imagined future entailing elaborate description of scenes and particularly memorable life events, helping the individual to spontaneously make sense of their life. Though the digital revolution, communicative technology has become a significant part of our lives and can affect our narrative identities (Bostrom & Sandberg, 2011). Plenty of models and theories focus on explaining change, adaptation and acceptance of communication technology. However, it remains largely unknown how the individual's memories and past experiences can be integrated into a framework that interpret the issue at hand in a more global and holistic manner. The aim of this paper is to get a general idea of how the individual's patterns of usage and adaptation change throughout their lifetime and how experiences with technology from the beginning of their life play into current use of cellphones.

Castells (2011) explains a *digital revolution* to be accountable for much social change over the last 50 years. The digital revolution is characterized by – amongst other things - a change from traditional mass media to a large network of communication across the internet. These patterns contribute to a transformed culture; "a new social structure in the making, [...] conceptualized as the network society because it is made of networks in all the key dimensions of social organization and social practice. Moreover, while networks are an old form of organization in the human experience, digital networking technologies, characteristic of the Information Age, powered social and organizational networks in ways that allowed their

endless expansion and reconfiguration, overcoming the traditional limitations of networking forms” (Castells, 2011, p. 1968). This change is said to have taken place during the 1970s and is still continuing as of today. Others argue a revolution to have taken place later, starting around 1986 when analog technologies were gradually replaced by digital technologies (Hilbert, 2018). Here, the digital revolution is measured by digitally versus analog stored information (Hilbert & López, 2011). First changes in technology, fundamental for a digital revolution within the general public took place with the first cellular phone being made available in 1976 (Motorola Inc., 1973) and the first personal computers releasing during the late 70s and early 80s. However, phones did not become widely used until availability and affordability rose in the late 90s and early 2000s (Office for National Statistics (UK), n.d.).

Statistics show that 95% of the American population own a mobile phone in 2018, of which 77% are smartphones, for young adults, this number reaches close to 100% for mobile phones and 94% smartphones (Pew Research Center, 2018). However, if this is compared to adults above 65 years, it shows that only 85% and 46% own a phone or a smartphone respectively (Pew Research Center, 2018).

Theoretical Framework

The following three theories are used to demonstrate possible factors for non-adaptation to technology in general and why especially older adults are less likely to adapt modern communication technology.

Adopters of technologies can be categorized within a normal distribution, given the point in time at which they adapted a technology, according to ‘Diffusion of Innovations’ theory (Rogers, 2010). In the interest of leaving the original terminology unchanged, here and in the following ‘adaption’ and ‘adaptation’ will be used interchangeably. Rogers (2010, p. 10) explains diffusion as “the process by which an innovation is communicated through certain channels over time among the members of a social system”. An innovation can be described as an idea defined as new by the adopter. Based on this, Individuals are split into five categories: *Innovators* (2.5%), *Early Adopters* (13.5%), *Early Majority* (34.0%), *Late Majority* (34.0%), and *Laggards* (16.0%) (Robertson, 1967). The adaption process can be summarized in five different stages, of which the first one entails knowledge or exposure to an innovation (Kaminski, 2011). During the next stage, the individual becomes drawn to the idea and seeks more information. The individual makes a decision, anticipating his (non-)adaption. Lastly, the individual incorporates the innovation and following that he continues to use it. Many factors play a role in the process of adaptation, including *observability*, *relative advantages* of the innovation, *comparability*, *trialability* and *complexity* (Kaminski, 2011).

From the statistics it can be seen that older adults are less-adapted to cell- and smartphones than the younger generations are. This can be explained by the concept of ‘technology generations’, which was revisited by Sackmann & Winkler (2013) after being developed by German sociologists in the early 1990s. According to these authors, technology generations are birth cohorts whose technological experiences differ according to the era of social and digital change they grew up in. Further, Sackmann & Winkler (2013) state that individuals between the ages of 15 and 25 are especially susceptible to be influenced by innovations. It is assumed that a new technology generation is established within this age span as a new technology surpasses a 20% threshold in private households. They explain that rapid

change in developments generally is also able to describe a larger difference in adaptation to technology between generations (Sackmann & Winkler, 2013). Difficulties with adapting to technology mostly applies to the generation growing up before significant technological changes happened. Here, individuals born in the birth cohort between 1930 and 1960 are grouped to be the *electromechanical generation*. As Sackmann & Winkler (2013, p. 494) show, Technology generations born before 1960 “have greater difficulty coping with multi-layered interface: they take more steps and make more mistakes”. This is seen in comparison to the *software generation* born after 1960. However, they mention that individuals born between 1950 and 1959 cannot be included into the *electromechanical generation* with enough certainty, as this generation showed effects deviating from the generation born before 1950. Therefore, it is no surprise that modern innovations like mobile phones have not been a major part of people growing up in the *electromechanical generation* before this *digital revolution* took place. Other sources are supporting these findings, as compared to the current adolescence, who grew up in a generation of rapid change and easily adapted to the fast-growing technology, it is no surprise that the same rate of adaptation does not come as easy to older adults (Giedd, 2012). People born before the year 1955 had a childhood unfroneted by modernized communication technology, i.e. cellphones, computers and the internet. They were well above 40 years of age until these technologies revolutionized and became widely available around the new millennium. Therefore, the *electromechanical generation* is chosen as a target group for this study, including the age group of 65 years and above.

Difficulties adapting to advances in technology might be explained by the ‘Technology Acceptance Model’. It aims at explaining individuals’ subconscious decision-making process for adaptation and non-adaptation to technologies. The model explains *perceived usefulness* and *perceived ease of use* to be the two important variables which influence the *attitude* towards technology and therefore also *willingness to use* it (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989). External variables are shown to indirectly influence adaptation or rejection by influencing perceived usefulness and perceived ease of use. Consequently, as positive affect is established, individuals form intentions to perform a certain behavior.

Several studies suggest that many older adults generally have difficulties adapting to technology such as mobile phones, computers, tablets, etc. especially compared to the younger generations (Czaja et al., 2006; Vaportzis, Clausen, & Gow, 2017; Massimi, Baecker, & Wu, 2007). Czaja et al. (2006) found increasing age to be one of the largest factors predicting non-adaptation to technology. This can be partly accounted for, as studies show a declining ability to learn new skills with increasing age (Clark, Freedberg, Hazeltine, & Voss, 2015), and the increase of time it takes to familiarize oneself with complex user interfaces (Reddy, Blackler, Mahar, & Popovic, 2010). Several other issues are identified which show a reason that is preventing older adults from using newer technology. Vaportzis et al. (2017) show that older adults are troubled with perceived barriers like a lack of instruction they receive, on top of lacking knowledge. Next to that, disadvantages and concerns regarding technology such as perceived complexity or feeling of inadequacy often outweigh the benefits older adults perceive to gain from these technologies (Vaportzis et al., 2017). However, it is important to mention that not all older adults hold these negative attitudes towards communication technology and many of them have been found to see advantages just as much as the disadvantage (Mitzner et al., 2010)

As can be seen by the literature, not all older adults are well-adapted to technology. However, phones and technology in general can have a lot of value for older adults. These include, amongst others, lowering the bar for communication with family and therefore result in lower levels of loneliness and predicting better mental well-being (Chopik, 2016). Next to that, it could be tremendously helpful for older adults to be familiar with technology in a general sense, as the adaptation to e-health, e.g. assisted living technologies or monitoring of chronic diseases becomes more relevant (Cimperman, Brenčič, Trkman, & Stanonik, 2013).

Looking further into older adults' experiences, as gathered through life story interviews, can provide additional information about factors interacting with their usage of mobile phones. Reasons for decisions regarding (non-)adaptation might be rooted more deeply in the older adults' early lives and experiences, as it has been proven that past behavior often has influences on current attitude and past patterns can resurface in the future (Albarracín & Wyer, 2000). Understanding how impactful and influential technology is, as perceived by older adults is essential to find out more about their adaptation or non-adaptation to modern technologies. This knowledge could be used to make technology more favorable and better adapted to the individuals themselves in order to have older adults use phones and other technologies more, hereby improving their daily lives.

The research is conducted using an altered version of the life story interview by McAdams (1995). Here, it is stated that individuals can make sense of these significant events and put them together into a coherent life story, as beforehand defined as their narrative identity (McAdams & McLean, 2013). The goal is to make sense of these milestones in order to put together someone's memories into perspective, Freeman (1992) puts it as gathering an 'understanding of the self as a meaning maker with a place in society, the culture, and history' (as cited in Atkinson, Kuroe, & Kitahara, 2006). Aim is that the individual him or herself, researchers and scholars understand the individuals' life in the light of four main features: in a psychological, sociological, spiritual and philosophical sense (Atkinson, 2007).

The following research questions are established:

1. How do schemes of adapting technology recur throughout the life stories of older adults?
2. How do older adults relate positive and negative experiences with technology throughout their life to their current use of phones?

Methods

Design

The design applied was an exploratory research design aiming at giving a better understanding of this topic of study which has been mostly unexplored. A semi-structured interview with open-ended questions was used to provide insight using a narrative approach focused on single cases. These detailed autobiographical stories were used to focus more on reasons playing into decision-making processes on a personal level. To add to this integrated approach and focus on

the stories as a whole and comparing the participants to each other, a holistic content analysis and the method of constant comparison were applied.

Participants

A sample of six participants was used for the purpose of this study. The participants were all based in the same German city and all have around an average socio-economic status. The participants are between the ages of 67 and 88 years, of whom four were men and two were women. An age above 65 years was the inclusion criteria that had to be met by the participants. Further, the participant must be in a clear state of mind and able to hold a concise conversation for at least 30 minutes. Out of the six participants, three were close family members, two neighbors and one a distant family member. This includes two married couples. The first five participants were recruited directly by the researcher, while the distant family member was recruited by snowballing. This happened by specifically asking the first two participant if they know someone who is especially adapted to technology. All people asked to take part in the study agreed to do so.

Procedure

Participants were recruited using purposive sampling with the goal of achieving a sample representing a wide variety of different life stories. In order to achieve this, participants were chosen on a spectrum between little perceived adaptation to modern technologies and very adapted individuals. As all participant were known beforehand, it could be estimated how much use they make of communicative technologies and how well-adapted they were. Based on this they were purposively selected. Further than that, the age span of the participants was chosen to be as distributed as possible between the inclusion age of 65 years and up to 90 years. Before the interview started, each participant was informed about the aim of the study and the meaning and use of their interview within the study. Furthermore, they were informed that the interview was being voice-recorded and transcribed after. Lastly, every participant was assured that possibly identifying information would be anonymized for privacy reasons. This information was also summarized on an informed consent the participants were asked to sign (Appendix A). The names used in this paper were randomly chosen and do not correspond with the participants actual names. The study was approved by the Ethics Committee for Behavioral and Management Sciences at the University of Twente (Registration No.: 190454)

Materials

To investigate the older adults' past experiences and relate them to cellphones most effectively, the focus of this research lays on information and communication technologies. ICT is defined as "technologies that provide access to information through telecommunications. It is similar to Information Technology (IT) but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums." (Christensson, 2010). Here, it is important to mention that while the focus does lay on the communicational part of technologies, the participants were invited to talk about any technologies that might be a significant part of their life story. It was assumed that any

technology they might mention takes a role in the development of their character and therefore add to their current opinions and attitudes relating to phones.

In this paper, *communication technology* is used interchangeably with *information and communication technology*. Furthermore, the word *technology* will be used in a wider sense of *communication technology*, including devices not directly related to communication but still associated with it, e.g. cameras, record players and tape recorders.

During the interview, a mobile phone was used to voice record the interview. The scheme used for the interview is a version of the life story interview by McAdams (1995), adapted to fit the topic of communicative technology. Using this interview, the older adults' take on the development of communication technology, specifically phones and their relationship, attitudes and involvements towards these were investigated. This was done in a narrative manner, with which the participant was asked about different phases within his or her life including e.g. high and low points, challenges, ideologies, etc. (Foley Center, 2009). In this way, the participant was navigated through key point in his life and several other events and beliefs which shaped the participant in a certain way (Tagg, 1985).

The interview was conducted in three parts in order to investigate different factors playing into the adults' stance towards mobile phones. The full interview schedule can be found in Appendix 1. The first part is used to investigate different stages of technology the participant has went through. The focus here lies primarily on communicative technologies, which was defined loosely to the participants as including mainly radios, phones, televisions and mobile phones, but left room for further interpretation of the interviewee him- or herself. This was done as to leave the participant the choice of topics he or she wanted to address, assuming they would talk about technology closest to them and most relevant in their past and present life. The goal was to get a detailed picture of the adult's technology-use during childhood, teenage years and all the way through adulthood, captured in a picture of positive and negative memories summarized in different stages, here called chapters. The adults were asked to describe their experience with every technology, their reason for use and frequency of use and lastly, if possible, were asked to recall positive or negative memories especially standing out during each chapter. The second part of the interview zooms in closer on the older adults use of and opinion towards phones. This includes questions about perception of mobile phones when they first released to the public and perception of advantages and disadvantages. Following that, questions about the adults currently used phone are asked. This participant was asked to recall when he or she bought his or her first phone, how long they used it and how many mobile phones they owned since then. In contrast, if the interviewee did not own a mobile phone, he was asked questions about reasons for this, perceived advantages and disadvantages of not owning a phone and intent on getting a phone in the future. During the third and last part of the interview, the participant was asked to review all the previously mentioned memories and think about whether they can find a pattern in their use of communicative technology, especially if their usage stayed consistent, whether they were always quickly adapted and the first ones to try out new technologies or whether they were reluctant in trying new technologies. If neither is the case and their use increased or decreased, the participant was asked when this turning point happened or if they could find reasons for a change in usage. In case the participants answer was not satisfactory for answering the questions with enough detail, the interviewer used probing to get further information. Especially during the first part probing was used in

case the interviewer had the suspicion that the participant forgot to mention a technology that should have been included. Further, if the interviewee was answering with little detail probing questions were used, asking the participant to elaborate on the story or give more detail. As the participants were known to the interviewer beforehand, less talkative participants could be asked to thematize stories or information that were previously known.

Analysis

The recorded interviews were transcribed by re-speaking the interviews aloud while listening to it over headphones and were captured by Google docs voice recognition. After most of the interview was written down, the interview was listened to two more times to correct mistakes. All interviews were transcribed in German. The transcribed interviews were coded in ATLAS.ti 8.4. Only quotes later used in this paper were translated to English.

Two different approaches were taken to analyze the interviews. Firstly, a holistic approach in order to look at the individual stories in an integrated way of looking at the interviewee's life. Secondly the method of constant comparison was used to compare these individual stories in order to gain understanding of general patterns, similarities and differences and come up with an interview scheme that could be used across all participants.

The holistic approach to narrative research as proposed by Lieblich, Tuval-Mashiach, & Zilber (1998) is used to analyze the data. Codes were assigned by taking an inductive approach and themes were coded as they were recognized in the story, using a bottom-up approach. The holistic approach was focused on analyzing the data in a comprehensive way, considering stories as a whole instead of focusing on details. Approaching the analysis in accordance with Lieblich et al. (1998) this process was done within five steps. During the first step, the interview was read several times until reoccurring foci and experiences in the participants life story were found. An emphasis was set on significant foci in the interviewees story, which then were analyzed more closely. In the next step these observations of patterns might be written down, including contradictions and other important and unique parts of the life story. Thirdly, different foci were followed through the story in which special attention was payed to frequency and time devoted to specific themes. These themes are marked with different codes throughout the text. During the last step, all themes were put into perspective by tracking conclusions, beginning and endings of different themes, as well as merging themes and contradiction between themes.

To create a better idea of how the coding process was done in practice, an example is given: To begin, the interview with the first participant was read a few times until foci became clearer. Here, it could be recognized that the participant reports many positive experiences throughout his life. This was written down, together with some notes, i.e. that these recollections of positive memories start during the childhood and end sometime during his early adulthood, none taking place during the more recent years. Having a focus on positive memories, these were looked at more in detail to find out how the experiences can be divided into separate themes more specifically. For the first participant, it was found that all positive experiences as marked before would fit into the themes *joyful experience* and *feeling of safety*. This is how all foci were analyzed more closely and codes were established.

Using a second approach for analyses, the methods of constant comparison (Boeije, 2002) was used to review the interviews again. Here, all interviews were read over again and

compared to each other with the prematurely finished coding scheme at hand, comparing similarities between interviews and finding different conceptualizations of the same code. After coding the first interview, the then established coding scheme was used on all other participant. A clear focus on positive experiences could be found for every single participant, however, the themes *joyful experience* and *feeling of safety* did not suffice anymore. In order to integrate all aspects of the focus positive experiences, a third theme was added, called *general interest in technology*. This was done accordingly for all four categories and every participant. During this process, some codes were renamed and merged. However, only slight adjustments were made. Not all codes could be identified in every interview. In the final coding scheme, a total of 23 codes were established categorized into four different groupings (Appendix B). Each code was found on average in 4 interviews, with one code only showing up in one life story each. As a unit of analysis, the codes were applied to one or more sentences, trying to capture the main message of the statement. In some instances, whole paragraphs or the interviewer's question were added to the quote for context. One fragment was coded with one or more codes at the same time. Quotes used for the results were whole units or meaningful segments of these if the complete code was too long. Here, quotes were chosen which reflected typical examples of a focus or theme. For the sake of preserving the key message the participants convey, the original German quotes have been translated as literal as possible. Original quotes can be found in Appendix C.

Results

In Table 1, frequencies of the codes identified in the interviews of each participant can be seen. Definition for the codes can be found in Appendix B. The codes are split into four different categories: *adaptation of technology*, *positive experiences*, *negative experiences* and *neutral experiences*. The category *neutral experiences* contain codes that - under circumstances specific to the interviewees – can be categorized to be positive and negative but are not exclusively positive or negative. Therefore, for each participant, a persona is established, summarizing their memories and opinions on numerous technologies, split into '(non-) adaptation', 'positive experiences' and 'negative experiences'. The codes are marked in italics in the descriptions of the personas.

The total frequency of the codes gives a good indication about how long the interviews were, relatively to each other. Carl deviates as he has very low total codes compared to the others. Distinctions between Alexander, Bea and Carl can be seen in comparison to Daniel, Ella and Frank. For the latter three, much more codes regarding *positive experiences* can be found. Further, more codes concerning their *adaptation* show up with regards to *early adaptation* and *moving with the progress*, indicating that they are better adjusted regarding current technologies. This is especially apparent for Ella and Frank with the addition that they are the only two interviewees who report *use for work*. What can be seen instantly is that there are no *negative experiences* reported by Frank and little as perceived by Carl and Daniel. Nearly everyone reports many different experiences with technology in general, coded as *neutral experiences*. Based on these codes, a good estimation on which participants are well-adapted and less well-adapted can be made, including estimations on general attitude towards technology.

Table 1
Frequency of codes found for each participant

Codes	A Alexander	B Bea	C Carl	D Daniel	E Ella	F Frank
Adaptation						
Early adaptation		1	1		16	9
Early interest				2	9	6
Late adaptation	2	2		5	3	1
Moving with the progress				6	16	2
Necessity to advance	1	3		2	2	2
Not moving with the progress	2		3	5	2	
Passive experience of technology	2	4	2	5	2	4
Regression	1	3				
Use for work					7	6
Positive experiences						
General interest in technology				6	13	10
Joyful experience	6	4	1	5	6	5
Feeling of safety	1	3			1	
Negative experiences						
Anger	3				1	
Annoyance	2	2	1		3	
Difficulty of use	3	6		3	1	
Fear	1	5		1	6	
Neutral Experiences						
Indifference			3			
Lack of interest	5	8	4	5	6	2
Lack of usefulness	4	9	3	6	1	
Use for entertainment; frequently	1	2		5	1	4
Use for entertainment; limited	4	6	2	5	3	3
Use for practical reasons	9	9	4	3	4	9
Usefulness; general public		4		1	4	
Total	46	71	24	64	106	63

Participant A – Alexander – 1940

Alexander is a 78-year-old man. As it was known beforehand, he uses relatively little technology in his life. The participant needed some probing at the beginning of the interview, mostly suggestions of technological devices he could talk about but got more talkative over time and generally answered most questions with much detail. He seemed to be comfortable within the interviewing situation and with the interviewer. Further Alexander did not hold back to talk about his thoughts and experiences.

Adaptation

Throughout his life, Alexander shows a general pattern of *late adaptation* of technologies, compared to his peers. During his childhood, the first electronical device his family bought was a radio when he was about 8 years old. After that a long gap follows, in which he remembers no new technologies, he bought a record player for himself when he was 20 years old. During his teenage years his ways of communicating with his current wife were limited: “A telephone, we [his family] only had later. We first walked over to the neighbor when we wanted to call, when we were young, I was 16, we did not have a telephone and I ran over to the neighbor to call my wife.”¹ He explains that this was at a time when many families already had a telephone, therefore giving an example for *late adaptation*. After marrying and moving out of his childhood town, he and his wife were gifted a television by a family member, which according to him was not early not late compared to other families. At that time, Alexander was 24 years old. Four years after that, they also bought a telephone for themselves, which is another pattern of *late adaptation*. Additionally to that, the telephone was rarely used by them at that point in time: “We later had [the telephone], it was one where you had a dial, where you had to lift the earpiece first [...] but back then you did not really call anyone, only when it was something important. I do not remember how much a unit cost but proportionately it was expensive.”² After getting newer devices, *moving with the progress*, which replaced older radios, television, etc. the next device Alexander bought was a cellphone during the early 2000s: “Between 2000 and 2010 I used the cellphone the most, I called when I had something important.”³ He explains that he transported vehicles long distance for his job for which he wanted to buy a phone, so he could call someone in case he had an emergency. He explains that he saw a *necessity to advance* and to get the phone, as it was too unsafe for him to not have one and get stuck somewhere on the road. “That was an advantage for me, I can quickly call, do not have to go somewhere first in order to get help.”⁴ The cellphone added to his perceived *feeling of safety* when traveling. However, since he stopped working, he went through a *regression*, barely using his cellphone nowadays. Nevertheless, throughout the years he owned four different cellphones. After all, he clarifies that he is happy with a phone that is easy to operate for him and that he can make calls with, he never wants to have what the current development are at and get a smartphone, therefore declaring he does *not* want to *move with the progress*. “I would not want at use that at my age, you have to grow up with that, you [the younger generation] can play with it, but we can’t.”⁵

Positive Experience

Alexander describes several positive experiences with communicative technologies, of which most took place during his childhood and early adulthood. He mentions, that next to the radio,

he bought a record player for himself: “I bought some records and then we listened [...] with several boys, with my friends we sat together, and all listened to it.”⁶ For him this is a *joyful experience* as it was a way of listening to the music he liked. On one side, he says this is a positive memory for him, but on the other side he does not remember much about it, i.e. the kind of music he listened to and how much he used it exactly. Regarding the television, Alexander already watched some television with his friends as a form of *entertainment* before he owned one himself: “We [he and his friends] frequently went to the pub on Saturday evening and watched television for two hours as there were no televisions in private homes yet.”⁷ He describes this as a positive memory as it was new to him and his only opportunity to watch television and further, he got to spend time with his friends. However, next to this, it is important to mention that Alexander mentions frequently during the interview that for him and his friends, technology did not play a significant role of their lives, as their *use for entertainment* was *limited*. He says that they were playing outside a lot and drove around much of the time. He also shares his *joyful memories*, taking place a few years later of watching comedy shows on television with his wife: “when the ‘Volksspiele’ (folk-plays) were on, what were they called again [...] ‘Ohnsorg Theater’, we watched that a lot, today it is not as common but back then it was way more [...] and movies like ‘Heidi’ we watched with the children as they were younger.”⁸ However, in general Alexander describes his use of most devices as rather *practical* than having entertainment value. These memories, also just listening to the news on the radio are described by him as being positive experiences he made, but not specifying why exactly this was the case.

Negative Experience

Alexander's negative experiences with technology, on the other side, mostly occurred during his later adulthood. Regarding this, he describes *annoyance* about phones early on: “Obviously it was weird [when phones were first released], it was an incision into our lives [...] I thought it would be a possibility to communicate from A to B, that's it. The least I thought was that it becomes a toy to play with.”⁹ He also explains irritation and *anger* about people who are always busy with their phones in public: “It annoys me at the doctor, when you come into the waiting room and no one says ‘hello’ because everyone is typing, that should stop.”¹⁰ Further Alexander shares *fears* and irritation about phones, voicing that they can be really dangerous in his opinion, especially when using the internet carelessly: “[mobile phones] are being overused. Why should I share my private things with someone on the internet or whatever, and then they are surprised when something happens? I am not there for that at all. [...] today, when something happens, taking a picture and putting it on the internet. Instantly showing others.”¹¹ Generally, he puts emphasis on the fact, that he believes smartphones - and phones in general to have more disadvantages than advantages, as nowadays they are hindering communication more than establishing it, which again is *annoying* to him. Alexander summarizes that he has *little interest* in mobile phones but accepts that everyone has to know for themselves how much they use it, however, from the tone of his voice and his wording, he conveys little understanding for it as he sounds *annoyed*, almost upset: “Everyone reacts differently to mobile phones, and some say ‘I need to have this and I need to share everything online’ but me, I do not need a phone but I still have one so I can call from A to B and that's it. And not so I can share everything that happens, I do not need the newest devices for that.”¹²

Participant B – Bea – 1937

Bea is an 81-year-old woman. She was asked to take part in the study as it was known beforehand that she does own a cellphone but rarely uses technology. She was very talkative during the interview and needed little probing and support from the interviewer, overall telling many elaborate stories. It could be noticed that she had trust into the interviewer as she talked about personal memories in detail.

Adaptation

Bea's experience with communication technology during her childhood is mainly *passive*. She remembers her family owning a radio very early on. Bea remembers that her family were *early* in *adapting* a telephone compared to other families. As her family owned a farm and her father had to be available over the phone. As they lived very rural and it was part of his business to sell over the phone, it was *necessary* for them *to advance*. Similar to the radio, which her family needed during WW2 to listen to bomb threats, the telephone was owned by the family for existential reasons and a *necessity to advance*. Apart from these two devices, Bea explains that she was never the earliest one to get new technologies. Counting herself into the group of *late adapters*. Over time she got newer improved devices, as a way of *moving with the process* e.g. radios that were able to play cassettes or a new television when the old one broke. About ten years ago, Bea got a cellphone as she believed she needed one. Nowadays, she does not bother to get a newer phone with more functions so she does *not move with the progress*: "I only need it for calling and I would not want to deal with figuring [newer phones] out. That would not make me happy, [...] I think I just don't need it." ¹³ Something that is recurring in her life story is that she often used technologies or experienced the use of technology from a position in which it was *necessary* for her *to adapt* specific technologies, as the situation she was in forced her to. However, as soon as it was not essential for her anymore to use a specific technology, she and her family stopped using the specific technology. This *regressive use* shows in a few stories she tells. After the end of WW2, Bea recalls moving in with her grandparents and leaving the radio behind: "in 1945 we moved away and did not take the radio with us, I do not know why. In (*city*), where we started living with our grandparents, I do not recall having a radio there." ¹⁴ This pattern can also be found in her current use of phones. She explains, that she used her cellphone a lot when she was traveling on her own, but since she is not traveling by herself as much, she explains: "one or two years ago I used [the phone] frequently, but now I do not use it at all." ¹⁵

Positive Experience

Bea experienced a few situations in her early childhood, in which technology essentially added to a *feeling of safety* for her family. She most vividly remembers her families' radio "We first had a radio, I can remember well, that we had a radio. I was four years old, five years, as the war took place. So as the war started – in 1945 it ended – and during that time we had a radio a 'Volksempfänger' (folk-receiver), a black box with loudspeakers. And we had to hide it because you were not exactly allowed to use one. And then we listened to bomb-attacks, we put it on, heard something is in sight, and then we knew in (*city nearby*) is an attack." ¹⁶ She explains, that although this is a stressful memory for her, she has good memories about the radio itself, as it was good for her family to know what was happening during the war and made them feel

safe. Beas family also owned a television during her childhood and adolescence. Overall, she recalls positive memories about the television, as she *used it for entertainment*: “During the day we were working, and we did not think about watching television, but we were always looking forward when we could watch a show for 10 minutes in the evening, that was interesting for us.”¹⁷ As Bea explains, even though communicative technology did not take up as much time of the people’s life back in time as it does now, she was glad to have the technology. She describes that her gratification for communicative technologies was not as much directed at entertainment, but the general idea of having something helpful and *practical* making their lives easier in ways that they did not know before. This especially is the case in a situation when Bea got married and she and her husband were gifted a television: “In 1963 or 1964 we got a television from (*brother in law*), we were happy about having a television at all. Back then we worked the whole day, I was working shifts and it would only be in the evening that you watched your television shows and saw what was happening in the world, the news. When you watched that, you were happy about getting to know what was happening. Otherwise you would not get to know the news as fast, not like today where it is in the newspapers the next day.”¹⁸ At a later time, Bea owned a radio that she recalls much positive, *joyful memories* about: “At one point we got a new radio, it was more modern. I thought ‘now we have something nicer than the old box’. And then records and cassettes came along. I really liked the cassettes; you could record them yourself. And I sang one song: ‘Wo die Nordseewellen’ but I can’t find the tape, I always listened to that, that was interesting to me and I liked it and I saw I had something nice [...] back then I could still sing, now I cannot do that anymore [...] but I have good memories of that, that wasn’t bad at all.”¹⁹ Further, she does not recall many recent positive memories with communicative technologies. Bea expresses that she still likes to use her television and the radio for *entertainment* and *practical purpose*, but they have become more casual for her “nowadays, our radio is playing all day in the kitchen and we listen to everything that is on.”²⁰ Beas cellphone is hardly used, but a positive experience for her insofar that she *feels safe* carrying it when she is alone somewhere: “I wanted a cellphone for myself as I was driving a lot with the car and then I could call. That’s why I had a phone and I saw the advantage for myself that I was available, and I could call if something happened.”²¹

Negative Experience

Beas past use of communicative technology is marked by many negative experiences. She describes a few situations in which she developed *fear* of the electronics, e.g. one situation in which she got an electric shock from a radio because it was badly isolated. Following this situation, she explains: “[After that] I always thought, now be very careful, not more than necessary [...] And I was always a bit scared of power, I still have that today. And I thought do not touch the things more than you need to and it is going to be fine.”²² Other negative experiences are *difficulties to operate* her phone. Regarding this, she tells a few stories, of how she once accidentally called someone from another country. In another situation Bea expresses *annoyance* as her SIM card got blocked due to her not using it: “When you don’t use it for a certain time they disable it and they did not tell me in advance [...] that was really unbeneficial, you take it along because you think you can call and then it doesn’t work. I always put 15€ on it and it lasts me for a long time [...] it costs a lot of money because I had to get a new SIM card.”²³ Next to her difficulties in using cellphones, she mentions a *lack of interest* to learn

about these devices. To the question, whether she finds it *difficult to operate* phones: “Yes, I cannot do that until today. I know how to call but sometimes I do not manage to get in the number correctly. It is complicated to me, because I do not think about it. I could do it if I would want to, but I do not want that.”²⁴ She mentions statements similar to this a few times throughout the conversation. However, Bea frequently describes that she understands that some technologies are essential and *useful to society*, even if she does not need or use those herself as she does *not perceive any usefulness* for herself: “I do understand that nothing works without [communicative technology] today. Many people need that, if there would not be any computers, nothing would work today, I can see that but for me personally I do not see the point.”²⁵

Participant C – Carl – 1931

Carl is an 88-year-old man and was purposively sampled due to his little use of technology. As a family member, it was known beforehand that he does not own a mobile phone and uses little technology next to the television. As he had little experience with technology to elaborate on, the interview was significantly shorter than the other interviews. Carl needed much probing and did not start talking about technologies by himself that were not mentioned to him as examples. Next to that, he needed much suggestions and most of his answers were held short, if not only kept to ‘yes’ or ‘no’. Even though he did know the interviewer well, he seemed held back to talk about his experiences. This is assumed to be attributed to his lack of interest in the topic.

Adaptation

During his childhood, Carl remembers certain technologies always being around, i.e. a radio and telephone. He cannot recall when exactly his family bought these devices as he did not have much to do with technology. Therefore, he only remembers those devices very *passively*, as: “my parents [used the radio], apart from that it was never used.”²⁶ And on another occasion: “I only listened to it while walking past it.”²⁷ What he does remember, is that the devices were used seldom, the radio was used for the news and the telephone was only used on important occasions as it was expensive to make calls, generally small improvements for *practical use*. After moving out and marrying his wife they bought a television in 1959, which was according to him a relatively *early adaption* compared to other families, but again, they rarely used it. During this time, the television was mainly used as a way to watch the daily news in the evening, therefore for *practical use* again. The only technology Carl shortly used was a record player, but he does neither recall when he got it, nor how much he used it. After that, Carl only reports non-adaptation or *late adaptation* to technologies. He did not use any other technologies throughout his life and does not own a cellphone currently. This is the case, as he never even thought about getting one and does not consider a cellphone to carry any advantages which he could benefit from. Carl explains that throughout his life, he used technology consequently, keeping it limited to watching the news and rarely a movie or show.

Positive Experience

Carl recalls little positive memories, apart from two small *joyful memory*. One positive memory he recollects concerns the television: “It was approximately from 1957, I was already a teacher

and we [he and his wife] watched television, from time to time we watched a program that was on Saturday evening.”²⁸ Further, he says that he sometimes used the radio to listen to football matches, seeming to be another *joyful memory*.

Negative Experience

Carl reports negative experiences with communicative technologies, mostly small *annoyances* like feeling held back to start a conversation in public, as many people are constantly playing with their phones. He expresses, that the television has little entertainment value for him, and is mostly used for the convenience of watching the news once a day. Apart from that, he does not recall many concrete memories concerning technology. To the interviewers' question whether his overall experience is rather positive or negative, he answers that his experiences were mostly positive. This is contradicting when looking at his overall stance. As he is asked about different technologies, it becomes clear that he has *little interest* in technology and frequently shows *indifference* about technologies, mostly mobile phones. He explains, that he does not recall his first thoughts about mobile phones and that he never planned to buy a mobile phone for himself. Next to that, Carl also has no answer when he is asked what possible advantages of mobile phones are for our society, seeing mostly a *lack of usefulness*. His usage of technology is mostly shaped by disinterest and *indifference* with little negative and positive experiences and memories.

Participant D – Daniel – 1952

Daniel is a 67-year-old male. He was asked to participate as he is close to the lower limit of the inclusion age and was known beforehand to use communicative technology regularly. Daniel was talkative during the interview and needed no probing. He told elaborate stories with much detail and incorporated a large variety of communicative technologies and other technologies playing a role for his life story. Daniel seemed to be comfortable around the interviewer from the beginning.

Adaptation

Starting in his early childhood, Daniel remembers that his family first owned a black and white television which he remembers *passively* “I do not remember [if the television was used much]. There were only two channels and as a little child I was not allowed to watch television and I can only remember ‘Tagesschau’ (the German news). Maybe I was already older, but kids were not allowed to watch television, especially not during the day.”²⁹ Parallel to that, Daniel faintly remembers a radio, or a music box which his parents used. When he was around ten or eleven years old, his family got a new television, stereo system and a telephone, frequently watching television with his whole family. The telephone, however, it was never used by him, being another *passive* memory: “I did not use [the telephone] at all, the communication took place in another way [...] you could not just call somewhere, most people did not have a telephone. And the children were not allowed to, it did not make sense. We made appointments with our friends at school and that was it.”³⁰ Daniels first experiences with simple computers took place while he joined the military service for two years when he was 20: “We were connected to a mainframe and I worked on the punched cards. That was my first connection with to computers

[...] we had to carry out orders with the punch cards.”³¹ During Daniels early adulthood, many innovations took place. He describes how he always tried to stay on top of things and *move with the progress* that was happening in the technology field. Daniel describes how he first had a tape recorder and portable radio, but that was replaced by cassette, which his small radio could not fit. The old televisions were replaced by newer ones: “The devices got larger and we could receive more channels.”³² As the old television could not receive newer channels, a new one had to be purchased. He got a stereo system for himself with many elements, a record player, tape recorder and tuner. These innovations continue all throughout his adulthood. His first computer was a notebook he bought a bit more than ten years ago. However, he rarely used his notebook: “I never really found a connection to the device. That did not happen until later when I got my first smartphone.”³³ Daniel bought his first phone about ten years ago and four years later replaced it by a smartphone. “Now I can do everything I want to do over the internet, like planning appointment over my smartphone, sometimes I do it on my notebook but not as much as I originally planned and doing it on the phone is more comfortable for me.”³⁴ However, he waited a long time before buying himself a smartphone after everyone else already had one: “I waited for a while after the smartphones were available on the market already. First, I was wondering if I really want and need all of that. And then I waited for quite a while to purchase a smartphone and use the internet, because I said: ‘I do not need that, I don’t even want it, I have a lexicon at home’. But then, at some point I realized: A. it makes sense to get one and B. those things get cheaper and it is not that big of a purchase.”³⁵ Daniel mentions that he sees himself as one of the *late adopters*, as he often perceives a *lack of usefulness* and does not see the necessity of getting the newest devices: “as long as I am satisfied with what I got I don’t see the need to get something new.”³⁶ His philosophy also holds for the quality of a device, i.e. phones: “The offer for my current phone was 259€, that’s the price we bought it for. But that is the upper limit for me, as I would say a phone of 259€ meets my demands. I do not need an Apple or the newest for 600€ or 700€, I am not willing to spend that.”³⁷ Even if Daniel does not see the necessity to adapt every innovation, overall he did *move with the progress* of technology all throughout his adulthood, even if he sees himself as somewhat of a *late adopter*. However, he refuses to waste resources like his time and money on smaller developments within these innovations *not* needing to *move with the process* of every small development.

Positive Experience

Throughout his life, Daniel has many *joyful memories* with technology, which are mostly taking place during his childhood and adolescence. Positive memories to him are mostly television and radio used for *entertainment purposes*. Some of his earliest memories include watching family shows on television: “regarding the television I can remember shows like ‘einer wird gewinnen’ und Peter Frankenfeld that we watched, that was the program on Saturday evenings. [...] and sometime when I got older I started watching shows during the week like ‘Bonanza’ and ‘Rin Tin Tin’ or ‘Lessie’ that were all shows I watched as an adolescent when I was older.”³⁸ Further than the television, he remembers his tape recorder very positively and with much *joy*: “It was fun listening to WDR2 ‘Hitparade’ and recording at the same time, and then I got angry when someone was talking in between and I had to delete it again. That’s how I spend my time for a while until the tape was full... and then I got sick of the songs and I deleted them again. I had my favorite songs and tried to let them on the tape and record around it, I still

remember that. There was one song from ‘Wonder Jackson’, I do not remember the title, but I left that one on the tape two or three times. Like I said, that was fun and that’s what I did for a long time.”³⁹ After the tape recorder, the cassette followed, and Daniel was gifted a portable radio. He recalls driving around on his bike with his friends, taking along the radio and listening to it all day as a way of *entertainment*: “We listened to the channels that the parents didn’t really want us to listen to like ‘Hilversum’ and ‘RTL’ those channels were more for the teens.”⁴⁰ Further, Daniel shows much *interest in technology*. Daniels early interest with technology were directed at cameras: “I started photographing early on, from the ‘Kodak’ and the ‘Aqua 12’ I have thousands of pictures. The cameras got better over time, the lenses were upgraded and then there were the small cameras, digital cameras. I experienced all of that and then parallel to that the smartphone came and replaced all cameras.”⁴¹ As he expresses a *general interest* in cameras, it was also important to him that a smartphone he would buy for himself had a camera meeting his standards. Due to this, Daniel took *interest* in informing himself about phones thoroughly before purchasing one: “I informed myself over the internet, read expert reviews by ‘Stifung Warentest’ and other magazines reviewing smartphones, whatever I could do as a layman. I read and saw what was important for myself. I would say to me the camera is important.”⁴² Daniel mentions several *practical* advantages the smartphone has for him: “I am always available, especially now in the car since it has Bluetooth. Further advantages for me are that I can always look up everything on the internet”⁴³ further he mentions “What I use most [on my phone] is planning appointment in the calendar [...] further I use the weather app [...] and most of all I obviously use it for calling and messaging over WhatsApp.”⁴⁴ He does not mention it explicitly but makes it apparent that the smartphone made many things easier for him as it is *useful* in his daily life. Daniel mentions several times during the interview that he uses his smartphone a lot for all kind of different applications, functionalities etc. which have made many things easier for him over the years.

Negative Experience

Daniel does not report experiencing many negative memories with technology. A small *fear* he developed about mis-operating computers took place during his military service while working on the punch cards: “The man responsible for sending out orders made a mistake with the columns. He had to order a few thousand of a small part for an airplane. But he made a mistake, so instead of ordering the parts with a 1.5cm diameter, they were 15cm. Those were specially made for us and it cost a ton of money. That are the mistakes happening when using punch cards.”⁴⁵ One thing that he mentions multiple times during the interview are small *difficulties operating* many devices. However, to him these are rather small difficulties. For example, he mentions that he lets his wife do online shopping for him as he does not know how to do it and also does not have the equipment for it: “She does the ordering and I get the bill but that does not matter. I do not need online banking as long as we are together, but when she can’t do it anymore, I have to think about what I am going to do.”⁴⁶ One thing Daniel mentions about the newest innovation: “A newer technology we have is the ‘fire stick’ but I do not occupy myself with that. I am glad that I don’t have to learn how to use that thing, I always confuse the buttons. In that matter I am consequent: I let someone else do it for me.”⁴⁷ A risk that Daniel sees in phones is that it is easy to lose count of the time you spend on it: “The biggest disadvantage for

me is, if you are not disciplined, you can spend a lot of time on it, listening to music and playing games.”⁴⁸

Participant E – Ella - 1951

Ella is a 68-year-old woman and was asked to participate in the study as she is on the lower age limit of the target group and was known beforehand to have worked in the field of information technology from an age in which communication technology was not very wide-spread and slowly started developing. Ella needed no probing at all and answered all questions with detail and elaborate on stories and examples. She did this from the very beginning of the interview and seemed passionate about the stories she told. Ella seemed to have trust in the interviewer which mirrored in her detailed and personal recollection of memories.

Adaptation

Ella explains that her family was rather *late* in *adapting* electronic devices during her childhood: “When we got a radio and a television I think I was already ten or eleven, we bought a radio when I was thirteen or fourteen.”⁴⁹; “we had a huge box with everything in there, the television in the middle, a radio and a record player in both sides [...] the box was more of an ornament, standing in our good room which we only used when we had guests over, maybe sometimes on the weekend.”⁵⁰ Ella puts emphasis on the fact that those devices were not meant for her and generally rarely used by her family. Until she was an adolescent, she only experiences the mentioned technologies *passively*. “I think I only started watching television once I was fifteen or sixteen. At that time, we also had a telephone, but we did not use it, every unit cost a lot of money. You couldn’t just call at that time.”⁵¹ At the age of 20, Ella got pregnant and moved into her own apartment. According to her, she only started developing an *interest in technology* after discovering it for herself, independent of her parents: “For me, it was a different kind of development, I had a telephone relatively late, because I left my childhood home so early. And because I had my own devices at my house, I was almost twenty. I did not learn that because of my family. My mother died early and through my family I did not have those developments. That was not imaginable, at home it was an advancement that we had a telephone.”⁵² Soon after she continued her education and started working in IT: “I started my training in data processing, it was not a PC that I used, but it had different functionalities. Those functionalities were fitted to the company, that were the next steps in which I gathered experience with new technologies.”⁵³ Ella explains, that her career caused her *interest in communication technology*, especially in innovations taking place while she was working in the field. Through her *use at work*, she was forced to stay on top of things and learn how computers work. Due to this she not only gained knowledge of how computers work but also other technologies that came with it: “within that area many other things were connected to it, for example the fax machine. We also used punched cards [...] with the fax, you also needed a printer.”⁵⁴ Within the development of computers, Ella saw many innovations first-hand: “we worked on a computing machine, it was more of a terminal, and the terminal was connected to the university, and the computer was connected to a dedicated line, it was connected with a cable. Then you had to sign in and wait until the line was available, before that you couldn’t do anything. Then we could control all our work, like a multiple-choice computer with question and answer and so on. But that wasn’t on

a screen, it was all on a console which needed paper. Others used the 64k Commodore for playing games and we used a 64k computer for billing and accountancy. That was not a lot, during that time we turned around every bit and byte to use it [...] after that I studied IT and we used the first computers with screens, it was not a PC yet but it had a screen with 80 digits [...] you could see a bit more on screen instead of seeing it on paper. With real PCs, it began around 1989 or 1990. With those we could also log in to a data center over a dedicated line [...] I believe in 1992 we had the first stand-alone PCs [...] the first connection to the internet was in 1995.”⁵⁵

For personal use, Ella was fast to purchase her first personal computer as well, being an *early adapter*: “I bought my first own computer in 1994 or 1995, that was a PC with Colani-design, back then that was a term. And next to that I had a connection to the internet, everything was slow, and we did not have Google, but we could get in over the ‘Telekom’.”⁵⁶ After the computer, Ella bought a cellphone around 1997, *adapting early* and fast to new technologies “In my friend group maybe I was the first one [to adapt]. I was always there from the beginning, that still is the case.”⁵⁷ The cellphone was purchased by her, as she and her husband were building a house. At that moment, they did not have a telephone anymore and Ella wanted to stay connected to the architect during the process of building their house, making *practical use* of her first cellphone. Since then, she bought a new phone every few years, as she was *interested* in the developments and always wanted to try out new innovations, always *moving with the progress*. Nowadays, Ella uses her smartphone frequently and is always interested in new and improved technologies. Over the years she purchased new televisions and tried out more gadgets, like the Amazon fire stick. Overall, Ella’s childhood was mostly characterized by late adaptations and passive experiences of technology, which changed once she started working an IT job. Much of her adaptation to technology happened only due to this. During her adult life, she describes much interest in developments, early adaptation and staying on top of news about innovations.

Positive Experience

Ella does not mention any vivid or positive experiences with communication technology during her childhood. She does show much *interest in technology* nowadays, which was first sparked once she started working a job in the IT field. About gaining a deeper understanding of how computers work she says: “For me it had the advantage that I could always say I know exactly what [the computer] does and why he does it [...] that gave me a lot of joy. I liked working with it and I worked in that domain for many years.”⁵⁸ Her positive experiences and interest are not as much engrained in the entertainment aspect of technology but instead in the technical characteristics, the *practical use* it has: “When I think about it, taking the Commodore for playing games I was not interested in. In the technical part however, I was and that was not only the computer itself but all the things you needed for it. A reading station for the tapes or a printer, I experienced all of that.”⁵⁹ One of Ella’s most cherished memory is her old PC. She describes that the computer is the only devices she trusts enough in to use for important financial matters, it gives her a *feeling of safety*: “I still have the Stand-Alone computer, which means everything to me. It is some kind of treasure to me, and I protect it with everything I got, because many things I only do over that computer.”⁶⁰ Nowadays, Ella experiences technology as something positive for many *practical reasons*. She uses numerous applications on her

smartphone daily: “I don’t need the brochures from ‘Aldi’ anymore, I can just use the app. And another advantage I see, there is an app for public transportation. That means I am standing somewhere and want to go somewhere else and it tells me which bus I should use [...] That is really great when I’m standing in (*city*) and I have to go somewhere else.”⁶¹ Further she implies *usefulness for our whole society*: “The trend takes the direction of ordering more online, because there are larger companies who offer it. As for the supermarkets, ‘Rewe’ and ‘Edeka’ offer it as well. We ordered something online from ‘Penny’ a while ago because they did not have something in the store.”⁶²; “even when it cost 5€ shipping, it is easier than driving to (*large city close by*) and maybe I do not even get it there.”⁶³

Negative Experience

Ella’s only negative experiences with technology are little *annoyances* which had to do with the fact that technology was only slowly starting to develop, one situation is concerned with cellphones during the end of 1990: “I usually called a lot but also had to send SMS because there were a lot of dead zones when I started with ‘E-Plus’, they did not have very good reception in rural areas.”⁶⁴ She made similar experiences with the first Wi-Fi connections: “We got Wi-Fi maybe 12 years ago [...] at the beginning the connection was really, really bad. First it was slow for a long time and then it also had a lot of interruption.”⁶⁵ Ella also remembers her struggles and *annoyances* with older cellphones: “The memory space was quickly filled, they filled half of the storage space with the operating system and there was not much left after having an application that took a bit more space [...] then I paid attention that my next phone did not only have 2GB but 4GB. And now I would say I want at least 64GB.”⁶⁶ Ella has not yet made any negative experiences with security issues, but because of her deeper rooted knowledge of how computers work, she *fears* the possibility of data leaks and hacker attacks: “back in time the security software was not as important as we had dedicated lines or you dialed into the line to get a connection [...] like that you did not even plug you PC in but actually dialed, without making a connection. You had a box, connecting to the PC and that’s how you got a connection [...]. My computer is extremely important to me, it still has its dedicated line and I trust in that. And I use online banking only on that computer.”⁶⁷ Ella mentions that it is too risky for her to carry out money matters over Wi-Fi, or even over her tablet, which has been connected to different Wi-Fi networks at this point, adding to her *fears*: “I’m not sure if my tablet would still be secure if I would use a hotspot somewhere, when we are on vacation. Even though I have security software on it I don’t want to do that.”⁶⁸ Another precaution Ella’s takes is to protect herself in any way possible from online crime while online shopping: “I use it in a different way, I pay over PayPal, which is connected to my credit card and only then the money is taken from my bank account.”⁶⁹ Even on her phone Ella uses a safety software. This, however, slows down her phone quite a bit, but she does not want to risk having an insecure phone. “The hackers get more creative and they always have the advantage of being one step ahead of the security software.”⁷⁰ Another *fear* of hers is similar to current discussions about devices like ‘Amazons echo dot’: “I know we are progressing and that is fine for me and I won’t resist, but I would also like to switch off ‘Alexa’ and say ‘you do not have to listen to everything I say’. Because that is confirmed at this point, that she records everything, if that is conscious or unconscious I don’t know.”⁷¹

Participant F – Frank - 1947

Frank is a 72-year-old male and the only participant who was not recruited directly but through other family members. He was asked to take part in the study, as he was described to be well-adapted to communication technologies. Frank was the least known from all interviewees as he was a distant family member, and this showed in the interview. He was not very talkative needed a bit probing at the beginning of the interview but quickly got more talkative and comfortable. During the interview, he told many stories but did not always elaborate much.

Adaptation

When he was about ten years old, Frank remembers that his family owned a radio and a television. While the radio was only used by his parents to listen to the news which he remembers *passively*, he remembers the television more vividly: “During my childhood we also watched shows, there were not many shows for children that early [...] the television only started in the evening, at least in the midday we did not watch television, then we were outside to play.”⁷² After that, he does not remember any technological changes taking place in his family’s household. The telephone followed as a relatively *late adaption*: “we only got it after we married [...] that was around 1968, that’s when we got the telephone.”⁷³ Frank says that the telephone was used rarely by him or his wife and explains that this is still the case today. Around 1980, his children were at the age where they wanted a console. During this time, Frank was experiencing the most current technology *passively*, as he was not as interested in it: “It started with the children, we had a C64 computer [...] that was only our children. I myself did not play with it. [...] I did not get involved much and I never found a connection to the games.”⁷⁴ Later, an *adaption through his job* followed, in which he was familiarized with the first computers: “We started working with computers in the company and the first ones we had were three 83er PCs, the first ones with the corresponding business software [...] I worked a lot on it. I had a program called ‘Designer’ and I did all the Excel record-keeping and the documentation for our devices.”⁷⁵ He explained that he did not take much notice of technology before that time: “[My interest] first started while I was at the company. That’s when PCs were first used and before that I did not have much of a connection to computers. The technology really started then and it’s also the foundation for modern smartphones.”⁷⁶ During that time, Frank also bought a computer for personal use: “I also had my own computer, but I did not use it as much, maybe a bit but not as much as now. At work it was exhausting and then I did not have the patience to do use it in the evening.”⁷⁷ In 1995, Frank remembers getting his first cellphone, which he considers an *early adaption*: “It was a phone from the company [...] when I was traveling and doing customer service I did not use it that much but I also went to a lot of exhibits and then I needed the phone to be available.”⁷⁸ Frank showed *early interest* in smartphones, once they became available: “[My first thoughts were] that you could do a lot with those, the functionality was extensive. You could do data-communication over the first smartphones, not as much as today, but it was the beginning.”⁷⁹ Around 2005, Frank became drawn towards Apple devices: “First I had an iPod [...] I used it a lot over Wi-Fi in the company to exchange data and so on. Then my first smartphone followed, the 4c.”⁸⁰ After that many improvements followed, and Frank *moved with the progress* to stay on top of the change. Over time he bought newer iPhones and started using a tablet. Franks newest interest and additions are a few ‘Amazon Echo Dots’ he has standing all around his house, connected to his iPhone 7,

the lights, his rolling blinds and a lawn mower. He shows much curiosity and *interest in innovations*, according to his, this interest and consequently his usage has increased over time.

Positive Experience

Frank remembers technology positively during his childhood and teen years, especially the television. He describes the memory that his neighbors, who were his age came over every evening: “We lived in a cottage in (*city*) and we had neighbors who lived about 500 meters further, they came over almost every evening to watch television with us [...] there was a time in which the family shows were on, and then we always had that, when the show was on, the neighbors came over.”⁸¹ The time he spent watching television was always time spend with his family or neighbors, he remembers it *joyfully*: “the first shows, one was “schöner Mann” that was a show we watched at that time, a family show.”⁸² The way he describes this, it seems more like an activity bringing everyone together, rather than hindering community. Frank describes the *joy* he had working with Excel for his job, this *interest* persists until today: “The communication now, and what I do with data exchange, with Excel is a lot, e.g. for my (*club 1*) I do all the management of the things we do, the accounting I do on Excel. I make a table and put in the names of the players and it automatically calculates what everyone has to pay. [...] I already worked a lot with Excel at the company, that’s it brings me joy, I am also working a lot with Word. For (*club 2*) I am making the program brochures.”⁸³ This is not only making him happy as he enjoys doing it, but he also looks at it like being a *practical purpose* of using technology. Nowadays, many of Franks positive experiences are related to smartphone “The smartphone is something I enjoy and that’s why I constantly read news about current innovations and so on, that is something that interests me.”⁸⁴ Overall, Frank describes his *interest* to be engrained in technologies which can bring his practical support in everyday life. He describes that many smart devices are in use in his home, a current example being his lawn mower: “The lawn mower works over Wi-Fi so I can steer it [over my phone]. I programmed it for this week when I’m not home from Wednesday on and it needs to know everything. You don’t have to do anything, and it drives for two hours.”⁸⁵ These gadgets make Frank visibly happy and *joyful*, as he shares his experiences with much enthusiasm. Frank never had problems with technical difficulties, he proudly tells: “It was extremely rare that I needed help from one of my children. Nearly every time I managed to install it myself. Alexa and all those things connected to our router, I managed to make it work on my own.”⁸⁶

Frank insists he never made any negative experiences with communication technology, his experiences with technology are entirely positive as he never had difficulties with use or experience any anger, annoyance or fear related to technology.

Summary and Comparison of the personas

Comparison: Adaptation

Alexander and Carl report *late adaptation* and *passive experience* of basic communications technology, i.e. radio, telephone and television during their childhood and into their twenties. Devices were - and still are - mainly used by them for *practical reasons* or because of a *necessity to adapt* to these. While Carl did not use any technology apart from the mentioned devices, Alexander familiarized himself with some other electronics during his adolescence and early adult years. Alexander still describes himself as a *late adopter* today, only adapting new

technology when he sees the necessity to do so. Meanwhile, Carl can be characterized as a non-adopter, explaining no intent to use recent innovation i.e. cellphones. Similar to that, Bea describes *passive experiences* with technology early on as well, with the difference that she describes her family to have *adapted technology early*, generally spoken. However, much like Alexander and Carl, these devices had a practical meaning for her and her family. One pattern that is found to repeat at least twice in Beas life story, once in her childhood and once in her adulthood, is a *regressive use* of technology as she a device does not provide any usefulness anymore. Bea also describes that she never considered herself to be an early adapter, as she mentions that she never was and still is not the first person to want the newest innovation. Contrary to these three life stories, Daniel reports a more active experience with technology during his earlier life. He does recognize that during his childhood most technology was used by him rather *passively*, but once he was an adolescent, he showed curiosity in evolving technology and moved with the progress of discovering new technology. Nowadays, Daniel still stays on top of the development regarding technology but would not describe himself as an early adopter nor as a late adopter. Ella describes, just like Alexander and Carl, much *passive experience* with technology during her childhood and *late adaptation* in her family. However, after being required to adopt to technology due to the career choice she made in her early adulthood, her adaptation patterns changed. Since that time, Ella describes her as more of an *early adopter*, always staying on top of developments and showing *early interests* in innovation. She describes these patterns as persisting during her whole adulthood until today. Frank tells a story very similar to Ella's. However, unlike Ella, during Franks childhood more technology was around, and he remembers it more actively. Just like Ella, Frank was later required to adapt some newer technology through his job. Independently of his job, he sustains a pattern of *early adaptation* to technology throughout his adult life, with an *early interest*, established during the time he started working with technology due to his job. This *early interest* in innovation, he still finds to be present in his recent patterns of adaptation.

Comparison: Positive and Negative experiences

One pattern that can be found in the older adults which are not using much communication technology today, i.e. Alexander, Bea and Carl, is that most their positive experiences with technology took place during their childhood and early adulthood while their negative experiences have been taking place during the recent years and are still continuing. All three of them mention positive experiences with the television through their adulthood. Furthermore, Alexander and Bea describe *joyful experiences* with other technology, i.e. tape recorder and record player. Neither of these three participants report many positive experiences with technology during the recent years. However, negative experiences are frequently mentioned, with all three having complaints about phones being over-used by the youth and other adults, causing them to be *annoyed*. Furthermore, Alexander and Bea describe much *difficulty of use* and some *fear* and *anger*. However, Bea also had negative experiences during her early adulthood, resulting in a *fear* of electronics that she relates her current aversion of some devices. While she seems to make this experience at least partly responsible for her non-adaptation of newer electronics, Alexander describes that even though he enjoyed using communication technology during his early adulthood, this was only a small part of his life. Due to these positive experiences, he knew about advantages a cellphone could provide for him.

Nevertheless, he explains that his attitude stayed the same over the years, never needing the newest technology and making use of communication technology to a limited amount. Carl mostly shows *indifference* about communication technology. He mentions little memories at all as technology did not play a significant part in his life. According to him, his frequency of use of technology stayed stable over the years. As Carl is the only participant who does not use a cellphone, it can be theorized that his lack of past positive and negative experiences can be related to his use of cellphones insofar that he mostly still is unbothered by technology, not seeing any advantages it could provide. In contrast to that, Daniel, Ella and Frank all use smartphones frequently nowadays. Daniel described *early interest* in many devices starting in his childhood and adolescence and lasting all the way though his adulthood. He says that he is mostly interested in technology as makes his life easier and it is *practical* to use in his everyday life, but he never did waste much time getting entertained. These practical motives are the reason that he owns a smartphone nowadays, also explaining why he is not particularly interested in always owning the newest devices if what he owns suffices for his practice. While Ella – unlike Frank - did not have many positive experiences with technology throughout her childhood, both relate their frequent use of phones nowadays to many *joyful experiences* with technology engrained in their careers. Here it seems that Daniel, who was mostly *interested* in the *entertainment* part of technology is less adapted to technology today than Ella and Frank who invested extensive time into getting to know technology in depth due to their jobs.

Conclusion and Discussion

How do schemes of adapting technology recur throughout the life stories of older adults?

Reflecting on the diffusion of innovations theory, adopter patterns can be recognized for the six participants. Here Ella and Frank would classify as *early adopters*, and Ella would maybe even be defined as an innovator, considering she worked with computers during the beginning stages of the development and experiencing many advances first handed. Daniel could in some cases be categorized as the early majority, in the recent years more as the late majority. In contrast to this Alexander, Bea and Carl can be identified as laggards or *late adopters*, not including some exceptions. Generally said, adaptation patterns present during childhood and early adulthood are found to persist throughout life stories of the participants of this interview. Here, the usage of communication technology during early adulthood seems to relate to usage of technology for all of adulthood, just like suggested by Sackman & Winkler (2013) in their model of 'technology generations'. Meanwhile, patterns during childhood and possibly conveyed through the family do not seem to have an effect. Participants who reported using little technology during their early adulthood still report *lack of interest* and adaptation concerning current technology. The two participants who report familiarizing themselves thoroughly with technology due to working in the field of IT and working with IT-related software still show *early adaptation* patterns and *early interest* in innovations.

How do older adults relate positive and negative experiences with technology throughout their life to their current use of phones?

In the group of participants, positive and negative memories have a wide variety of different meanings to the individuals. Most of them consider some kind of *entertainment, joy* and *feelings of safety* to be positive memories, while negative memories were usually connotated with *anger, annoyances, difficulty of use* and *fear*. On one side, a trend that can be seen is that the participants who rarely use cellphones and technology today seem to have positive experiences with communication technology throughout their earlier years but progressively report more negative experience. On the other side, a frequent use of cellphones and communication technology in the current years is found to be related to positive experiences with technology in the early adulthood. This seems to be reinforced by an extensive curiosity in functionalities of technology and an *interest* reaching deeper than the entertainment part of communication technology. It is concluded that a deeply rooted interest in the functionality of technology early on has a positive effect on later use of phones.

Theory

Diffusion of Innovations

Relating the result back to diffusion of innovation theory, it can be seen that for most technology mentioned, nearly all interviewees can be sorted into one of the five categories as proposed by Rogers (2010). However, one participant is found to be an exception as he never owned a cellphone and is not planning to purchase one. Diffusion of innovations does not account for individuals who are not adopting a certain innovation at all. Failed innovations, meaning an innovation that has not been adapted by 100% of the population has been shortly thematized by Rogers (2010) but this (non-)adaptee group has never been added to the original bell curve. Further, it seems that the categorizations are relatively stable with regards to different communication technology throughout the lifetime of an individual, starting during early adulthood. Most participants who report that they used to be one of the first ones to purchase new technologies mention that they are still fast to get new technological developments, relatively to their peers. Based on the theory, it is most likely that diffusion patterns apply mostly to single innovations standing on their own. However, as there are countless new developments in the field of communication technology, it is hard to make a statement on the general lasting adaptation pattern. This is the case as it gets increasingly hard to estimate actual numbers of adaption since many technologies are closely related. As an example, nowadays smartphone, tablet and laptop can be used almost interchangeably, as the functionalities are closely related. If an individual was an early adopter of tablets but does not own a laptop, he would in theory be in the category of laggards regarding his adaption of laptops but an early adopter in the category of tablets. This, however, does not seem correct as both devices are relatively similar and can be used for executing the same tasks. If both devices are looked at as one larger category, the next question is whether smartphones should also be included in the same category. This thought can be continued almost endlessly as many technology devices nowadays are overlapping. This problem sustains, unless communication technology as a general innovation is looked at in the light of this theory. Arguably, an approach like that would

carry new problems. As illustrated by this example, it becomes clear that it is difficult to sort individuals into one category of the diffusion of innovations theory.

A last thought regarding the theory is that it does not account for regressive use. The last step of the adaptation process according to Kaminski (2011) is the continuation of usage. As one participant reported, she used a cellphone due to it adding to her perceived safety when traveling alone. She was somewhere between the early and late majority to adapt this. After not traveling by herself anymore, she stopped using her phone. The question that stays unanswered is which adopter category she can be sorted into now after using the phone for a short period only.

Therefore, it becomes clear that the general adaption patterns can be tracked by the theory, however, in practice it can become difficult to use these categories as reality deviates from the theoretical framework accounted for by the model.

Technology acceptance model

When relating the findings to the *Technology Acceptance Model*, coherence between theory and results can be found. As described earlier, perceived usefulness and perceived ease of use to be the two important variables influence the attitude towards technology and therefore also willingness to use it (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989). This can be affirmed by the findings. An example would be the second participant, Carl, who perceives moderate usefulness and low ease of use, causing him to form a mostly unfavorable attitude, and therefore reducing his intention to use technology. In contrast, the last participant, Frank, perceives communication technology to have a high perceived usefulness and high ease of use, causing him to have a positive attitude towards communication technology, making an intention to use it more favorable. For him, this eventually results in actual system use. Similar implications are found for the other participants. However, in Davis (1989) only defines usefulness in terms of how effective the device in question is regarding its convenience for a job. Here, it is only assumed that usefulness stands in relation to the benefits it can provide for the user at the workplace. Based on the results that were found, it can be said that the model also holds for private use of technology. Usefulness can be defined in terms of e.g. *entertainment value* or the *perceived safety* it provides. This claim would be undermined by another study conducted more specifically on the use of communication technology in relation to the Technology Acceptance Model. Conci, Pianesi, & Zancanaro (2009) have been investigating the mobile phone adaptation in older adults above 65 years and used the gathered data to expand on the *Technology Acceptance Model*, namely the ‘Parsimony TAM’. In addition to *perceived usefulness* and *perceived ease of use*, added variables are *perceived safety*, *enjoyment*, *mobile phone support*, *self-actualization* and *social influence*. This model includes variables that are also be found to be significant in this paper, but also includes some others that go past the extent of this research.

Technology Generations

One finding that was retrieved from every individuals story is the assumption that patterns of adaptation which continue relatively stable throughout an individual’s lifetime are first established in adolescence and early adulthood. The participants often reported little adaptation and interest in technology during childhood and much interest in technological innovations

beginning with the youth or adulthood and vice versa. This can be supported by the claims by Sackmann & Winkler (2013) as mentioned before. The assumption is that individuals of the ages 15 to 25 are the ones included into a new technology generation as an innovation crosses a certain threshold. Therefore, it is assumed that adolescence in this age span are prone to be the adopters of these innovations. According to the theory, a generation can therefore be defined by the technology prevalent and developing during the late teens and early twenties.

Compared to the findings of the interviews, the model of technology generations displays generations as relatively homogeneous. There generation thematized in this paper and interviewed, is considered the *electromechanical generation* are said to have difficulties adjusting to complex interfaces as described by Sackmann & Winkler (2013). Here, no differences within the generation are thematized, sustaining a stereotype of little adapted older adults. The interviews paint a different picture that shows more variety within the generation. Obviously, some of the interviewees fit the description given by Sackmann & Winkler (2013) well, but on the other side, at least two participants describe little to no complications with the use of communication technology throughout their lives.

Limitation and strong points

Several factors possibly intervening and improving reliability and validity of this study can be identified as follows. Firstly, the sample size chosen for implementing the interviews is relatively small, even for taking a narrative approach. Accordingly, conclusions are drawn from individual stories and it can be difficult to generalize based on anecdotal evidence. The individuals that were interviewed give a great overview over how much difference in opinions and interest there can be regarding communication technology within one generation. Considering the small size of the sample, a relatively diverse sample was chosen, with a diverse age range and participants beginning at late adopters with virtually no adaptation to modern technologies, ranging towards early adopters who are well adopted to current innovations. Further, due to the little number of participants it was possible to gain insight into detailed stories and backgrounds, providing much initial insight into this rarely investigated topic. However, the all participants have relatively similar demographics as they all share one ethnicity and come from the same region. Further, no participant seemed to be socio-economically disadvantaged. Therefore, the participants chosen are not very different in terms of demographics. Next, a semi-structured interview was chosen in favor of customizing the questions to each participants story. This also means that some participants were asked questions which others were not asked, and therefore it is possible that knowledge was gained about one person, but not another. This can be a problem when comparing the participants, as the interview was steered in different direction and there might be more information available on certain experiences for some participants over others. It is important to consider, that all participants were family or acquaintances of the researcher, leading to possible biases. This bias can take two different directions, one being that the participant might feel withheld to share private information in fear it affects the further relationship with the researcher. However, it might also be the case that participants feel more comfortable talking openly around someone they know. The impression the interviewer gained was that the participants were comfortable with the interview situation and openly talked about their experiences from the beginning, however, the exact effect of this possible bias stays unknown. Furthermore, all interviews were

conducted in German and quotes were translated to English only when used in this paper. This is a limitation insofar that words and phrases originally used by the participants might lose their meaning in the process of translation. The content of stories that were captured might deviate from the originally intended meaning of the participant. Another strong point is that the analysis and coding scheme have an acceptable internal validity, as the same coding scheme could be applied to all participants with little discrepancies and a method of constant comparison has been practiced. The coding scheme was changed as inconsistencies were detected, achieving an internally valid structure. A further problem can be found with the reliability of the coding. No external reliability has been established, especially considering the lack of interrater reliability, the coding scheme could be biased by the researcher's subjective opinions. To counteract this, it was attempted to keep the coding process as transparent as possible for the reader to follow the process of the steps that were taken and the decision that were made. Lastly, due to little previous research, there might be problems with the conclusion. It remains unknown which direction relations take, whether there are any unknown underlying patterns or factors which are not known playing into causations.

Suggestions and Implications

In the next step, based on the initial interview, the interview questions could be slightly adjusted, after insight is established on topics that need more attention to make a proposal for additions to the theories. The interview could then be conducted again on a larger sample size and based on a more structured interview. The larger sample size and a standardized interview scheme could lead to more accurate and generalizable results. Based on these interviews, an improved coding scheme could be established. Further, a more diverse sample should be created by including participants from different cultures or countries and including participants with a lower socio-economic status, namely less educated and poorer individuals. This could provide insight into how different cultural backgrounds and income influence adaptation and use of technology. Hereby, improving validity and reliability should be an additional focus.

The results have the following implications for theoretical research. Firstly, some patterns of technology adaptation were discovered in the course of the research. Patterns seem to differ for individuals taking interest in the entertainment part of technology and individuals interested in the technical and practical parts of technology. These differences might have implications for models determining the interest in communication technology for future generations. Findings are difficult to be supported by *diffusion of innovations*, as the focus of this theory is not specifically on communication technology. With the wide range of developments of innovations, it is tough to account for all adaption patterns with this framework. It is recommended that based on the *diffusion of innovations* a theory more specifically to capture diffusions in communication technology is designed. Further, the *Technology acceptance* model captures the reasoning behind adapting new technologies very well. The model does hold for private use of communication technology, even though it did not originally account for this. Considering this, including private usage would expand *usefulness* as a predictive factor for use by other items not related to the work field. Lastly it is suggested to include a wider array of generations into the *technology generations* or do more research on differences between individuals of one generation. Communication technology is vastly changing in a short period of time and it becomes very difficult to group people born up to thirty

years apart into the same generation as individuals within this group are shown to have widely different experiences.

In practice, this knowledge could be useful for marketing purposes. Insight about reasons for (non-)adaptation of technology, especially considering the low adaptation rates of adults above the age of 65 to smartphones can be further investigated. This knowledge could be used to optimize smartphones and marketing strategies. The goal would be to make smartphones more useful and more attractive to older adults in order to achieve higher acceptance rates.

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Appendix A

Interview schedule

Research question: “How do older adults relate positive and negative memories with technology in their earlier life to their current use of phones?” This question is broken up into three parts. The first part is concerned with “positive and negative memories with technology in their earlier life”, the second part with their “current use of phones” and the third one connects these two by having the older adults themselves relate the different memories and attitudes.

First part:

The questions of the first part are used in order to investigate the older adults positive and negative memories with technology although their lives and specific for every “technological stage”.

1. Thinking of your life as a book, what are the chapters of technological change you went through?
 - a. Name about two to seven chapters and say a bit about each chapter.
 - b. Shortly explain the change that happened
2. For every chapter:
 - a. Try to think of a positive memory
 - b. Try to think of a negative memory

Second part:

This part explores the older adults’ memories, experiences and attitudes towards phones specifically. The goal is to explore when and how their use of phones started, how it changed, their frequency of use and what it is used for. These questions are giving more insight into their current use of phones.

3. Now, focusing more specifically on phones:
 - a. What are your earliest memories about phones?
 - b. Elaborate on your thoughts and attitudes regarding phones since they were introduced to you.
4. Please describe a memory regarding phones that especially stands out in a positive way.
5. Please describe a memory regarding phones that especially stands out in a negative way.
6. Do you own a phone? If yes:
 - a. When did you purchase it?
 - b. What were your most important features the phone should have?
 - c. How much were you willing to spend?
 - d. Where and how did you buy it?
 - e. How frequently do you use it?
 - f. What do you use it for?
 - g. Did you own several phones throughout your life?
 - i. How long did you use each?
 - ii. At what point and why did you decide to get a new phone?
7. If you don’t own a phone:
 - a. Did you ever think about getting a phone?
 - b. What were some reasons for you not to get a phone?

- c. Do you see advantages of getting a phone?
- 8. What are your opinions on phones?
 - a. What would you consider to be advantages?
 - b. What would you consider to be disadvantages?

Third part:

The third and last part is aiming to explore how the adult makes sense of their use and attitudes over time. This investigates the way the older adult him or herself relates his or her experiences between early memories and current use, combining the first and second part

- 9. Looking back over your entire life story with all its chapters, scenes, and challenges, and extending back into the past and ahead into the future, do you discern a central theme, message, or idea that runs throughout the story? What is the major theme in your life story? Please explain. E.g. were you always consistent in your use of technology (early or late adapter) or did your attitude change throughout time?

Informed consent

The purpose of this research is to investigate how older adults relate positive and negative experiences with technology in their early life to their current use of phones. You will be asked questions regarding your use, attitudes, memories, and experiences with and towards technology. The questions are based on the life story interview by McAdams (2008).

During the interview, you will be audio recorded. That data will then be transcribed and used for research. Your data will be stored confidentially, and the voice recording of the interview will be deleted as soon as the interview has been transcribed and all personal and identifiable data have been anonymized. After the anonymization, your data cannot be rectified or withdrawn.

Quotes of you might be used in the report after being anonymized and identifying information is eliminated.

This research has been reviewed and approved by the BMS Ethics Committee. Their contact information can be found below, and they can be contacted regarding concerns about this study.

You have the possibility to withdraw from this research at any point during the interview for specified or non-specified reasons.

For any further questions contact the researcher, supervisor or the institution:

Researcher:

Stefanie Scheckelhoff - s.scheckelhoff@student.utwente.nl

Supervisor:

G.J. Westerhof - g.j.westerhof@utwente.nl

Secretary of the Ethics Committee of the Faculty of Behavioral, Management and Social Sciences at the University of Twente - ethicscommittee-bms@utwente.nl

Consent Form for Stories of Technology

YOU WILL BE GIVEN A COPY OF THIS INFORMED CONSENT FORM

Please tick the appropriate boxes

Yes **No**

Taking part in the study

I have read and understood the study information dated [DD/MM/YYYY], or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.

I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.

I understand that taking part in the study involves an audio recording that will be transcribed.

Use of the information in the study

I understand that information I provide will be used for a bachelor's thesis that will be published on the website of the University of Twente.

I understand that personal information collected about me that can identify me, such as [e.g. my name or where I live], will not be shared beyond the study team.

I agree to be audio recorded.

Signatures

Name of participant

Signature

Date

I have accurately read out the information sheet to the potential participant and, to the best of my ability, ensured that the participant understands to what they are freely consenting.

Researcher name

Signature

Date

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Secretary of the Ethics Committee of the Faculty of Behavioral, Management and Social Sciences at the University of Twente by ethicscommittee-bms@utwente.nl

Appendix B

Adaptation	
Early adaptation	The interviewee is using technology early, relatively to peers
Early interest	The interviewee is interested in using technology early
Late adaptation	The interviewee is using technology late, relatively to peers
Moving with the progress	The interviewee purchases new technologies as technologies are evolving or keeps up to date with technology-related things
Necessity to advance	A situation in which the interviewee was forced by outside influences to adapt technology
Not moving with the progress	The interviewee did/does not want to purchase new or improved technologies
Passive experience of technology	Technology used by someone in the interviewee's close surroundings, but not actively used by the interviewee him- or herself
Regression	A regressive use of technology
Use for work	The interviewee use of technology was/is related to their job
Positive experience	
General interest in technology	The interviewee is interested in technology generally
Joyful experience	Interviewee experienced a technology in a joyful way or talks about a happy experience
Feeling of safety	The interviewee gets a feeling of safety by using technology
Negative experience	
Anger	Anger as a reaction to the use of technology
Annoyance	The interviewee is annoyed by a technology or the consequences its use has in society
Difficulty of use	Interviewee finds it difficult to operate the technology
Fear	Fear caused by technology or by events standing in connection with technology
Neutral experience	
Indifference	The interviewee does not care about technology or never thought about it
Lack of interest	Interviewee experienced a technology but was not interested in using it
Lack of usefulness	Interviewee sees no or limited use in technology
Use for entertainment; frequently	Technology is used for entertainment purposes, very frequently
Use for entertainment; limited	Technology is used for entertainment purposes, but very limited
Use for practical reasons	Technology is used because it makes the interviewees life much easier, but not used for entertainment purposes
Usefulness; general public	Interviewee sees usefulness of technology for the general public. This does not necessarily include perceived usefulness for the interviewee him- or herself

Appendix C

Alexander

¹ “Telefon haben wir aber auch erst später gehabt. Wir sind erste Mal zum Nachbarn gelaufen, wenn wir telefonieren wollten, wie wir jung waren, 16 da hatten wir noch kein Telefon da bin ich immer zum Nachbar gelaufen, wenn ich in (Heimatstadt der Ehefrau) anrufen wollte.“

² “Ja später haben wir das gehabt, das war mit einer Wählscheibe man musste den Hörer erst abnehmen. [...] [telefonieren] tat man einfach nicht, man hat einfach nicht telefoniert, nur bei was Wichtiges und sowas dann hat man mal telefoniert, wenn mal was war. Ich weiß jetzt nicht wie teuer eine Einheit war, aber verhältnismäßig war das teuer.“

³ “Von 2000 bis 2010, da habe ich das meiste gebraucht, das Handy nur wenn es nötig war nicht für jeden Scheiß habe ich angerufen, eben mal mitteilen.“

⁴ “Also das war dann auf jeden Fall sehr nützlich das Handy, dass du eben mal schnell wo anrufen konntest, wenn was war.“

⁵ “Ne würde ich gar nicht mehr benutzen wollen in meinem Alter, da muss man mit groß werden, ihr könnt damit spielen aber wir nicht.“

⁶ “Ja wir haben Platten gekauft und dann haben wir den gespielt. Ja also mehrere Jungs zusammen mit den Freunden haben wir das gehört.“

⁷ “Ja wir sind früher erstmal viel in die Wirtschaft gegangen Samstagabends und haben dann zwei Stunden Fernsehen geguckt, wie es noch kein Fernsehen gab in Privathaushalten und wie wir dann in die Privathaushalten gingen sind wir auch nicht mehr in die Kneipen gegangen.“

⁸ “Wie heißen die alle noch, so Komödien sowas, wie hießen die noch? “Ohnsorg Theater” das haben wir früher viel geschaut, ist ja heute seltener wie früher, [...] Die Filme Heidi und so haben wir mit den Kindern geguckt wie die klein waren und sowas alles solche Sendungen.“

⁹ “Ja natürlich war das komisch, es war ein Einschnitt in unser Leben. [...] ein Mittel, um nach von A nach B zu telefonieren und das war's, und als Spielzeug schon gar nicht.“

¹⁰ “Stören tut es mich schon beim Arzt, wenn du ins Wartezimmer kommst sag niemand mehr Hallo, da sind sie schon am Tippen, das müsste mal aufhören.“

¹¹ “...überansprucht wird ja. Warum soll ich meine privaten Dinge jemandem mitteilen übers Internet oder was auch immer, dann wundern sie sich, wenn etwas passiert. Da bin ich überhaupt nicht für. [...] Ja genau ist ja heute immer, wenn irgendwas passiert Bild machen, sofort ins Internet setzen. Sofort mitteilen.“

¹² “Ja jeder reagiert ja anders auf ein Handy der eine meinte ich muss es haben ich muss alles mitteilen und ich, ich muss auch kein Handy haben ich habe aber eins damit ich mich von A

nach B bewegen kann und fertig. Und nicht, dass ich eben alles mitteilen muss was passiert ist dies jenes ja dafür brauche ich das neueste nicht.“

Bea

¹³ “Ja genau. Ich brauche das nur zum Telefonieren ich würde mich gar nicht damit auseinandersetzen wollen, da hätte ich keine Lust mehr dran [...] ich denke einfach ich brauch das nicht.“

¹⁴ “45 sind wir weggezogen von (alte Heimatstadt) da haben wir das Radio nicht mitgenommen das weiß ich warum weiß ich nicht und (Wohnort der Großeltern) haben unsere Oma und Opa die hatten gar kein Radio da sind wir dann hingezogen und da wüsste ich nicht, dass wir da ein Radio hatten.“

¹⁵ “Vor 1-2 Jahren habe ich das schon mal öfters gebraucht, aber jetzt gebrauchte ich das wirklich überhaupt nicht mehr.“

¹⁶ “Wir haben auch als erstes ein Radio gehabt da kann ich mich gut dran erinnern, dass wir im Radio hatten. Ja da war ich vier Jahre, fünf Jahre da war der Krieg. Wie der Krieg anfang, in 45 hat er aufgehört und in der Zeit vorher hatten wie ein Radio und da hatten wir so einen alten Volksempfänger so einen schwarzen Kasten mit Lautsprechern drinnen. Und den mussten wir noch verstecken, weil man den nicht unbedingt haben durfte und dann haben wir da drauf gehört eigentlich nur wenn Bombenangriffe waren und sowas dann haben wir den angestellt, jetzt ist wieder was in Sicht, Bombenangriff und dann wissen wir immer in (nächste größere Stadt) sind Angriffe.“

¹⁷ “Über tag arbeiteten wir ja auch, und da hast du gar nicht ans Fernsehen gedacht, das war für uns normal. Ich meine wir haben uns schon gefreut, wenn das mal an war abends und wir haben mal so eine Sendung gucken können für 10 Minuten mal. Das war dann schon ganz interessant mal.“

¹⁸ “64 oder 63 haben wir dann von (Bruder ihres Ehemannes) geschenkt gekriegt, da hat man sich auch drüber gefreut, dass man überhaupt ein Fernseher kriegt aber dann haben wir auch noch den ganzen Tag gearbeitet, ich war bei (alter Arbeitsplatz) und habe Schicht gearbeitet, da war es wirklich nur abends, dass du hauptsächlich deine Sendung geguckt hast und was in der Welt los war, Nachrichten, dass du das geguckt hast und da hast du dich schon drüber gefreut dass du hörtest was da passiert was man sonst so schnell nicht mit kriegst. Heute steht es ja den anderen Tag sofort in der Zeitung.“

¹⁹ “dann hatten wir ein anderes Radio auf jeden Fall. Da hat man ja auch anders gesehen, moderner schon. Hat man gesagt, da hat man auch mal was Schöneres wie den alten Kasten das war schon ganz gut und dann kam auch die Platten [...] Und schön fand ich ja auch immer, die Kassetten, die konnte man selbst aufnehmen. Ich habe dann mal ein Lied gesungen „Wo die Nordseewellen“ und ich kann sie nicht wiederfinden und die müsste ich noch haben die Kassette, da habe ich das wieder laufen lassen sowas interessierte mich solche Sachen dadurch einfach mal Lust dran und da hat man schon gesehen jetzt habe ich was Schönes [...] damals

konnte ich noch singen jetzt kann ich das nicht mehr, da hat man schon ein paar Vorteile gehabt und gute Erinnerung, dass man das alles machen konnte, das war schon nicht schlecht.”

²⁰ “heute ist das Radio von morgens bis abends an in der Küche, dass man alles hört.”

²¹ “Für mich habe ich [ein Handy] eigentlich nur haben wollen, da bin ich viel Auto gefahren damit ich anrufen kann, wenn mal was war und angerufen werden konnte. Dafür habe ich das Handy gehabt und da soll ich auch ein Vorteil drin, dass man sagt so jetzt bin ich erreichbar und ist gut und ich kann auch anrufen, wenn was ist und so.”

²² “Ich dachte immer jetzt ganz vorsichtig, wenn was ist. Nicht mehr wie nötig, [...] Und vor Strom habe ich schon immer ein bisschen Schiss gehabt, das habe ich auch heute noch, mit Strom habe ich es nicht so, da habe ich immer gedacht nicht mehr wie nötig an den Sachen dran und fertig.”

²³ “Ja die haben sie eingezogen, wenn du so und so lange nicht telefonierst, ist nicht gebraucht dann ziehen sie die eine. Und das haben sie auch, da haben sie sich auch nicht gemeldet. [...] das ist jetzt auch kein Vorteil. Dann nimmst du es mit und denkst du kannst anrufen und dann geht es nicht mehr. Und ich lade immer mit Geld auf mit 15€ und das reicht mir mal lange [...] Das kostet auch viel Geld, du brauchst du eine neue SIM-Karte.”

²⁴ “Ja, das kann ich bis heute noch nicht. Anrufen kann ich, das weiß ich und manchmal kriege ich die Nummer auch noch nicht richtig drauf. Ja ist schon kompliziert für mich, weil ich mir da einfach keine Gedanken drüber mache.”

Ich könnte das, wenn ich das wollte, aber ich will das gar nicht.

²⁵ “Dass das ohne nicht mehr geht, verstehe ich auch. Viele brauchen das ja, wenn es nicht mehr mit Computer lief, das ging heute gar nicht mehr, das sehe ich auch ein. Aber so für mich persönlich sehe ich da keinen Sinn drin.”

Carl

²⁶ “Meine Eltern [haben das Telefon benutzt], sonst nicht.”

²⁷ “Habe ich so im Vorbeigehen mitgehört.”

²⁸ “Das war so ab 1957, also da war ich ja schon Lehrer und da haben wir Nachrichten geguckt und sonst hin und wieder mal samstags glaube ich, abends.”

Daniel

²⁹ “Keine Ahnung das weiß ich nicht (ob der Fernseher viel benutzt wurde) also es gab hier nur zwei Programme und ich als kleines Kind durfte ja sowieso nicht Fernsehen gucken und von daher kann ich mich auch nur an diese Tagesschau erinnern. Da war ich aber sicherlich älter für die Kinder gab es aber kein Fernsehen, tagsüber sowieso nicht.”

³⁰ (Interviewer: Hast du das viel benutzt?)

D: “obwohl doch gar nicht die Kommunikation stand fand anders statt. [...] Man konnte jetzt nicht mal irgendwo anrufen. Die Leute hat noch kein Telefon, die Kinder durften eigentlich nicht das gar keinen Sinn gemacht. Man hat sich in der Schule verabredet und das war's.”

³¹ “während der Bundeswehrzeit waren wir angeschossen an den Großrechner und ich muss die Lochkarten bearbeiten.”

³² “die Apparate wurden immer größer und man konnte immer mehr Sender empfangen.”

³³ “ich habe da nie so einen richtigen Draht zu gefunden zu dem Medium. Das ist dann erst gekommen als ich mein erstes Smartphone bekommen habe.”

³⁴ “Ich mache jetzt das was ich machen will sprich im Internet was nachgucken und meine Termine mache ich alles über Smartphone. Mein Notebook an sich auch ein bisschen, aber doch nicht so wie ich es ursprünglich mal vorhatte. Und mein Handy... das ist einfach bequemer für mich.”

³⁵ “So und dann habe ich sehr lange gewartet und mir dann ein Smartphone zuzulegen und diese Möglichkeiten sprich Internet und sonstiges nutzen zu können das hat ein bisschen länger gedauert, weil ich einfach gesagt habe ich brauche es nicht ich will es ja gar nicht ich habe zu Hause ein Lexikon man brauche es eigentlich nicht aber man hat dann irgendwann gemerkt, dass es doch A sinnvoll ist und B die Dinger sind ja immer billiger geworden und es ist jetzt auch nicht so die große Anschaffung gewesen.”

³⁶ “so lange ich mit dem zufrieden bin was ich habe, sehe ich keine Notwendigkeit mir was Neues zu holen.”

³⁷ “das was wir uns dann letztendlich gekauft haben, lag im Angebot bei 259€, dann haben wir es für 259€ gekauft. Aber da ist jetzt auch irgendwo für mich die Obergrenze, weil ich würde sagen für meine Ansprüche das schafft das für 259€ genauso. Ich muss jetzt kein Apple haben oder das neueste für 600-700€ das bin ich nicht bereit auszugeben.”

³⁸ “Jetzt auf Fernseher bezogen, an Sendung weiß ich nichts nur an diese Serien wie „einer wird gewinnen“ und Peter Frankenfeld erinnern die man sich angeschaut hat, das war das Samstag Abendprogramm. [...] als ich noch älter war mit so Sendung wie „Bonanza“ und „Rintintin“ oder „Lessie“, das waren so die erste Sendung die ich dann als Heranwachsender gesehen habe, da muss ich auch schon etwas älter gewesen sein.”

³⁹ “das hat Spaß gemacht auf WDR2 mal so die Hitparade dann zu hören und gleichzeitig aufzunehmen. Und man hat sich geärgert, wenn dann jemand dazwischen gequatscht hat und man hat das wieder löschen müssen. Also damit hat man sich beschäftigt für lange Zeit bis das Band am voll war, und dann hat man irgendwann mal... dann war man das Leid und dann hatten das gelöscht. Hat man so Lieblingsstücke gehabt, die hat man versucht drin zu lassen und um rum herum neu aufzunehmen ich weiß noch. Ein Lied war das von Wonder Jackson, ich weiß aber den Titel momentan nicht das habe ich wohl zwei dreimal drin gelassen den Rest und so gelöscht und das hat wie gesagt Spaß gemacht und auch sehr viel Zeit mit verbracht.”

⁴⁰ “und dann haben wir die Sender gehört, die die Eltern nicht wollten, so Hilversum oder RTL, das waren so Sender, für die Jugendlichen mehr...”

⁴¹ “ich habe dann sehr früh angefangen zu fotografieren. Also ganz normal mit der Kodak oder Aqua 12 da habe ich tausende von Bildern an Dias und dann die Kameras finden immer besser, die Objektive wurden erweitert und gut dann gab es dann jetzt diese mini Kameras, die Digitalkameras. Habe ich alles mitgemacht und auch mit fotografiert und daneben das Smartphone hat alles an Fotoapparaten beiseitegedrängt.”

⁴² “ansonsten hat man sich übers Internet halt informiert, was Testergebnisse, das ist ja das was man dann als Laie heranziehen kann Stiftung Warentest und wie die alle heißen die Zeitschriften wo Handys drin getestet wurden. Das hat man dann aufgerufen und dann gelesen und dann abgewogen was für einen selbst wichtig ist. Ich sag mal für mich ist die Kamera wichtig.”

⁴³ “ich bin überall erreichbar. Im Prinzip jetzt dadurch, dass du jetzt auch im Auto erreichbar bist über diese Bluetooth Geschichte. Der weitere Vorteil eben man kann da, wo man ist eben eine Frage klären übers Internet.”

⁴⁴ “am meisten dafür benutze ich die Terminplanung, [...] ansonsten nutze ich die Wetter-App [...] und natürlich telefonieren und dann was ich auch sehr viel mache ist über WhatsApp.”

⁴⁵ “der die Bestellungen rausgegeben hat, arbeitete an der Lochkarte und der hat sich vertan in einer Spalte, und er musste bestellen 1000 oder 10.000 Unterlegscheiben für ein Flugzeug. Gut, jetzt hat er sich aber vertan. Jetzt anstelle, ich sage mal eine Zahl 1,5 cm sollten die Durchmesser haben, die hatten dann 15 cm Durchmesser, die mussten Spezial gefertigt werden hat ein Wahnsinns Geld gekostet und dann kam 10.000 Unterlegscheiben von dieser Größe, das war ein Fehler beim Lochkarten stanzen.”

⁴⁶ “Sie macht auch die Bestellung und das Bezahlen. Ich bekomme zwar die Rechnung anschließend, aber das ist egal, aber ist halt so, ich brauch kein online Banking solange wir zusammen sind. Aber spätestens dann, wenn sie nicht mehr kann muss ich mir auch Gedanken machen.”

⁴⁷ “Aber wir sind ja schon so weit, dass wir unseren ‘Fire-Stick‘ haben das sind jetzt die Neuheiten, aber ich muss sagen ich beschäftigt mich relativ wenig damit und bin froh, dass ich mich da nicht rein hängen muss. Darum ich verwechsle die Tasten dann immer da bin ich in dieser Beziehung bin ich sehr konsequent: ich lasse es machen.”

⁴⁸ “Die Nachteile sind für mich, wenn man sich nicht diszipliniert, sehr viel Zeit damit verbringt, um jetzt Musik zu hören oder auch Spiele zu spielen.”

Ella

⁴⁹ “Als nächstes kam Telefon, erst später Radio und Fernseher, da war ich vielleicht schon 10 oder 11, beim Telefon war ich auch schon 13 oder 14.”

⁵⁰ “wir hatten eine riesige Truhe, da war alles dabei, der Fernseher in der einen Seite und dann war Radio und Schallplattenspieler da auf der anderen Seite. [...] Diese Truhe, das war wie so ein Schmuckstück zu sehen, diese Truhe stand in der guten Stube. Die gute Stube wurde nur genutzt, wenn Besuch kam oder vielleicht auch mal am Wochenende.”

⁵¹ “Ich glaube richtig Fernsehen geguckt habe ich, da war ich 15 oder 16, da war das dann ein bisschen mehr und dann war auch Telefon schon da. Und Telefon haben wir auch nicht benutzt. Das kostete ja, jeder Einheit kostete viel Geld. Da konntest du nicht einfach telefonieren, das ging nicht.”

⁵² “Das war so schon richtig also wie gesagt ein bisschen anderer Werdegang, aber war ja früher auch zu Hause so, wir haben erst sehr spät ein Telefon gehabt und dadurch, dass ich relativ früh aus dem Haus gegangen bin, weil ich dann natürlich für mich zu Hause auch ein Gerät hatte, aber da war ich auch schon fast 20, und gar nicht durch meine Familie. Meine Mutter, die ist auch sehr früh verstorben, aber durch Familie überhaupt nicht. Das war gar nicht denkbar gewesen, da war schon ein Fortschritt, dass die ein Telefon hatten.”

⁵³ “ich habe eine Lehre begonnen, habe in dem Bereich als EDV-Kaufmann angefangen, das war mittlere Datentechnik, das war kein Computer, den man so benutzt hat, sondern der hatte eben andere Funktion. Die Funktionalitäten waren für Unternehmen ausgerichtet, das war für mich der nächste Schritt irgendwo Bekanntschaft mitzumachen mit.”

⁵⁴ “Dann kam mit dem Bereich, dass vieles angeschlossen war, das im Faxgerät mit drin kamen und solche Sachen. Aber trotzdem, also diese Lochkarten Geschichte, das haben wir auch mitgemacht [...] Was dann auch dazu gehört, das heißt dann Faxgerät, was man braucht, und vernünftigen Drucker.”

⁵⁵ “da können wir unsere ganzen Auswertungen und unsere Arbeit konnten werde schon auf einem Rechner machen aber das war so mehr ein Terminal und dieses Terminal war verbunden mit der Uni, so und da kam da stand auch der Rechner das war eine Standleitung die ging dann also Kabel rein und man musste sich dann anmelden bis die Standleitung dann zur Verfügung stand und konnte dann erst damit arbeiten, vorher ging nichts. Da können wir zwar alles mit machen, wir könnten da so unsere ganzen Arbeiten dann da kontrollieren, wie ein Multiple Choice mit dem Computer, Frage/Antwort und so was, das war aber nicht auf ein Bildschirm das war alles auf einer Konsole die Papier brachte [...] manche haben ihre Einnahmen 64k Commodore gehabt für Spiele, und wir hatten einen 64k Rechner da wurde dann darüber fakturiert und Rechnungswesen geschrieben. Das war auch nicht mehr, man hat zu dem Zeitpunkt jedes Bit und jedes Byte dreimal umgedreht, und dann benutzt. [...] anschließend dann, da bin ich Wirtschaftsinformatiker geworden. Und danach kamen dann auch ganz langsam PC artig auch was mit Bildschirm, also es war noch kein PC, aber es war ein Rechner, der auch schon ein Bildschirm hatten. Der Bildschirm war genau festgelegt, der hatte 80 Zeichen. [...] das war auch nur so visuell einfach, dass du ein bisschen was lesen konntest anstatt auf dem Papier. [...] Und für mich dann PC-mäßig hat es angefangen 1990/1989 in dem Dreh rum, da haben wir dann die ersten PCs, konnte man mit dem PC auch per Standleitungen uns einloggen in ein Rechenzentrum. [...] und 1992 meine ich war dann so der Stand-Alone-PC, [...] Die erste Anbindung an ein Internet war dann 1995.”

⁵⁶ “aber jetzt einen eigenen PC habe ich dann ich meine 1994/1995, dann habe ich mir, da gab es dann ein Colani PC, der war im Colani Design, war damals ein Begriff gewesen. Und daneben mit einer Anbindung an das Internet schon, aber das war alles sehr langsam und es gab kein Google oder sowas, da konnte man über die Telekom dann irgendwie rein.”

⁵⁷ “aber aus dem Familienkreis vielleicht schon [die erste]. Da war ich immer relativ früh dabei, habe ich also versucht da einiges noch zu machen. Auch jetzt noch.”

⁵⁸ “Hatte für mich mal den großen Vorteil, ich habe immer gesagt, ich weiß genau was er macht ich kann genau nachvollziehen was er macht. [...] und das hat mir damals immer viel Freude gemacht. Ich habe gerne damit gearbeitet, ich habe viele Jahre in dem Bereich gearbeitet.”

⁵⁹ “Und wenn ich dann überlege, den Commodore zum Spielen genommen haben, habe ich mich also so nicht für interessiert. Für das ganze technische schon und zu dem Technischen gehörten ja nicht nur die der Computer an sich, sondern dazu gehört dann auch diese Dinge, die man auch brauchte. Eine Lesestation für die Bänder oder einen Druck habe, das haben wir alles mitgemacht.”

⁶⁰ “ich mache heute vieles noch an dem Stand-Alone-PC, der ist dann wirklich alles für mich. Ist das eine Art Heiligtum, auf die ich aufpasse wie mein Augapfel, weil ich auch viele Dinge nur darüber mache.”

⁶¹ “Ich brauche heute nicht mehr das Prospekt vom Aldi, dann gehe ich halt eben in die App rein. Und was ich als Vorteil ansehe, es gibt dann so eine App, die heißt die glaube öffentliche Verkehrsmittel. Das heißt ich stehe irgendwo, möchte jetzt von hier irgendwo hin, dann sagt er mir, ich kann diesen einen Bus benutzen, der fährt. [...] finde ich super, wenn ich in Münster bin und dann irgendwo anders hinhuss.”

⁶² “Und der Trend geht sicherlich auch dahin, dass man vermehrt im Internet was bestellt, aber es gibt auch große Geschäfte, die das anbieten. Also wenn ich mir große Lebensmittelketten wie Rewe und Edeka anschau, die bieten das ja an und wir haben letztens was bei Penny bestellt, weil hier im Laden gab es das nicht.”

⁶³ “manchmal sehe ich auch wenn es 5€ Porto kostet, ist es einfacher, als wenn ich bis nach Münster fahren kriege ich vielleicht nicht.”

⁶⁴ “Wir haben telefoniert, aber es gab auch viel SMS, denn es gab doch noch große Funklöcher. Ich habe dann mit E-Plus angefangen und E-Plus hatte auf dem Lande nicht so guten Empfang.”

⁶⁵ “das mag 10/12/13 Jahre her sein, das WLAN dazu gekommen ist, [...] Wobei, die WLAN Verbindung am Anfang ja ganz, ganz schlecht war. War es erst lange langsam, und dann vielfach auch Unterbrechungen.”

⁶⁶ “Mit dem Speicher war dann schnell Schluss, weil die haben dann wohl, was weiß ich kleinen Speicher, den sie dann zur Hälfte für die Systemsoftware brauchten. Dann blieb da nicht mehr viel über, und wenn man dann noch irgendein App hatte, die vielleicht auch ein bisschen mehr gebraucht hat, da war man schon ganz schnell an die Grenzen gelangt [...] Und hat man dann

darauf geachtet, dass es nicht nur 2 Gigabyte, sondern 4 Gigabyte hat. Und mittlerweile ist man so dass man sagt ich möchte mindestens meine 64 Gigabyte haben.”

⁶⁷ “mit der Zeit. Und war auch die Sicherheitssoftware nicht so wichtig, weil zu dem Zeitpunkt, ob man irgendwo über eine Standleitung verfügt [...] wo du eingestellt hast und dich eingewählt hast noch nicht mal eingestöpselt, sondern eingewählt. Richtig gewählt, ohne Verbindung hergestellt, dann hattest du eine Box da dran und die gehen dann wieder zum PC, und dadurch ist die Leitung entstanden [...] Stand-Alone-PC, der ist dann wirklich alles für mich [...] Das ist kabelgebunden und habe dann mehr Vertrauen zu, ich schätze die Sicherheit.”

⁶⁸ “Da bin ich mir nicht so sicher ob das alles nachher mit meinem Tablet sicher wäre. Würde ich dann natürlich auch einen Hotspot irgendwo benutzen. Wenn wir im Urlaub sind, dann ist es eigentlich auch so. Da ist zwar Sicherheits-Software drauf, aber wenn ich jetzt alles andere auch darüber mache, das möchte ich eigentlich nicht.”

⁶⁹ “ich nutze es eben anders, dass ich über Kredit Karte und PayPal geht und dann erst übers Konto.”

⁷⁰ “Die Hacker werden natürlich auch immer erfinderischer, die sind auch im Vorteil, die sind immer einen Schritt voraus vor der Sicherheitssoftware.”

⁷¹ “aber es wird weitergehen, da bin ich ganz sicher. Ist ja auch in Ordnung ganz dagegen wahren werde ich mich nicht, aber ich werde auch Alexa dann schon mal abstellen und sagen du musst nicht alles mitkriegen. Denn das ist ja nachgewiesen, dass sie wirklich auch Dinge aufnehmen, bewusst oder unbewusst mag ja hingestellt bleiben, aber sie können schon.”

Frank

⁷² “In der Kindheit haben wir auch Serien geguckt, Kinderserien war ja nicht ganz so viel früher, [...] Das ging ja abends erste Mal los. Aber jedenfalls mittags war nicht viel mit Fernsehen da waren wir draußen zum Spielen.”

⁷³ “Nee das kam erst später, das hatten wir ja erst nach der Heirat oder so. [...] das war ungefähr 1968, da haben wir dann ein Telefon gehabt.”

⁷⁴ “Dann fing es an mit den Kindern, dass man dann angefangen hat mit C64 Computer, [...] das waren dann unsere Kinder, die das gemacht haben. Gespielt an sich habe ich selbst viel nicht, [...] was haben wir da gemacht, Spiele getauscht und so weiter, dass die Kinder die Spiele hatten und so.”

⁷⁵ “Dann hatte ich nachher in der Firma auch angefangen mit PCs zu arbeiten und die ersten die da waren, waren drei 83er PCs, die ersten mit der entsprechenden Firmen-Software, [...] da habe ich viel an sich gemacht. Ich hatte ein Programm, das hieß Designer habe ich die ganzen Excel Exkursions-Zeichnung gemacht für die Geräte, Dokumentation habe ich für die Geräte habe ich dann erstellt.”

⁷⁶ “Das [Interesse] hat erst angefangen in der Firma. Mit dem PC ging das, los davor gab es noch keine Beziehung mit PCs, da ist die Technik ja erst angefangen und es ist ja der Grundstein für die heutigen Smartphones auch.”

⁷⁷ “Ja, da hatte ich auch einen PC, aber habe ich an sich weniger mitgemacht schon einiges ja, aber nicht so viel wie wir das hier machen. Von der Firma war das so belastet und dann hast du abends nicht die Geduld dazu gehabt.”

⁷⁸ “von der Firma ein Firmenhandy. [...] unterwegs habe ich auch mal ab und zu Kundendienst gemacht, dann habe ich das selten gebraucht, aber ich war auch viel auf Messen und so, dann habe ich ein Handy gehabt, dass man da erreichbar war.”

⁷⁹ “Ja, dass man da sehr viel mit machen könnte, ziemlich breit gestreut, war natürlich umfangreich. Konnte Daten-Kommunikation da drüber laufen lassen auch über die ersten Smartphones war nicht so ausgeprägt wie heute, aber es war der Anfang.”

⁸⁰ “erst habe ich noch ein iPod gehabt, [...] habe ich schon viel benutzt. Habe ich auch über WLAN mitgearbeitet. Konnte man auf der Firma so Daten austauschen und sowas gemacht und dann kam mein erstes Smartphone, das 4c war das.”

⁸¹ “Wir haben wir wohnten in einem Kotten in (Stadt) und da waren Nachbarn, die wohnten so 500 Meter weiter, die kamen fast jeden Abend zum Fernsehen gucken zu uns rüber. [...] da waren auch so Familienserien das hat mir da natürlich immer sofort, wenn so eine Serie kam dann waren die Nachbarn danach da.”

⁸² “die ersten Sendungen, die da waren „schöner Mann“ war eine Sendung, die da war, zu der Zeit das war so eine Familienserien.”

⁸³ “die Kommunikation jetzt, mit was ich mache mit dem Datenaustausch, jetzt Excel Programm habe ich einiges so z.B. beim (Club 1) mache ich die ganzen Verwaltung die Sachen, die da gemacht werden, mit den Abrechnungen und so mache ich alles über Excel mache ich eine Tabelle und trage die Namen ein und die ganzen Spieler dann wird automatisch ausgerechnet was die einzeln zu bezahlen haben. [...] ich habe früher schon viel mit Excel gemacht in der Firma. Deswegen macht Excel mir auch Spaß und mit Word arbeite ich auch viel. Im (Club 2) mache ich die Programmhefte fertig, das mache ich über Word die kleinen Hefte so DIN A5 Hefte.”

⁸⁴ “Jetzt vom Smartphone her gesehen, das ist eine Sache, die mir ja Spaß macht und deswegen, ich lese auch ständig Neuigkeiten was es da gibt und wie der Stand ist und so weiter, interessiere ich mich schon für.”

⁸⁵ “der Rasenmäher läuft auch über WLAN, kann ich auch darüber steuern, habe ich jetzt für diese Woche programmiert ich bin ab Mittwoch nicht da, da muss der alles wissen, du brauchst nichts machen dann fährt er zwei Stunden.”

⁸⁶ “ich habe es an sich meistens eher selbst geschafft und es ganz selten, dass ich mal einen gebraucht habe von den Kindern, die dann geholfen haben. Aber dazu kriege ich dann meistens

immer hin auch das mit Alexa und die ganzen Sachen da eingeben und über WLAN die ganzen Dinge einbinden mit dem WLAN-Router, das habe ich dann auch selbst installiert das habe ich auch so hingekriegt.”