

Older People's Perception on Younger People's Smart Phone Usage -

**A Comparison of older Smart Phone Users and Non-
Smart Phone Users**

Bachelor Thesis

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Abstract

Smart phones are used frequently nowadays in Germany, especially by teenagers and adults (14 – 64 years old). Elderly (65+ years old), however, are not using smart phones as regularly as younger people, resulting in the refusal of the smart phone adaption. Research focused on older people's attitudes concerning smart phones, both positive and negative. Moreover, studies focused on social interactions, claiming that smart phones were perceived as both social tools and disturbances. These studies, however, did not distinguish within the group of older people concerning their own smart phone usage. The current study examined the respective perceptions of older people with and without smart phones concerning younger people's smart phone usage with regard to social interactions. Therefore, semi-structured interviews were conducted with six German interviewees in the ages of 65 to 79 of whom three were and three were not in possession of a smart phone. The main result was that there seems to be a link between the factor of using a smart phone and the attitude concerning the younger people's smart phone usage, whereby older smart phone users report more positive attitudes towards younger people's smart phone usage than older non-users. Moreover, when not using a smart phone, elderly are more likely to perceive a loss of personal communication than when being in possession of a smart phone. These results can be explained especially by the own smart phone experience of the interviewees; when being used to a smart phone, one seems to be more positive and understanding about the way younger people use smart phones and to feel more socially connected with them than when not using the device. Future research should therefore consider the difference among elderly and should focus on how to reduce the loss of social interactions among younger people and older people.

Key words: older people, younger people, smart phone, usage, comparison, social interactions

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List of acronyms

Word	Abbreviation
Information and Communication Technology	ICT
Short Message Service	SMS
applications	apps
Technology Acceptance Model	TAM

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Introduction

In the past century, technologies experienced a great transformation. Especially smart phones went through a rapid change within the last decade (Choudrie, Pheeraphuttharangkoon, Zamani, & Giaglis, 2014), as they are in daily use by their owners and became an everyday life tool for communication (Avidar, Ariel, Malka, & Levy, 2013). Therefore, this study will set its focus on smart phones. Smart phones emerged from mobile phones, which can be used wirelessly for services as telephone communication and the Short Message Service (SMS) (Choudrie et al., 2014). Next to the provided telephone communication and SMS; smart phones are also making use of the internet to enhance the email communication, to download information, and to use applications (apps) (Choudrie et al., 2014). Hence, next to *inter alia* tablets (Vaportzis, Giatsi Clausen, & Gow, 2017) and laptops (Choudrie et al., 2014), smart phones belong to the Information and Communication Technologies (ICTs), which facilitate the access to and administration of information.

According to Bitkom (2018), in 2018, 57 million people were in possession of a smart phone in Germany; thus, eight out of ten people were using the ICT. In comparison with 2010, only 14 million people had a smart phone; and in 2014, around 41 million people used the ICT device in Germany. That means the smart phone usage of the German population increased rapidly and steadily (Bitkom, 2018). Additionally, in 2017, 95% of the age group 14-29 years, 97% of the age group 30-49 years, and 88% of the age group 50-64 years were using a smart phone. Compared to that, only 41% of the age group 65+ were in possession of the device (Lutter, Meinecke, Tropf, Böhm, & Esser, 2017). Hence, using a smart phone is not as common among older people as for younger people in Germany.

In general, when it comes to the adoption of new technologies, adult people (18-59 years old) are faster in getting used to the new instruments compared to elderly (60-91 years old) (Czaja et al., 2006). Several existing studies focus on reasons for why older people do not engage in the smart phone usage as much as the younger generations do. According to Berenguer et al. (2016), people above 60 years often lack the ability to use smart phones. Physical constraints occur especially in the touch screen usage, since both visual and motor impairments (Mohadis & Ali, 2014) constitute barriers for older people in reading the small fonts and in generally making use of the small communication devices (McGaughey, Zeltmann, & McMurtrey, 2013). Moreover, older people lack of cognitive capacity to use a smart phone (McGaughey et al., 2013). The exploitation of the devices is, therefore, often considered as difficult by the elderly. One resulting attitude is the diminished confidence to

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use a smart phone (McGaughey et al., 2013; Mohadis & Ali, 2014). Additionally, the inadequate experience and knowledge of the usage (McGaughey et al., 2013), the lack of interest and its regarded futility (Ling, 2008; Mohadis & Ali, 2014), and the fear of being dependent on them (Vaportzis et al., 2017) reinforce the smart phone refusal. Additionally, even though the high costs of smart phones are a generic problem, McGaughey et al. (2016), Ling (2008), Mohadis & Ali (2014), and Berenguer et al. (2016), mentioned it as an economic burden for older people and thereby as a further barrier for older people to use the device.

Besides the reasons of older people against the smart phone usage, arguments to use the device can be found in literature as well. The elderly perceive smart phones as useful when they help them to perform their daily activities as for instance the planning of financial matters (Vaportzis et al., 2017). Moreover, a smart phone is considered to be practical by older people especially when it comes to emergencies because it assures them a sense of safety and security (Mohadis & Ali, 2014). In terms of self-actualisation, studies revealed that smart phones support the freedom and independence of older people leading to enjoyment of the usage (McGaughey et al., 2013). Furthermore, being in possession of a smart phone has the effect to look like an open-minded, cognitively flexible, and experienced person (Pelizäus-Hoffmeister, 2016), indicating that its usage would assist to portray oneself in a particular way.

When it comes to social interactions, studies concluded that smart phones are perceived by elderly as both facilitating and hindering factors for communication. According to Vaportzis et al. (2017), older people perceive new technologies as an inhibitor for the younger generations to interact socially and to acquire social skills. Moreover, the lack of interaction was related to the heavy reliance of new technologies, asking for less complicated technologies to avoid the dependency. Besides, they also mentioned technologies to be a manner to communicate with younger people in a different way since they constitute another possibility for older people to approach those (Vaportzis et al., 2017). This is supported by other studies, in which smart phones were further considered to be a social tool for all generations to establish social bonds (Ling, 2008). Klimova & Maresova (2016) and Mitzner et al. (2010) mentioned that older people (65 – 85 years old) would be able to stay in contact with their family members through the use of smart phones.

A German study further concentrated on the phenomenon “phubbing” which is a word composition of “phone” and “snubbing”. It represents the behaviour of being on the phone while interacting with people socially (Klein, 2014). In this study, Klein (2014) investigated how the usage of a phone during a conversation is regarded by the counterpart. Even though

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she did not focus on age differences, she found out that the people, who are using smart phones regularly, are more sympathetic when a person is using the phone during a conversation, than people who are not frequently using the smart phone. Thus, people who are regular smart phone users show more understanding to people who are engaging in the smart phone usage during a social interaction (Klein, 2014). Therefore, since older people do not use smart phones as frequently as younger people (Lutter et al., 2017), it seems plausible that the former do not show much understanding for the smart phone usage during social interactions. Accordingly, different attitudes regarding smart phone usage might occur between the older and younger generations due to the difference in the frequency of the device's usage, resulting in different perceptions of the smart phone as a barrier for communication. Moreover, different attitudes might occur among the older people who do use smart phones and the older people who do not use smart phones.

Altogether, a lot of research has been done in order to investigate the attitudes of older people concerning smart phones and its impact on social interactions. As the younger generations use smart phones more regularly and pay more attention to the devices than older generations, further emphasis should be set on the perception of older people regarding their perception of younger people's smart phone usage. This is important in order to reduce the lack of communication among the generations and thereby to avoid the risk of ageism among the generations (Drury, Hutchison, & Abrams, 2016). In the current study, a comparison was made between smart phone users and non-smart phone users, to see whether differences occur within the age group of older people itself since no research has set its focus on this factor of elderly yet. Therefore, the following research question has been postulated *How do older people perceive the smart phone usage of younger generations?* To focus on the perception of older people of social interactions with younger generations, the second research question is *Do older people perceive difference in the social interactions with the younger generations between the present and the past due to the smart phone usage?*

Methods

Design

The current study was a qualitative, explorative study. A multiple case design was employed to understand the differences and similarities among elderly smart phone users and non-users, with regard to social interactions. In order to get in depth information of the target

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groups' experiences, it was further designed as an interview study. Ethical approval was obtained for the study by the ethical committee of the University of Twente (registration number 190419).

Participants

The target population of the study were German people above the age of 65 years. The setting of the age group was based on the studies which mentioned the low percentage of smart phone possessions among 65+ years old Germans (Lutter et al., 2017). Therefore, age and nationality constituted the inclusion criteria. Accordingly, the interviewees were recruited by purposive sampling, as they were selected on these specific characteristics and by snowball sampling to attain more participants for the study. In the first week of April 2019, seven German people above 65 years were approached by phone, email, and personally. Six of them agreed to participate in the study, one woman rejected to take part with the reason that the cognitive load might be too exhausting for her.

The age of the interviewees of the sample ranged from 65 to 79 years ($M = 72$; $SD = 4.55$). Four of the participants were male, two were female. Moreover, three of them used a smart phone; the other three did not use a smart phone. All of the interviewees were pensioners.

Interview scheme

The interview was a semi-structured interview with both closed and open-ended questions. Thereby, general information about the interviewees' backgrounds, opinions and experiences of the interviews concerning the research questions could be gathered. Moreover, the structure of the interview assured the comparability of the interviews since every interviewee gave answers to the same questions. Furthermore, the semi-structure of the interviews guaranteed the application of flexible probes in order to gather more in-depth information of the interviewees or to ask different questions if the answers were unclear. Therefore, the probes differed in each interview because they were applied individually based on the context of the answers. Examples for probes are "*Could you elaborate more on the topic with the focus on younger people?*" or "*Could you give an example for that?*"

The first questions of the interview were general background information about the interviewees namely their ages, nationalities, level of education, and their occupations (see Appendix A). Then, questions were asked about the interviewees' smart phone experiences, thus, whether they had a smart phone and if so, how frequently and for what purposes they used it. Moreover, they were asked about what they thought of the increased usage of smart

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phones, with a sub-question of whether their lives changed somehow since smart phones were introduced. Additionally, they were asked to state a positive and a negative smart phone memory, either of themselves using a smart phone or someone else making use of the device.

After that, the topics of the questions shifted to the younger generations, hence, it was asked how they experienced the smart phone usage of the younger people and whether they could see any differences between the frequency of usage of their generation and the younger generations. Next, questions about social interactions with younger people were asked to get an overview of how often and with whom the interviewees were in contact with younger people. Moreover, it was asked whether these younger people used a smart phone and if so, whether they used them during conversations with the interviewees. The following questions set a deeper focus on the smart phone usage of younger people during social interactions. An example for that is "*How do you experience social interactions with younger generations since the introduction of smart phones?*" Additionally, it was asked how the social interactions differed from the era when there were no smart phones yet.

Next to that, the focus was set on social values. First, an explanation of a social value was given, and then the interviewees were asked to state which values were most important to them during social interactions and whether there were differences when it comes to the interaction with younger people, who are using a smart phone during a conversation.

In the end of the interview, the questions focused on the future towards smart phones. One question was "*With regard to the future, do you think something will change in terms of your smart phone usage?*"; the next question focused on whether the interviewees thought something would change in terms of the smart phone usage of younger people.

Parts of the interview were derived from the life story interview by McAdams (1995). It assists to gain information about the lives and the mindsets of members of a society (Atkinson, 2011); hence, the interview aims to give people of a specific group a voice and to gather more understanding concerning their experiences, values, and perceptions. The questions of the positive (high point) and negative (low point) experiences with smart phones, the questions about the social values, and the questions concerning the future of both the interviewees and the younger generations were derived from the life story interview by McAdams (1995). Those questions were chosen in order to understand the interviewees' perceptions and their value concepts when it comes to social interactions with the special consideration of smart phone usage. Moreover, the questions based on the life story interview were considered to gather greater insights into the interviewees' attitudes as they were

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supposed to evaluate on both experiences and future thoughts of how the current interpreted use would evolve in the future.

Procedure

The interviews were conducted between the 7th April 2019 and the 16th April 2019. The duration of the interviews differed from 25 to 45 minutes, with a mean duration of 31 minutes. Dependent on the personal preferences of the interviewees, five of the individual interviews were conducted face-to-face at the interviewees' homes; the other one was conducted face-to-face at the researcher's home, in quiet rooms where no one interrupted the conversations. Moreover, since the mother tongue of both the interviewees and the researcher was German, the interviews were conducted in German.

Before the interviews started, the interviewees were briefly introduced to the topic of the study. Information about personal data, the right of withdrawal, and the recording of the study were explained (for detailed information see Appendix B). Written informed consent was then obtained from the interviewees. Subsequently, the interviews were conducted. After the interviews, further questions about the results of the study were answered and the interviewees were thanked for their participation.

Data analysis

Before the analysis of the data, the interviews were transcribed verbatim by the researcher. All names and places were removed to anonymise the data and, hence, to prevent the identification of the interviewees. Moreover, the transcripts were inserted into the programme "Atlas.ti" (Atlas.ti, n.d.) to be able to code the data lucidly.

The data was analysed in an inductive manner since the content of the interviews was used to evolve the codes. An example of an inductive elaborated code is the code "critical reflection" (see table 1) because the interviewees evaluated both negative and positive sides of smart phones during the interviews. Moreover, this approach was mixed with the deductive method because the themes of the research questions were considered when designing some codes. For instance the code "social interactions" (see table 1) was based on the second research question, which sets its focus on social interactions among younger and older people with regard to smart phones. The whole analysis was done in an iterative process:

The first interview was read several times to understand the full content of the interviewee's answers. Important words and phrases were highlighted during that process, thus, the unit of analysis were both words and sentences. Sentences could be coded more than once by different codes. Thereby relationships between the codes could be detected. Irrelevant

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passages, which did not concern the topics of smart phones, younger generations, and social interactions, were not coded. Based on these highlights of the units of analysis, an initial analysis was applied by remarking the first impressions of the words and phrases. In the following step an initial coding scheme was created by labelling the marked codes. During this process, constant comparison was performed by looking at similarities and dissimilarities between the parts of the interview. Furthermore, the codes were categorized and definitions of each category were established. After the creation of the first initial coding scheme, the other interviews were analysed, which resulted in the revision of some codes. Moreover, further codes were created and, thus, added to the scheme.

The resulting coding scheme was, then, applied by the researcher of the study and by another researcher independently from one another to the same interview, which was chosen based on the length of the interview and the extent of many different themes. The results were compared and discussed until consensus about the codes was reached, which assured the interrater reliability ($\kappa = 0.61$); this can be considered as moderate (McHugh, 2012). The adjustment of the coding scheme resulted in the creation of the final coding scheme (see table 1). In the final step, all interviews were coded with the final coding scheme by the researcher and patterns within the interviews were explored. Moreover, the differences and similarities in the perceptions between smart phone users and non-users were discovered.

Results

In the following, the coding scheme will be explained and striking findings will be outlined. Moreover, each interview will be analysed with regard to the different codes, which occurred during the interviews. The interviewees were divided in two groups; smart phone users and non-smart phone users in order to compare these groups with each other and to draw a conclusion of both groups' perceptions concerning the smart phone usage of younger people with regard to social interactions.

Coding scheme

The coding scheme consisted of five codes with several sub-codes (see table 1); the most frequent code was "critical reflection" ($n = 54$), followed by "life changes attributed to smart phone" ($n = 43$), "excessive smart phone usage" ($n = 30$), "differences among generations" ($n = 16$), and "social interactions" ($n = 4$).

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Table 1

Coding scheme with frequencies of both smart phone users and non-smart phone users

Main code	Smart phone users	Non-smart phone users	Description of codes
Critical reflection (54)	25 (46%)	29 (54%)	Interviewees stated positive or negative feelings towards described situations and smart phones and evaluated on them critically.
- Advantages of smart phone (47)	- 35 (74%)	- 12 (26%)	
- Disadvantages of smart phone (40)	- 22 (55%)	- 18 (45%)	
Life changes attributed to smart phone (43)	27 (63%)	16 (37%)	Interviewees indicated differences in their lives which occurred since the introduction of the smart phones; made comparisons with the past; and anticipated future developments. Moreover, they mentioned the loss of personal interactions as life change due to the smart phone.
- Comparison to past (20)	- 11 (55%)	- 9 (45%)	
- Future developments (28)	- 15 (54 %)	- 13 (46%)	
- Loss of personal interactions (23)	- 6 (26%)	- 17 (74%)	
Excessive smart phone use (30)	13 (43%)	17(57%)	Interviewees indicated the frequency and excessive use of the smart phones. Moreover, they mentioned the obligation and demands of the inhibited use of the smart phone.
- Addiction (8)	- 5 (63%)	- 3 (37%)	
- Dependency (6)	- 3 (50%)	- 3 (50%)	
Differences among generations (16)	7 (44%)	9 (56%)	Interviewees compared their generation with the younger generations regarding smart phone usage. They evaluated whether they felt capable of using smart phones the way younger people do.
- Older people's smart phone usage (15)	- 9 (60%)	- 6 (40%)	
- Younger people's smart phone usage (15)	- 10 (67%)	- 5 (33%)	
Social interactions (4)	1 (25%)	3 (75%)	Interviewees indicated situations in which smart phones were used during social interactions. They indicated how they or others handled the smart phone usage during social interactions. That regards the manner of how they or others dealt with incoming messages during social interactions. Interviewees evaluated whether the smart phone use was disturbing or not disturbing during these specific situations. They also evaluated situations in which people used their smart phones in public. Additionally, interviewees mentioned whether they felt as belonging to a group due to smart phones.
- Use of smart phone in public (16)	- 7 (44%)	- 9 (56%)	
- Use of smart phone during social interactions (13)	- 10 (77%)	- 3 (23%)	
- Non-disturbance of smart phone use (10)	- 6 (60%)	- 4 (40%)	
- Disturbances of smart phone use (9)	- 2 (22%)	- 7 (78%)	
- Belonging to a group (7)	- 5 (71%)	- 2 (29%)	

Note. (n) = total frequencies of codes of all interviewees; n = frequencies of codes of each group; (n %) = frequencies of codes of each group in percentages

Non-smart phone users

Interviewee A. The first interviewee was a 75 years old German man, who was working as a pastoral worker before he retired. He did not have a smart phone and was in

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regularly contact with younger people due to family gathering with his grand children, his bowling team and his voluntary work as choirmaster. The younger people were 15 to 50 years old. In the following, he will be referred to as A.

When A was reflecting on situations of younger people using their smart phones, his attitude was mostly negative. He explicitly mentioned striking situations in which he did not like the appearance of smart phones, claiming that *“technological development is good, but that everything is handled with the smart phone is not good”*¹. This negative attitude was reflected in his references to advantages and disadvantages of the smart phone, since he mentioned less of the former (n = 2) compared to the latter (n = 5). In his opinion, an advantage of the smart phone was the function of the camera, which could be used to talk to people far away, as for instance to his grand child who went abroad. According to A, a disadvantage of the smart phone usage was that people would become less intelligent by it, stating that younger people would use the smart phone to calculate things or to use it as a navigator; *“I can still read a map, I think younger people can't do that anymore”*².

Moreover, the function of being able to text with each other with the smart phone resulted, in his opinion, in the disadvantage of the decrease of personal conversations. This is related to the code “loss of personal interactions”, which was mentioned by him twice when talking about changes in his life due to smart phone usage of younger people.

*“In the past, we visited our parents or siblings on Sundays to see how they were, we hugged each other and talked personally, this is diminishing due to the smart phones (...) I think a part of humanity is getting lost by that.”*³

Additionally, in A's opinion, people would use their smart phones more to complete all of their tasks which he was sceptical about whether this was a good development. This theme of addiction to the smart phone was mentioned by him with regard to purchasing a smart phone himself with the hope of *“not becoming as addicted to the smart phone as the younger people”*⁴. This is related to the main code “excessive smart phone usage” (n = 4), describing that younger people would use their smart phones too often; he perceived them to *“be nothing but attached to it [smart phone]”*⁵. The intensity of the usage of the device was

¹ „Technologischer Fortschritt ist gut, aber dass alles über das Smartphone geht ist nicht gut“

² „Ich kann noch die Karte lesen, ich glaube junge Leute können das gar nicht mehr.“

³ „Früher sind wir sonntags immer zu den Eltern oder Geschwistern gefahren, um rauszufinden, wie es ihnen ging, man hat sich in den Arm genommen und gemeinsam geredet, das fällt durch das Smart Phone weg (...) da finde ich, geht ein Stückchen Menschlichkeit verloren.“

⁴ „Ich hoffe, dass ich nicht so Smart Phone süchtig werde, wie es die jüngeren Menschen sind“

⁵ „(...) dass die Jüngeren da nur noch dran hängen“

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further described as a difference between the older and younger generations. He stated that, in his perception, younger people would use the smart phone much more than older people. This was more apparent to him when observing younger people in the public than during social interactions.

“(...) many adolescents or young adults are walking around with the thing [smart phone] on the streets and they do not perceive the nature and it is nearly coming to jostling”⁶

Thus, A recognised a loss of the perception of others and one's own surroundings by the excessive smart phone usage of younger people when observing them in public. When talking about his own social interactions, however, he had the feeling that younger people mostly muted or turned off their phones when talking to him, reflecting this to be important for him during social interactions. Moreover, he mentioned the manner of leaving the room when being called as important since he thought it would be distracting if someone in the same room was talking to someone else on the phone. Thus, he did not mention a lot of situations in which he felt distracted by the smart phone usage of younger people during social interactions, since they were most of the time handling their incoming messages in a polite manner.

Altogether, A's perception of the smart phone usage of younger generations was negative. He saw more disadvantages and negative consequences in their smart phone usage than advantages. Moreover, he experienced a change in social interactions in general which was the loss of personality among the people which he linked to the smart phone introduction. However, due to the manner of putting the phone aside when interacting with him, he did not experience a great difference in the social interactions with younger generations personally between the present and the past due to the smart phone usage.

Interviewee B. The second interviewee without a smart phone was a 72 years old German woman, who worked as an administrative employee before she retired. She stated to be in contact with younger people, mostly her grand children, weekly. Her grand children were 10 to 29 years old. In the following, she will be referred to as B.

Of all interviewees, B reflected most critically on the smart phone usage of the younger people (n = 13). All of these reflections were negative which she often supported by describing her feelings as for instance *“experiencing a strong sense of rejection”⁷*. Her

⁶ „(...) viele Jugendliche oder junge Erwachsene auf den Straßen mit dem Ding [Smart Phone] rumlaufen und die Natur gar nicht mehr wahrnehmen und ja, es dabei sogar fast zu Rempelen kommt“

⁷ „(...) was ich als starke Ablehnung in mir spüre“

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negative attitude often concerned the way younger people used their smart phones and the feeling that smart phones entailed many negative impacts.

According to B, the advantages of smart phones were the availability of information and the declined effort one had to put in tasks. However, she stated that she “*could not understand the often described advantages such as WhatsApp groups*”⁸ as she saw more negative consequences of those claimed advantages.

These negative consequences were “*to be obsessed with the smart phone*”⁹, leading to being isolated and “*trapped in the world of smart phones*”¹⁰. Moreover, B experienced people to become superficial during conversations which she attributed to the amount of time spent on the smart phone. Hence, the disadvantages were linked with both “loss of personal interactions” (n = 7) and “excessive smart phone use” (n = 6). Concerning the latter, she referred to the smart phone usage of younger people as an addiction and she doubted whether a person, who was always busy with the phone and who was always receiving new messages, would be able “*to find tranquillity during the day*”¹¹. Additionally, when she was talking about the excessive smart phone use of younger people she often stated that she “*would not want to get involved in this*”¹², supporting her negative attitude of younger people's smart phone usage.

With regard to the loss of personal interactions, she further mentioned to have the feeling that it was not enough for people to be present in a face-to-face conversation but to also be present online at the same time, resulting in not paying enough attention to the conversation. Moreover, B put emphasis on the value of conversations with content compared to “*sending each other a clause ten times a day*”¹³ as she experienced it with younger people.

With regard to social interactions, B referred to more smart phone disturbing situations (n = 4) than to non-disturbing situations (n = 1). In her opinion, smart phones were used by the younger people too often during social interactions which lead her “*to a feeling of anger*”¹⁴. She further mentioned to be distracted by people using their phones during a social interaction since the usage during these interactions would, according to her, destroy the atmosphere of having good conversations. However, B showed understanding for people using their smart phones during social occasions if they had a reason such as an emergency or

⁸ „(...) ich kann auch die Vorteile die oft ja so beschrieben werden manchmal nicht sehen wie diese WhatsApp Gruppen“

⁹ „(...) weil sie nur darauf fixiert sind“

¹⁰ „(...) gefangen sind dann in der Welt der Smartphones“

¹¹ „(...) ob es dann überhaupt noch gelingt so eine Ruhe in sich zu haben“

¹² „(...) da will ich nicht rein geraten“

¹³ „(...) und nicht zehnmal am Tag irgendein Halbsatz der da durch die Gegend geschickt wird“

¹⁴ „(...) das bringt so ein Gefühl von Wut in mir auf“

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if they apologized and explained why they had to use it.

Furthermore, B talked about getting angry when she saw how many younger people were using their smart phones in public “*with their headphones plugged in their ears, being isolated from the rest of the world*”¹⁵. She mentioned to feel that younger people lost the perception of others and of their own surroundings when using the smart phone constantly in public.

Additionally, the theme of “belonging to a group” occurred twice during the interview. B mentioned to feel “*left out*”¹⁶ by younger people, thus, she experienced not to belong to a group anymore when interacting with younger people. This was because of two reasons: they exchanged information via the smart phone, which she could not; and they talked about the smart phone, where she did not have anything to contribute to the conversation.

To conclude, B perceived the smart phone usage of the younger generation negatively, since she saw more disadvantages than advantages and often had no understanding for the manner of using smart phones as younger people did. Moreover, B saw a difference in the social interactions with younger generations between the past and the present due to smart phone usage by having the feeling of being often disturbed by their usage during social interactions and by feeling left out by their usage and her non-usage.

Interviewee C. The third interviewee without a smart phone was a 79 years old German man. He worked in the farming industry as milk controller before he retired. He was in weekly contact with younger people, especially with his grandchildren (13-15 years old) and the younger people living on his street (15-25 years old). Even though he did not have a smart phone, he used a tablet to text with people and to get information from the internet. In the following he will be referred to as C.

C reflected on smart phones critically in both positive and negative forms. He evaluated them as important devices but also conceded of sometimes “*not seeing the sense in the usage*”¹⁷. Thus, he experienced a balance between the positive and negative sides of a smart phone, indicating that he “*would value the positive side a bit more than the negative side*”¹⁸. This is reflected in the greater amount of mentioned advantages (n = 7) than disadvantages (n = 4). Advantages of the smart phone were in his opinion the function of being available, to hold contact with other people easily, the availability of information, and the function of using the smart phone as a navigator. According to him, disadvantages were

¹⁵ „(...) und dann mit die Stöpsel im Ohr haben und wirklich ganz abgeschottet sind in dieser Welt“

¹⁶ „Ich bin ich dann so außen vor (...)“

¹⁷ “(...) obschon ich da [in der Nutzung] manchmal keinen Sinn drin sehe“

¹⁸ „ich würde die positive aber doch ein bisschen höher setzen als die negative in dem Fall“

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occurring when younger people were using the smart phones to play games, which were evaluated as pointless by C. Moreover, he mentioned that the smart phones caused laziness among younger people since it undertook tasks for them.

When talking about changes due to the smart phone, he mentioned on the one hand the easiness of being available due to the smart phone and compared that to the past, concluding that the trend of the smart phone usage was helpful. On the other hand, he also mentioned a change due to smart phone usage of younger people resulting in the loss of personal interactions;

“In the past, when they [younger people] did not have the thing [smart phone] yet, they were more likely to come around and talked more.”¹⁹

Additionally, he stated that he felt as if the younger people were more distracted by their phones which he connected with their excessive smart phone usage (n = 7). According to C, younger people were *“too addicted”*²⁰ to smart phones (n = 1), describing the smart phone usage as a *“nearly epidemic plague”*²⁰. However, he mitigated the excessive use stating that younger people grew up with ICTs.

Concerning the smart phone usage of younger generations during social interactions, C mentioned that it would be a matter of respect and upbringing to not use the phone during conversations. Furthermore, he thought it *“would not make sense to have a conversation with someone who is using the phone at the same time”*²¹; however, he did not experience it many times since his grandchildren would put the phone away when interacting with him. Additionally, he noticed that especially his young neighbours used their phones a lot outside, questioning whether it was useful to be on the phone while being in the nature.

Altogether, C perceived the smart phone usage of younger people more positively than negatively, while still being critical about the amount of use of them. He saw a difference in the frequencies of personal interactions; however, he did not see a difference in social interactions with younger people between the past and present due to the smart phone usage per se.

Conclusion of non-smart phone users. In sum, the interviewees of the non-smart phone using group perceived the smart phone usage of younger people more negatively than positively; indicating that their smart phone usage was excessive, leading to addiction and the

¹⁹ *“Früher, als sie [jüngere Leute] das Ding [Smartphone] vielleicht noch nicht hatten, da kamen sie vielleicht noch eher um die Ecke und ein Wort mehr sprachen“*

²⁰ *„Sie [jüngere Leute] sind zu abhängig davon, das [Smartphone Nutzung] ist ja schon bald seuchenhaft“*

²¹ *„Das macht ja keinen Sinn mit wem zu reden, der die ganze Zeit am Handy ist“*

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loss of communication. Especially the interviewees without any smart phone experience perceived it as negative, whereas the interviewee who was using a tablet had an even balance with a slightly more positive than negative perception. Furthermore, all interviewees of this group perceived differences in the social interactions with younger generations between the present and the past due to the smart phone usage, which is namely the loss of interactions in general.

Smart phone users

Interviewee D. The first interviewee with a smart phone was a 69 years old German woman, who worked as a principal before she retired. She stated to use the smart phone every day to stay in contact with family and friends, to get information from the internet, and to document daily situations with the camera. She was often in contact with younger people, either personally or on the phone. The younger people she was interacting with frequently were her grandchildren, who were 20 to 25 years old. In the following she will be referred to as D.

When D reflected critically on smart phones (n = 11), she often mentioned data protection and how she got more critical about uploads with the smart phone during the last years. She further mentioned the most advantages of smart phones of all interviewees (n = 15). According to her, the smart phone brought advantages such as inter alia being in contact with family and friends, getting information easily and fast, taking pictures with the camera, and using it as fitness tool with a step tracker app.

Disadvantages of the smart phone (n = 9) were in her opinion the deception in the internet, the frequent availability leading to be annoyed of the smart phone, and "*the potential of alienation when escaping in different worlds*"²² with the smart phone. Moreover, mobbing via the smart phone and being anonymous were mentioned by her as grand disadvantages of the smart phone use of younger people.

With regard to changes in her life due to smart phones (n = 7) she mentioned to feel closer connected to her grandchildren since she used a smart phone as they helped her to understand it. This theme can be further linked to the theme of "belonging to a group" and as an "advantage of smart phones". Moreover, D did not mention to see a difference concerning the level of personal communication with the younger generations; however, she raised the consideration of a change in the personality in the future among people due to the excessive smart phone usage with the following reasoning:

²² „Da sehe ich schon ein Potenzial für Weltentfremdung, wenn man sich in solche Welten flüchtet“

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“If you wouldn't have personal contact anymore and would only communicate via the smart phone, hypothetically, isolation would not stay away then (...) the self-perception could change as well because you don't have someone who acts as your mirror (...); if special conditions will cease like the real contact (...), then I can see a difficulty in it.”²³

Furthermore, D was the interviewee, who referred to the excessive smart phones usage of younger people least (n = 2). Besides, she described the smart phone usage of younger people as an *“unscrupulous manner”*²⁴ and claimed that especially younger people would show the urge of being present on the phone constantly.

When talking about smart phone usage of younger people during social interactions (n = 4), D mentioned to experience that younger people were busy with their phones when many people were sitting together, indicating that this was not a problem for her. A problem would only occur if they would use their phones when talking face-to-face to her, however, she mentioned to merely experience such occasions since the young people she was interacting with were *“too respectful”*²⁵ to act otherwise, thus, who put the phone aside. Moreover, she alluded to her understanding of smart phone use during a social interaction, when her conversation partner was explaining why they had to use the phone during the interaction.

Altogether, D's perception of the smart phone usage of younger generations was critical as she saw many advantages but also negative consequences for younger people. Moreover, she did not perceive any difference in the social interactions with younger generations between the present and the past due to the smart phone usage, claimed however that social interactions might change in the future due to the excessive smart phone usage.

Interviewee E. The second interviewee who was in possession of a smart phone was a 65 years old German man, who worked as a beer brewer before his retirement. He was using the smart phone for four years. He stated to be in weekly contact with younger people, such as his children (30-40 years old), who were using smart phones. In the following he will be referred to as E.

When E was reflecting critically on smart phone usage (n = 6), he focused on data protection with the result of the emergence of being cautious of what to disclose online. Moreover, he thought it was alarming how much the younger people were present on their

²³ „Wenn man gar keinen persönlichen Kontakt mehr hat und man nur noch per Smartphone kommunizieren würde, rein hypothetisch, dann bliebe eine bestimmte Isolation nicht ausbliebe(...) die Eigenwahrnehmung könnte sich auch verändern man hat ja keinen Spiegel mehr (...); wenn bestimmte Bedingungen wegfallen wie der reale kontakt, dann sehe ich das schon auch eine Problematik drin“

²⁴ „die gehen hemmungslos damit um“

²⁵ „da haben sie zu viel Respekt (...)“

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phones. In total he mentioned more advantages (n = 9) than disadvantages (n = 5) of the smart phone. Advantages were, according to him, the pace and easiness of getting in contact with family and friends, talking to one another within a group chat, the apps which helped him to inform himself about daily news and football results, and the fast availability of other information. Disadvantages were that the smart phone could become annoying when one was available constantly and when one was receiving a lot of messages.

As a change he mentioned that especially younger people would need to have a smart phone since they would otherwise not be able to perform a lot of occupations anymore. He related this change to the urge of being available the whole time. Additionally, he did not mention the loss of personal interactions due to the smart phone.

Even though he often referred to himself during the statements concerning the excessive smart phone usage (n = 8), most of the time he made the comparison between generations with the message of being afraid to become an as intensive smart phone user as the younger people were. Furthermore, he mentioned the potential of becoming addicted (n = 2) to the smart phone with regard to the excessive smart phone usage of younger people and raised his doubts about the importance of being available the whole time.

With regard to the theme of "differences among generations" (n = 3), E stated that younger people would use the smart phones much more than older people did. He explained this by indicating the different upbringing of younger people which already included smart phones.

*"I can see how my grandchildren are growing up with it completely differently; I want to be part of that."*²⁶

This quote refers to both the difference among the generations and the need to be part of a group. E mentioned twice that he made use of the smart phone to belong to a group, particularly to create a bonding relationship with the younger people.

E did not experience situations in which younger people were using their smart phones a lot during social interactions; he mentioned however, that he felt annoyed when he saw his son using the phone during conversations, indicating that the device would be "*an enormous disruptive factor*"²⁷. Moreover, he referred to situations in which he observed younger people using the smart phone in public while walking and therefore not perceiving their surroundings. He evaluated these situations as alarming as it showed, according to him, that younger people

²⁶ „Ich sehe wie meine Kinder und Enkelkinder nochmal ganz anders damit groß werden, da will ich dabei sein“

²⁷ „(...) das wäre ja ein riesen Störfaktor“

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put themselves in danger by using their smart phones continuously.

To conclude, even though E mentioned many negative sides of the smart phone usage of younger people, he valued the smart phone usage still as positive and showed understanding for the differences between the usages of younger people and his generations. Moreover, he did not experience great differences in the social interactions with younger generations between the present and the past to the smart phone usage personally, referred however to situations in which unknown younger people overdid their smart phone usage in public.

Interviewee F. The last interviewee with a smart phone was a 71 years old German man, who worked as test engineer for a company before he retired. He has been in possession of a smart phone for almost 3 years and used it to be in contact with his family and friends, to have access to information such as news and football results, to track his steps when walking, and to take pictures. The younger people, he was regularly in contact with were especially his own children, who were 32 to 37 years old. In the following he will be referred to as F.

When reflecting critically on smart phones (n = 8), he mostly referred to technological change, indicating that he did not like its pace and the direction in which the development was going. He did not value that people were able to control many things as for instance the heating system with their smart phone, indicating to be “*scared and frightened*”²⁸ about it.

F mentioned more advantages (n = 11) than disadvantages (n = 8) of the smart phone. Positive sides of the smart phones were, according to him, *inter alia* the easiness and speed of communication, the possibility to be in contact with his family and friends, and that “*the communication and documentation have become easier*”²⁹ as he often repeated. Disadvantages, however, concerned that people were transparent and were monitored, referring to the issue of data protection. Moreover, being constantly available for people could, in F's opinion, become annoying. With special regard to younger people he mentioned the problem of mobbing among people online.

Additionally, F was the only smart phone user who talked about the theme “loss of interaction” (n =5) among younger people. According to him, personal conversations were becoming less since especially younger people were talking to each other more over the phone than in real life, “*sending a WhatsApp message instead.*”³⁰

He added that since communication apps such as WhatsApp were free, both the loss of

²⁸ „(...) ,da kann einem schon angst und bange werden.“

²⁹ „Die Kommunikation und Dokumentation sind einfacher geworden“

³⁰ „(...) jetzt wird stattdessen 'ne WhatsApp geschickt“

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communication and mobbing via the smart phone increased due to no charges for sending the messages. The change of the cost saving apps were therefore valued as both positive and negative since it enhanced fast communication but at the same time could be used in an unscrupulous manner.

When F talked about the excessive smart phone use, he mentioned the dependency (n = 1) of younger people on smart phones, leading to be in need of a smart phone to perform occupations in the future. Moreover, he also talked about that younger people seemed to be addicted (n = 2) to the smart phone, indicating this as further difference among the generations.

With regard to social interactions, F argued that he often did not feel disturbed by the smart phone usage of younger people during social interactions since younger people were texting very fast so that he could not recognise it fully. However, in general he expected people to not use the smart phone during conversations with him because *“the other person would be inattentive”*³¹ so that they could *“quit trying to have a conversation”*³¹ at the first place. Moreover, he mentioned that he did not often experience social occasions during which younger people used their smart phones in a disruptive manner, referred however to situations in which he experienced younger people to use the smart phone in public with a negative attitude, referring again to the loss of personal communication.

*“When I am travelling with the train, every second person, almost every person, soon everybody will be sitting there with their smart phones and are busy playing something or are doing something online, and then no real communication is possible anymore.”*³²

In sum, F perceived advantages for younger people regarding smart phones, thus, valued the emergence of smart phones positively, considered however also negative and alarming consequences when talking about their smart phone usage. Moreover, he perceived a difference in the social interactions with the younger generations between the present and the past due to smart phone usage, which is namely the reduction of personal conversations.

Conclusion of smart phone users. In sum, even though the smart phone using interviewees saw a lot of advantages such as the easiness of contact and availability of information, they also evaluated on the disadvantages of the smart phone usage of younger people, resulting in viewing parts of the smart phone usage of younger people negatively.

³¹ „(...) und die andere Person ist dann unaufmerksam, dann könnten wir das vergessen“

³² „Wenn man mit dem Zug (...) fährt, da sitzt jeder zweite, fast jeder, bald sitzen alle da mit ihrem Smartphone und sind da irgendwie am spielen und im Internet zu Gange, da ist keine Kommunikation mal mehr möglich.“

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These facets concerned especially the intense smart phone usage which was associated with being addicted and dependent on the smart phone, and with mobbing and data protection. However, since they mentioned many advantages of smart phones, they valued the use of smart phones in general but disliked the negative consequences of the excessive smart phone usage of younger people. Moreover, they saw rather no change in social interactions with younger people between the present and the past due to the smart phone usage, claimed however to see changes when observing younger people in public.

Comparison of non-smart phone users and smart phone users

The perception of older people concerning the smart phone usage of younger people differed. This difference depended on the own smart phone usage: Interviewees, who were in use of a smart phone, saw more advantages (e.g. easiness of contact) of younger people's smart phone exploitation than older people without a smart phone. Even though the smart phone using interviewees saw more advantages than non-users, they also evaluated more critically on the disadvantages of the smart phone usage of younger people (e.g. addiction). That led to the evaluation of some parts of the younger people's smart phone usage as negatively as the older people without a smart phone. Therefore, it can be stated that older people perceive the smart phone usage of younger generations critically, with a tendency to evaluate it as positive when using smart phones themselves.

Moreover, the interviewees did not perceive a great difference between the past and the present during social interactions due to the usage of smart phones of younger people per se, since they more likely experienced situations in which younger people put the phone aside to interact personally with the interviewees. However, the group without smart phones mentioned more situations of the feeling of disturbance by the smart phone during social interactions than non-disturbed situations, whereas the group with smart phones experienced it the other way. Besides, both groups of interviewees were more likely to refer to situations of unknown younger people using their phones in public during social occasions than younger people they knew personally. Additionally, older people, who did not use a smart phone, were more likely to perceive a connection between the increases of the smart phone usage of younger people with the loss of personal interaction due to less direct communication among people than older people, who did use a smart phone. Moreover, group belongingness had further changed for the older people, depending on whether being in possession of a smart phone, thus, being part of a group with younger people, or on not being in possession and, thus, feeling left out.

Discussion

Discussion of the results

The aim of the research was to understand older people's perceptions concerning younger people's smart phone usage with regard to social interactions. Moreover, the study focused on differences and similarities among older people with and without smart phones. The major finding of the study is that there is a difference in the perception of the smart phone usage of younger people between the older people who are using smart phones regularly compared to those who do not. Accordingly, older people, who do not use smart phones or other ICTs, perceive the younger people's smart phone usage more negatively than the older people, who do engage in the usage of the device. However, the latter reflect the younger people's smart phone usage critically, leading to share the same negative opinions about facets of the younger people's smart phone usage such as the excessive use and the risk of becoming addicted to the smart phone. Next to the general smart phone usage of younger people, older people without a smart phone further see a change in the social interactions with younger people due to the smart phone emergence, which is the loss of personal interaction. This change was more likely to be considered by the interviewees without a smart phone than the ones with a smart phone.

The findings of this study demonstrate that making a generalisation of "the older people" is not sufficient when comparing them with "the younger people". Even though older people use statistically less smart phones than younger people (Lutter et al., 2017), there are still differences among them resulting in different perceptions and attitudes. These differences should be considered when conducting research about differences between age generations concerning technology to not stereotype elderly as "the generation who does not use technology". Paul & Stegbauer (2005) viewed the comparison between younger and older people as too streamlined when it comes to technology acceptance. According to them, other factors should be considered when comparing generations such as for instance gender or the socio-economic status. The current study shows that the factor of smart phone usage plays a crucial role in determining older people's perceptions, and should accordingly be taken into account when comparing older people with younger people with regard to perceptions of the younger people's smart phone usage.

Considering the acceptance of the older people, who are using smart phones, an external variable for the acceptance of smart phones is their experience. The smart phone using interviewees saw more advantages in smart phones than the non-smart phone using

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interviewees because they experienced the positive factors of smart phones themselves. Thereby, they formed a rather positive attitude concerning the devices. This acceptance of technology was concentrated on in previous research, as by Davis (1985), who established a model called the Technology Acceptance Model (TAM). It regards different factors that influence the use of a technology; namely external variables, which influence the perceived usefulness and the perceived ease of use, leading to an attitude toward the usage of the technology, which results in the behavioural intention for using the technology, ending in the actual usage (Davis, Bagozzi, & Warshaw, 1989). Linking this model with the findings of the current study, the smart phone experience can be regarded as an external variable. The users perceived smart phones as beneficial and its use as easy. Moreover, their attitude was more positive than negative, which explains their intention to use and their actual smart phone usage. This confirms the finding of Fernández-Ardèvol & Ivan (2013), who stated that older people, who use mobile phones frequently, have favourable opinions about mobile phone usage. According to Nikou (2015), technological acceptance is influenced by personal characteristics, which draw up their technology experience, stating that technology would be more accepted when having made experiences with it.

In contrast, the non-users of the current study lacked of experience and could, hence, not establish a positive attitude concerning smart phones. In terms of the TAM, the non-users did not have experiences with the smart phone, leading to a negative perception of its usage and underlining their negative attitude regarding the smart phone, which resulted in the refusal to use it. Moreover, the model supports that the experience of the interviewee with a tablet could also be an explanation for why his attitude was more positive than the ones of the interviewees who were using neither a smart phone nor another ICT. Accordingly, McGaughey et al. (2013) stated that the lack of smart phone experience leads to the refusal of using it. Mohadis & Ali (2014) supported this statement by mentioning that older people who have no experience and no knowledge regarding smart phones show no interest in learning to use the devices. According to them, people without interest in the usage often regarded smart phones as no necessity. Thus, same as in the findings of the current study, older people without smart phone experience valued the usage negatively.

As the older people with smart phones also advocated negative attitudes concerning the smart phone usage of younger people, the level of experience could be repeatedly an explanation: Mostly, the interviewees compared their smart phone usage with the younger people's usage; concluding that younger people would use their smart phones too much which led, according to them, to negative consequences such as addiction. That means that the older

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people saw a contrast in their level of smart phone usage with the level of younger people's smart phone usage, indicating that the level of the latter would be too excessive.

Moreover, the finding that older non-smart phone users were more likely to perceive a loss of personal interaction could be explained by the reasoning that they do not have the opportunity to contact younger people via the smart phone, which was something all smart phone using interviewees claimed to do. All interviewees stated that younger people would use their smart phones much – often evaluated as too much – to talk to each other, which supports the chance of older people to talk to younger people when using a smart phone. Ling (2008), Klimova & Maresova (2016), and Mitzner et al. (2010) referred to the smart phone as a social tool, emphasising the possibility to have intergenerational contact via the smart phone. Hence, in this study, the smart phone was perceived as a social tool of the smart phone users to be in contact with the younger generations. In contrast, for non-smart phone users the smart phone was rather evaluated a social barrier since they linked it to the loss of social interaction and were not in contact with younger people via a smart phone. This finding further confirmed Vaportzis et al.'s (2017) results of that older people perceive the excessive smart phone usage as a reason for the loss of interaction.

Furthermore, the perception of the loss of personal interaction might be an explanation for why the non-using group experienced more disturbances of the smart phone than the smart phone using group, as they might value the occasions of getting together differently, since they could not contact the younger people otherwise. Another explanation is the above mentioned phenomenon of “phubbing” (Klein, 2014). The smart phone using interviewees showed more understanding for the usage of smart phones during social interactions than the interviewees without. Therefore, the study confirmed that people without a smart phone show less understanding for the use of it during social interactions.

A further striking finding is that all of smart phone using interviewees mentioned the issue of data protection as a disadvantage of smart phones for both younger and older people. The non-smart phone users never talked about these issues during the interviews. This could be set in the context that the smart phone users feel vulnerable to become a victim of data misuse of their smart phones, whereas the non-users are not affected by that. Thus, even though data protection is a current topic on the media, it does not damage the non-users and seems therefore to be no perceived disadvantage of smart phones for them, whereas smart phone users value it as certainly negative.

Strengths and limitations

One strength of the study was the study design of comparing elderly non-smart phone users and smart phone users because it led to new insights of their different perceptions since no study focused on the difference before. By conducting face-to-face interviews, the interviewees were able to share in-depth information and it was possible to ask further questions to understand their perceptions and opinions fully.

Moreover, the balance among the interviewees was equitable since three of them were in possession of a smart phone and three were not. Even though the number of interviewees was rather low, this study had an explorative nature and did accumulate many of valuable insights.

Since two of the interviewees were known due to family connections to the researcher, the latter could have been biased and therefore might have directed questions of which she knew the answers of the interviewees already. However, four of the six interviewees were distant acquaintances or to the researcher unknown people, so that the bias could have only occurred during two interviews.

Even though the interview scheme has been tested by another researcher of the University of Twente, no pilot study was conducted with a member of the target group before the interviews were carried out. Two interviewees did not understand the same question concerning social values with regard to smart phone use, which had to be rephrased during the interview. This might have been avoided by a pilot study.

The interrater reliability of the study was moderate ($\kappa = 0.61$) which is acceptable for the study. Even though a Cohen's Kappa above 0.6 is evaluated as moderate (McHugh, 2012), the value of the interrater reliability of this study lies on the border to be moderate, which means that still a great amount of codes have not been rated in the same way by the two researchers. Furthermore, after both researchers coded the same interview individually, of which's procedure the interrater reliability was computed from, the coding scheme was revised and changed. These changes were based on the feedback of the second researcher in order to improve the coding scheme. However, after this revision, interrater reliability was not calculated again, meaning that it is not sure whether the final coding scheme would have had a better or worse interrater reliability.

Additionally, saturation was not achieved during the coding process because new categories emerged during the procedure including in the last interview, which means that some themes or categories might not have been detected which would have helped to find

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more answers to the research question. Nonetheless, the detected codes seemed to be useful and sufficient enough to answer the research questions.

Recommendations for future research and practical implications

Based on the limitations of the study, the following recommendations can be made for further research: in the future, research concerning older people and technology should concentrate on the aim of the current study, thus, considering the differences between the smart phone users and non-users. The study could be repeated with more interviewees to elaborate whether the same pattern among the groups would occur again. Other characteristics could be further taken into account such as the level of education or gender for instance, since this study did not set its focus on the differences among the levels of education and gender. This would give further insights into how different factors of older people might shape their attitude concerning younger people's smart phone usage. Moreover, a pilot study should be conducted in order to avoid misunderstandings during the interviews. Additionally, interrater reliability should be calculated for the final coding scheme, and further interviews should be conducted till all themes are covered in order to reach saturation.

Furthermore, future research should be conducted concerning the perceived loss of interaction among people due to the smart phone in order to either reduce the decline or to find a solution on stopping or changing the loss of personal communication among people. By enhancing the contact among different generations, the risk of ageism (Drury et al., 2016) and the loss of personal communication would be counteracted on. This seems to be important since more than half of the interviewees mentioned to experience the loss of interaction. In order to avoid such a conflict between the generations, interventions with older and younger people could be developed and tested with the aim of bringing them closer together to increase the personal communication. An example of such an intervention could be an app for younger and older people with a smart phone, which explains the importance of personal communication and which could notify them some times during the day with tasks such as holding a personal conversation with someone while consciously putting the phone aside. Moreover, they could receive messages which invited them to call one's grandparents or grandchildren. However, this intervention would only focus on smart phone using people. Therefore, further research should set emphasis on how to approach older people without a smart phone to find a solution of the loss of communication among the generations.

This study focused on how older people perceive the smart phone usage of younger people, however, during the interviews the older people talked also about how they perceived

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the smart phone usage of their own generation. Further research should focus more precisely on the attitudes of older people concerning their age group's smart phone usage. Factors such as smart phone usage and non-smart phone usage should be taken into account for that.

Therefore, interviews should be conducted with the focus on the perception of older people's smart phone usage in order to understand their perceptions better.

Conclusion

The current study revealed that the perceptions among older people concerning the smart phone usage of younger people differ based on their own smart phone usage; both groups (users and non-users) see disadvantages of excessive smart phone usage among younger people. However, the older people with smart phones value their usage not as negatively as the ones without do. Moreover, the older people without smart phones are more likely to attribute the loss of personal communication between younger and older people to smart phones than older people with smart phones.

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Appendices

APPENDIX A

Interview (ENGLISH)

This research aims to understand the perception of people, who are older than 65 years, concerning the smart phone usage of younger generations. That means that I am interested in your personal experiences and opinions concerning the smart phone usage of younger people. There are no right or wrong answers to the questions I will ask you: it is about your own beliefs, which makes you the expert in this interview. The interview will begin with some general, demographic questions. After that, the focus is set on the experiences with your smart phone usage and the smart phone usage of the younger generations, with special regard of social interactions. The interview will take approximately 60 minutes.

I would like to record the interview in order to transcribe it later on word for word, so that I can analyse it and can use it as a comparison to the other interviews. I can ensure you that personal data will be anonymized, so that in the end no one can find out which answers you gave during the interview. The records and transcriptions will not be used for other purposes than the analysis of this research. The research constitutes my Bachelor thesis and will be assessed by teaching staff of the University of Twente.

You can stop or withdraw from the interview at any time without giving a reason for it.

Do you have any questions or is something unclear to you?

Do you agree with the procedure? Can you please sign the following informed consent?

Interview

First, I would like to get some general information from you.

- How old are you?
- (What is your gender?)
- What is your nationality?
- What is your highest level of education?
- What is/was your occupation?

Now, I will focus on your personal experiences with smart phone usage.

- Do you have a smart phone?

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- How frequently do you use the smart phone?
- For what purposes do you use a smart phone?
 - Do you also use it for interaction with for example your family or friends?
- How do you feel about the increased usage of smart phones?
 - Did something change in your life since the introduction of the smart phones?
 - To what extent did your life change?
- What is a positive smart phone memory of yours?
 - This can be either of your usage or of someone else
- What is a negative smart phone memory of yours?

I will now focus on the smart phone usage of younger generations.

- How do you experience the smart phone usage of the younger generation?
 - Do you see differences between your generation and the younger generations concerning the frequency of the smart phone usage?

Furthermore, I would like you to tell me something about your social interactions, more specifically interactions with younger people.

- How often do you interact with younger people?
 - Who are these people? Are they family members (grandchildren, children) or friends?
 - How old are they?
 - Do they use smart phones?
 - Do they use smart phones during conversations with you?
 - How do you feel about that?

In the following, the focus will be set more on social interactions with younger generations.

- How do you experience social interactions with younger generations since the introduction of smart phones?
 - How are today's social interactions different from the era when there were no smart phones yet?

A social value makes clear, what a person thinks is important during social interactions, social occasions, and social issues. For you, when it comes to social interactions, what is important for you? What kind of behaviour defines a good social interaction? (Example for a social value is e.g. honesty)

- What are the main values, you consider being important during social interactions?

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- What is important for you when it comes to social interactions with younger people who are using smart phones?
 - Is there a difference to the social values you have in general?

Finally, I want you to think about your future.

- With regard to the future, do you think something will change in terms of **your** smart phone usage?
 - If yes: In what ways will your smartphone usage change?
 - If no: Why not?
- Moreover, with regard to the future, do you think something will change in terms of the smart phone usage of younger people?
- If yes: In what ways will smartphone usage of younger people change?
 - Do you think this is likely to have an impact on the social interactions between older and younger generations?
 - If no: Why not?

Thank you a lot for participating in my research and for sharing your experiences and personal opinions with me. Now that we finished the interview, do you have any questions?

Interview (GERMAN)

Diese Studie zielt darauf aus, die Wahrnehmung von Menschen über 65 Jahre bezüglich der Smart Phone Nutzung der jüngeren Generationen zu verstehen. Das heißt, dass ich an Ihren/Deinen persönlichen Erfahrungen und Meinungen interessiert bin; es gibt keine richtigen oder falschen Antworten zu den Fragen: Sie sind/Du bist der Experte/die Expertin dieses Interviews, denn es dreht sich um Ihre/Deine Gedanken. Das Interview wird mit ein paar generellen Fragen über Sie/Dich beginnen. Danach wird der Fokus auf Ihren/Deinen Erfahrungen mit der Smart Phone Nutzung und der Smart Phone Nutzung der jüngeren Menschen gelegt, mit spezieller Berücksichtigung von sozialen Interaktionen. Das Interview wird ungefähr eine Stunde dauern.

Ich würde das Interview gerne aufnehmen, damit ich es später wortwörtlich transkribieren kann. Das hilft mir dabei das Interview später analysieren und es mit anderen Interviews vergleichen zu können. Ich kann Ihnen/Dir versichern, dass Ihre/Deine persönlichen Daten anonymisiert werden, sodass man nicht weiß, welche Antworten Sie/Du während des Interviews gegeben haben/hast. Die Aufnahmen werden nicht für andere Zwecke verwendet

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außer der Analyse dieser Studie. Diese Studie ist Teil meiner Bachelor Arbeit und wird von einer Mitarbeiterin der Universität Twente bewertet.

Sie/Du können/kannst das Interview zu jeder Zeit anhalten oder stoppen, ohne jeglichen Grund dafür anzugeben.

Haben Sie/Hast du Fragen, die noch unklar sind?

Stimmen Sie/Stimmst Du der Prozedur des Interviews zu? Können Sie/Kannst Du bitte diese Einwilligungserklärung unterschreiben?

Interview

Zuerst, möchte ich gerne ein paar generelle Informationen über Sie/Dich wissen.

- Wie alt sind Sie/bist Du?
- Was ist Ihre/Deine Nationalität?
- Was ist Ihr/Dein höchster Grad an Bildung?
- Was ist/war Ihr/Dein Beruf?

In den folgenden Fragen geht es um Ihre/Deine persönlichen Erfahrungen mit dem Smart Phone.

- Haben Sie/Hast du ein Smart Phone?
 - o Wie oft benutzen Sie das Smart Phone?
 - o Wofür benutzen Sie das Smart Phone?
 - Nutzen Sie das Smart Phone um in Kontakt mit Leuten wie zb. Familienmitgliedern oder Freunden zu stehen?
- Was denken Sie/denkst Du über die gestiegene Smart Phone Nutzung?
 - o Hat Sich, seitdem es Smart Phones gibt, etwas in Ihrem/Deinem Leben verändert?
 - Inwiefern?
- Was ist eine positive Smart Phone Erfahrung von Ihnen/Dir? (von dir oder bezüglich der Nutzung von anderen)
- Was ist eine negative Smart Phone Erfahrung von Ihnen/Dir?

In den nächsten Fragen, wird der Fokus mehr auf die Smart Phone Nutzung der jüngeren Generationen gelegt.

- Wie erleben Sie/erlebst Du die Smart Phone Nutzung der jüngeren Generationen?
 - o Sehen Sie/Siehst Du Unterschiede zwischen der Smart Phone Nutzung der jüngeren und ihrer Generation? Zb bezüglich der Häufigkeit der Nutzung?

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Darüber hinaus würde ich gerne mehr über die sozialen Interaktionen mit den jüngeren Generationen wissen.

- Wie oft haben Sie/hast Du Kontakt mit jüngeren Menschen?
 - o Wer sind diese Menschen? (Familie/Freunde/..?)
 - o Wie alt sind sie?
 - o Worüber reden Sie/redest Du mit ihnen?
 - o Haben sie Smart Phones?
 - Benutzen sie Smart Phones während Konversationen mit Ihnen/Dir?
 - Was halten Sie/hältst Du davon?
- Wie erleben Sie/erlebst Du soziale Interaktionen mit den jüngeren Generationen seitdem die Smart Phones eingeführt wurden?
 - o Inwiefern unterscheiden sich die heutigen sozialen Interaktionen mit denen, aus der Zeit vor der Smart Phone Entstehung?

Ein sozialer Wert stellt dar, was eine Person während sozialer Interaktionen wichtig ist. Ich möchte, dass Sie/Du darüber nachdenken/nachdenkst, was für Sie/Dich wichtig während sozialer Interaktionen ist und was für ein Verhalten für Sie/Dich eine gute soziale Interaktion darstellt.

- Was ist eine Wertschätzung, die Ihnen/Dir während sozialer Interaktionen am wichtigsten ist?
- Was ist Ihnen/Dir am wichtigsten während sozialer Interaktionen mit jüngeren Leuten, die Smart Phones nutzen?
 - o (Gibt es einen Unterschied zwischen der Wertvorstellung die Sie/Du über soziale Interaktionen haben/hast, wenn man die Smart Phones mit in Betracht zieht?)
 - o Wenn man jetzt das Smart Phone hinzuzieht, gibt es da noch einen Unterschied?
 - Also: wenn jemand ein Smart Phone während einer Unterhaltung benutzt, gibt es da soziale Werte, die Ihnen wichtig sind?

Zum Schluss, möchte ich, dass Sie/Du sich/dich auf die Zukunft konzentrieren/konzentrierst.

- Denken Sie/Denkst Du, dass sich Ihre/Deine Smart Phone Nutzung in Zukunft ändern wird?
 - o Ja: Inwiefern?
 - o Nein: Wieso nicht?
- Denken Sie/Denkst Du, dass sich in Zukunft die Smart Phone Nutzung der jüngeren Generationen ändern wird?
 - o Ja: Inwiefern?
 - Denken Sie/Denkst Du, dass sich dieser Wandel auf die sozialen Interaktionen mit den jüngeren Generationen auswirken wird?
 - o Nein: Wieso nicht?

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Das war das Interview. Vielen Dank, dass Sie/Du an meiner Studie teilgenommen haben/hast und, dass Sie/Du Ihre/Deine persönliche Meinung mit mir geteilt haben/hast. Jetzt, wo das Interview vorbei ist, haben Sie/hast Du noch weitere Fragen?

APPENDIX B

Informed consent (ENGLISH)

Informed consent

Title research: The perception of elderly regarding the smart phone usage of younger people with special regard of social interactions

Responsible researcher: Jana Sophie Vilbusch

To be completed by the participant

'I hereby declare that I understood the purpose and nature of the research, which has been explained to me by the researcher. My questions have been answered to my satisfaction. I agree to participate in this research voluntarily. I understand that taking part in the study involves an audio-recorded interview. I am aware that I can withdraw from the interview/study at any time. If my research results are to be used in scientific publications or made public in any other manner, then they will be anonymized. My personal data will be treated confidentially and will not be disclosed to third parties without my explicit permission.'

If any questions occur, please contact the researcher:

Jana Sophie Vilbusch

j.s.vilbusch@student.utwente.nl

Name participant.....

Date: Signature participant:

If you have any complaints about this research, please direct them to the secretary of the Ethics Committee of the Faculty of Behavioural Sciences at the University of Twente, Drs. L. Kamphuis-Blikman P.O. Box 217, 7500 AE Enschede (NL), telephone: +31 (0)53 489 3399; email: l.j.m.blikman@utwente.nl).

To be completed by the executive researcher

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'I have provided explanatory information about the research. I declare myself willing to answer to the best of my ability any questions which may still arise about the research.'

Name

researcher:

Date: Signature researcher:.....

Informed consent (GERMAN)

Einwilligungserklärung

Titel der Studie: The Wahrnehmung älterer Menschen bezüglich der Smart Phone Nutzung der jüngeren Menschen mit besonderer Berücksichtigung von sozialen Interaktionen

Forscherin: Jana Sophie Vilbusch

Für den Teilnehmer

„Hiermit bestätige ich, dass ich das Ziel der Studie verstanden habe, welches mir von der Forscherin ausführlich erklärt wurde. Meine Fragen wurden zu meiner Zufriedenheit beantwortet. Ich bestätige, dass ich aus freiem Willen an dieser Studie teilnehme. Ich verstehe, dass für dieses Interview ein Aufnahmegerät gebraucht wird. Mir ist bewusst, dass ich das Recht habe, mich jederzeit dieser Einwilligungserklärung und der Studie zu entziehen, ohne dass ich jeglichen Grund angeben muss. Wenn die Ergebnisse der Studie veröffentlicht werden sollten, weiß ich, dass meine Daten anonym behandelt werden. Meine persönlichen Daten werden darüber hinaus nicht ohne meine Einwilligung an dritte Parteien weitergeleitet.“

Falls Fragen aufkommen sollten, kontaktieren Sie bitte die Forscherin:

Jana Sophie Vilbusch j.s.vilbusch@student.utwente.nl

Name des Teilnehmers

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DatumUnterschrift

Im Falle von Beschwerden über diese Studie, kontaktieren Sie bitte das Sekretariat des Ethik Komitees der Fakultät der Verhaltenswissenschaften der Universität Twente , Drs. L. Kamphuis-Blikman P.O. Box 217, 7500 AE Enschede (NL), telephone: +31 (0)53 489 3399; email: l.j.m.blikman@utwente.nl).

Für die Forscherin

„Ich habe ausreichende Informationen über die Studie gegeben und erkläre hiermit, bei weiteren Fragen über die Studie Antwort zu stehen.“

Name der Forscherin Jana Sophie

Vilbusch.....

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