Development of a senior-friendly training concept for imparting media literacy

Sebastian Wilhelm,[1] Dietmar Jakob,[2] Melanie Dietmeier[3]

Abstract: The use of digital solutions to support rural areas, and in particular elderly people, is the goal of the *'Digitales Dorf'* and *'BLADL'* research projects. This work assessed seniors' media literacy in two model communities; with the result that fear of fraudster and lack of knowledge are the most common causes that prevent elderly people from using digital technologies. Based on these evaluation results, a combined training offer of *tutorial* and *digital consultation hour* was developed and evaluated.

Keywords: Digitization; Media literacy; Senior education

1   Introduction

The current progress of digitization can be recognized in almost all areas of life. As the younger generation grows up with this progress and learns how to use digitalization in schools as well, older people are increasingly having problems using the new technologies.

According to the online study of ARD / ZDF in 2018, there were around 63.3 million Internet users in Germany [AR18]. However, there is a clear trend that the proportion of the users in the age group 60+ drops significantly, confirming the original thesis. *Figure 1* shows the proportion of Internet users in Germany who use the Internet daily or almost daily, by age group in 2018.

However, even seniors could experience relief in everyday life and improve their family and social contacts with digital technologies. As an example, here can be mentioned the communication with children, family and friends via instant messaging.

In fact, there is a strong barrier to the use of digital technologies and participation in courses. The elderly must change proven habits and processes and complement them with digital technologies. For more than two-thirds of people over the age of 60, these habits are an

[1] Deggendorf Institute of Technology, Technology Campus Grafenau, Hauptstraße 3, D-94481 Grafenau, sebastian.wilhelm@th-deg.de

[2] Deggendorf Institute of Technology, Technology Campus Grafenau, Hauptstraße 3, D-94481 Grafenau, dietmar.jakob@th-deg.de

[3] Deggendorf Institute of Technology, Technology Campus Grafenau, Hauptstraße 3, D-94481 Grafenau, melanie.dietmeier@th-deg.de

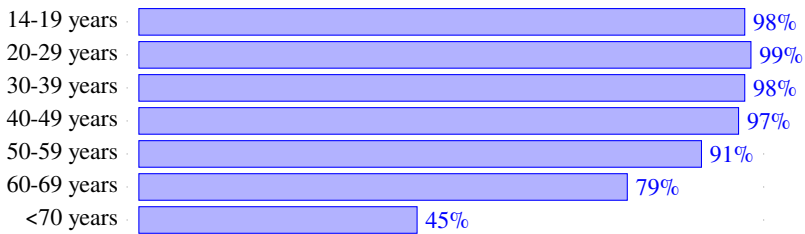|	
14-19 years	98%
20-29 years	99%
30-39 years	98%
40-49 years	97%
50-59 years	91%
60-69 years	79%
<70 years	45%

Fig. 1: Proportion of Internet users in Germany using the Internet every day or almost every day, by age group [St18].

important part of their lives and give them security in their daily lives. There is also no professional pressure for seniors to acquire digital knowledge. Therefore, there is a need to reduce ambivalence towards digital media and strengthen digital skills in old age. These include, for example, free WLAN access, the availability of broadband networks (especially in structurally weak regions) and access to terminals in retirement facilities (in nursing homes, volunteer agencies, neighborhood centers, multi-generational homes, senior citizen's offices, etc.) or public places that are also visited by older people, so-called study rooms (Internet cafes, chat rooms) [Kl16].

As part of this work, a training concept has been developed to provide citizens 55+[4] with targeted media latency. *'BLADL'* is linked to the *'Digitales Dorf'*[5] project and therefore focuses mainly on rural regions. The training concepts are tested and evaluated in two communities in the Bavarian Forest, Frauenau[6] and Mauth-Finsterau[7].

In a first step, a market analysis of existing education offers was created (*Section 2*). In a subsequent questionnaire campaign in the communities of Frauenau and Mauth-Finsterau, citizens (55+) were asked about the use of digital technologies, their needs, obstacles and wishes (*Section 3*). Subsequently, further education and support services were developed, which are currently being carried out with the aim of improving the media literacy of seniors (*Section 4*).

---

[4] No fixed border

[5] Further information about the project on www.digitales-dorf.bayern

[6] Municipality in the district of *Regen / Lower Bavaria* with a total of 2665 citizens from which 686 persons are in the age of 65 or older [Ba16a]

[7] Municipality in the district of *Freyung-Grafenau / Lower Bavaria* with a total of 2279 citizens from which 479 persons are in the age of 65 or older [Ba16b]

2 Analysis of existing education offers

A total of 40 educational offers from 31 different providers where examined in an market analysis of the existing educational offers for seniors[8]. Providers are mainly educational institutions, associations or private companies.

Depending on the offer, the group size of the participants varies between 5 and 15 participants and the offer ranges from one 2-hour session to six 3-hour sessions. The main topics are communication, internet apps, data protection and data security as well as online shopping.

Educational providers use the methods of lectures and exercises, individual consultations, group work, online training, self-study courses or videos.

> Older people prefer a written course booklet, so they can read in peace what they have seen and done under guidance. [Ku18].

Furthermore, the analysis suggests that the following conditions have been taken into account in individual offers in order to make participation for seniors enjoyable and successful:

- short course times (maximum 2-3 hours)
- allow sufficient breaks
- self-contained topics - no modular structure
- enough time for questions and exercises to plan
- learning at the residence of the senior
- small groups with individual care.

3 Survey on the determination of media literacy

At the start of the project in 2018 a total of 681 citizens 55+ of the municipality of Mauth-Finsterau were sent questionnaires by post. Citizens were asked about the use of digital technologies, needs, obstacles and desires to develop tailor-maid support offers.

At the end of the collection period, 145 questionnaires were submitted (response rate 21%). In addition, there are 89 questionnaires of a second champaign in the community Frauenau *Table 1* shows the distribution of the survey participants by age group.

Below, some of the results of this survey will be presented.

---

[8] The research was done via the internet

age group	amount	percentage
55-64 years	112	≈ 48%
65-74 years	90	≈ 38%
75-84 years	22	≈ 9%
no answer	10	≈ 4%

Tab. 1: Distribution of the survey participants by age group.

3.1 Use of digital technologies

In the first part of the survey, the frequency of using digital technologies such as mobile phones, smartphones, computers (PCs, laptops, notebooks) and tablets was questioned. Multiple selection was possible. *Table 2* shows the detailed results.

frequency	mobile phone	smartphone	computer	tablet
every day	19%	41%	39%	18%
weekly	6%	3%	12%	6%
less common	16%	2%	13%	5%
never	12%	24%	18%	36%
no answer	47%	30%	18%	35%

Tab. 2: Using digital technologies by frequency and device type. Multiple selection was possible.

If the item *never* has been selected for use or if no answer has been given, it can be assumed that there are no corresponding devices. Therefore *Table 3* shows adjusted results.

	mobile phone	smartphone	computer	tablet
regularly	41%	46%	64%	29%
never	59%	54%	36%	71%

Tab. 3: Frequency of using digital technologies (adjusted results). Multiple selection was possible.

It can not be ruled out that the difference between mobile phones and smartphones was clear to every respondent. However, a total of 216 respondents (≈ 92%) indicated that they use at least a mobile phone or a smartphone. Only 6 participants (≈ 3%) indicated that they did not use any of the requested devices or did not answer the question.

3.2 Use of applications and services

The questionnaire also asked which digital applications and services citizens are already using.

Figure 2 shows a list of the services and applications used by citizens, sorted by frequency.

Citizens explained mainly that they would use telephony and messenger / e-mail services with subsequent search and order options on the Internet. Another main application area is
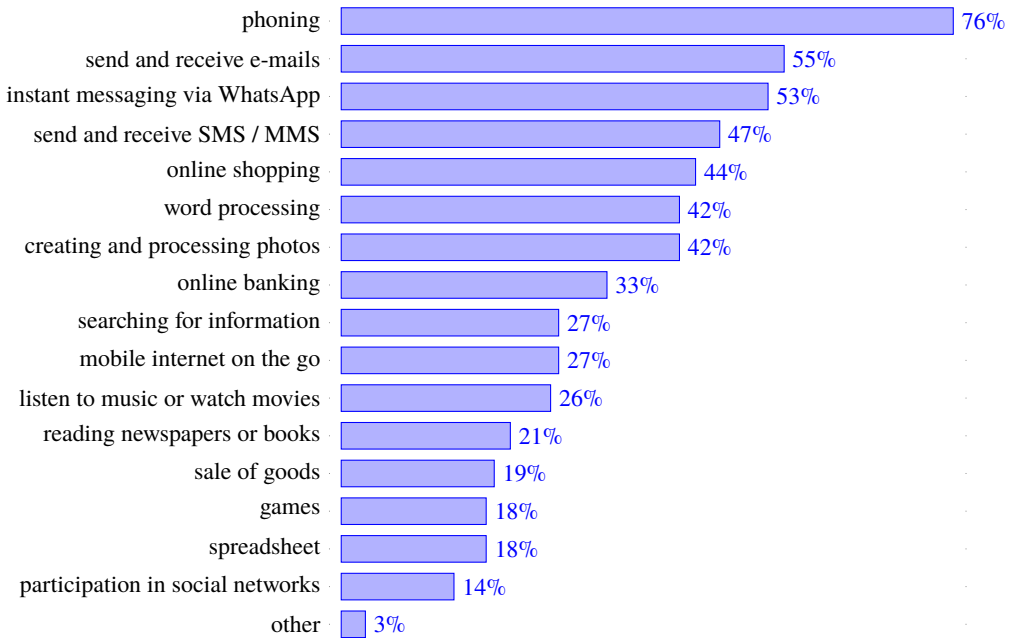
Application	Percentage
phoning	76%
send and receive e-mails	55%
instant messaging via WhatsApp	53%
send and receive SMS / MMS	47%
online shopping	44%
word processing	42%
creating and processing photos	42%
online banking	33%
searching for information	27%
mobile internet on the go	27%
listen to music or watch movies	26%
reading newspapers or books	21%
sale of goods	19%
games	18%
spreadsheet	18%
participation in social networks	14%
other	3%

Fig. 2: Survey results for the questions of which digital applications and services are currently been used from the citizens. Multiple selection was possible.

word processing, which is extremely useful on the PC. Photographing, as well as editing and sending photos is one of the main applications.

Rather, fewer respondents use online banking. An explanation for this can be found in *Figure 3*, where nearly half of the respondents stated, that they are afraid of being abused by fraudsters. Games or even services like eBay and Facebook play a minor role.

A comparison with similar studies can only be differentiated based on the various studied age groups. Furthermore, the researched geographic location is also crucial in the assessment. In this regard, the results are only partially comparable.

Looking at other studies when using the applications and services, there are both parallels and contradictions. The study of people over the age of 50, 'Technology use in everyday life: implications for older users (2012)' [Ca19], indicates that 65% of respondents use e-mail services. This study also takes into account the age group of 50-55 year-olds, which was disregarded in the present study. However, the age group is already more tech-oriented due to the use of modern technologies in professional life and explains the discrepancy of the results. When using messaging services (e.g. WhatsApp), the results are almost identical to the surveys in the mobi.Senior.A project [Am15]. Interestingly enough, the usage rate of online banking services, music and video streaming, as well as the creation and editing of photos with the surveys of Caprani [Ca19] differs only marginally. According to a study by DIVSI [SI16], online shopping is used by 41% of people over the age of 60 and is almost identical to the available figures (44%). Of minor importance in the use include services such as reading newspapers, games and social networks (Facebook).

A comparison of the results of different studies in the use of digital services is shown in *Table 4*.

service	DIT	Mobi.senior.A	Telefonica	A1	DIVIS	Caprani
phoning	76%	n/a	n/a	n/a	n/a	90%
send and receive e-mails	55%	77%	78%	21%	87%	65%
instant messaging	53%	55%	28%	n/a	26%	n/a
send and receive SMS	47%	88%	n/a	38%	n/a	n/a
online shopping	44%	n/a	29%	n/a	41%	n/a
creating and processing photos	42%	96%	n/a	n/a	n/a	47%
online banking	33%	n/a	30%	n/a	n/a	32%
searching for information	27%	n/a	41%	21%	86%	63%
listen to music or watch movies	26%	62%	23%	n/a	6%	28%
reading newspapers or books	21%	n/a	50%	n/a	9%	n/a
games	18%	n/a	45%	n/a	9%	n/a
participation in social networks	14%	22%	18%	n/a	n/a	n/a

Tab. 4: Comparison of our (DIT) survey results on services used with the studies [Am15], [Te], [DB14], [SI16], [Am15]

3.3   Reasons preventing the use of digital technologies

An essential reason why seniors do not use digital technologies is the subjective difficulty experienced. In addition, DIVSI [SI16] comes to this conclusion. The mobi.senior.A project [Am15] states that usability issues are hurdles where older people would fail if there is not someone to show them how to proceed.

As part of our survey citizens were also asked for reasons that prevent them from using digital technologies.
The most frequently mentioned was the fear of fraudsters. This result is not cited in any of the studies [Ch17, SI16, Te, Ca19, Am15, DB14]. The results of related studies generally refer to data protection and data security aspects that hinder its use.
Other important reasons for non-users are the lack of knowledge and competence in dealing with media, misdirected on-demand support and complicated handling of the equipment. Slow Internet access or overinvestment are not considered as relevant.
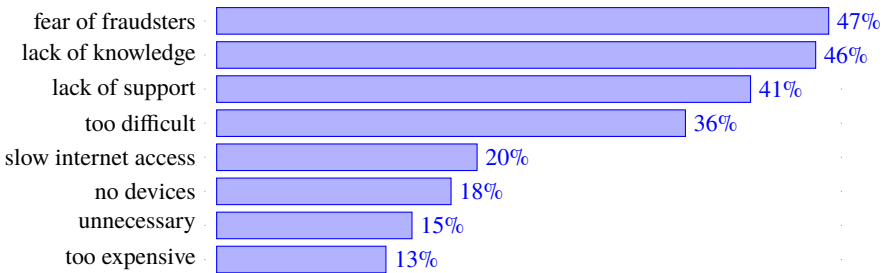
The detailed results are shown in *Figure 3*.

Fig. 3: Survey results for the question of which reasons does the citizens prevent from using digital technologies. Multiple selection was possible.

3.4   Desired additional support

The survey has shown that the majority of digital technology users receive help and support from their own family, such as partners and children. Rather less said to seek help from neighbors or acquaintances on the Internet itself and commercial providers. Even the own problem solving has only a law value. Some do not seek support at all, but simply stop using it.

The results for the question of what service citizens are looking for are shown in *Figure 4*.

Often, support within the family is not enough and additional help is required. The survey shows that citizens prefer exercises with a coach and have the opportunity to attend a digital
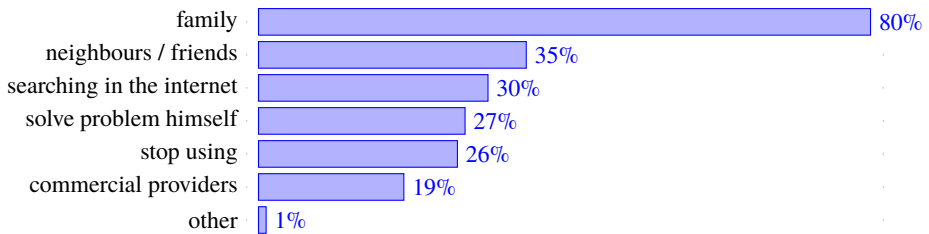
Fig. 4: Survey results for the question of where the participants currently are searching for support around the use of digital technologies.
The question was answered by 195 people. Multiple selection was possible.

consultation hour. There is also a need for traditional offerings such as courses or seminars in educational institutions. The interest on digital worksheets for tablets, PCs or books is rather low. Also video courses seem to be of lesser importance.

The results for the question of what service citizens are looking for are shown in *Figure 5*.
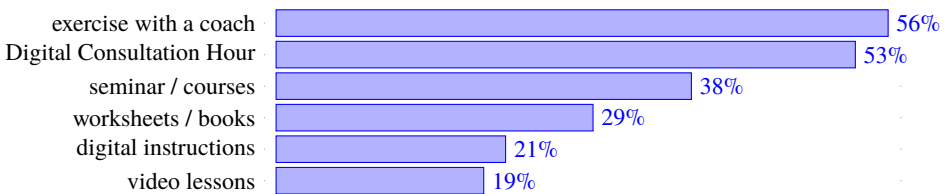

Fig. 5: Survey results for the question of which supporting offers the citizens are searching for.
The question was answered by 111 people. Multiple selection was possible.

The interpretation of the results shows that trainings or seminars on digital topics alone are not enough. Additional support formats must be offered in order to deepen what you have learned or to be able to solve any problems that may arise. The Telefonica study [Te] and mobi.senior.A [Am15] reached the same conclusions. Older people do not just have to have somebody who shows them the most important functions and control options, but also help them relatively quickly, if they do not know how to continue, according to the findings of the project mobi.senior.A [Am15]. This is even more evident in the Telefonica [Te] study. Authors conclude that support services are needed for people who are not attending a course or have no one in their area who can be contacted when seeking help with regard to such issues.

4   Implementation

Taking into account the analysis of existing education offerings (*Section 2*) and the results of the previous citizens' survey (*Section 3*), a training concept has been developed that consists of two components. On the one hand, the *tutorials* are held in small groups with a personal trainer and on the other hand, a regular *digital consultation hour* was set up. Particular care was taken to ensure that all offers are suitable for seniors. Among other things, the barrier-free accessibility of the training rooms or the age-appropriate graphic design of the training documents (e.g. font size / contrast) must be ensured.

All offers are free of charge and non-binding to citizens. In order to address people who currently do not have a suitable device, a pool training devices (smartphones, tablets and laptops) has been set up, which can be made available to the participants for the tutorials.

In the following, the two implemented supporting offers are described in more detail.

4.1   Tutorials

The essential knowledge transfer takes place in the context of *tutorials*. Therefore, courses take place in small groups (6-8 participants), where each session deals with a self-contained thematic block[9]. Furthermore, the courses take place locally (in the communities), so that distances are eliminated.

The content of the tutorials focuses on functionality, technology-specific background knowledge (e.g. describing end-to-end encryption) is only treated if it is inevitable necessary. Accordingly, the course topics are always described in a purposeful way and advertised such e.g. 'short messages from and to children, grandchildren and friends via WhatsApp'. This should overcome the first inhibition threshold for the direct use of new technologies. The participants should be able to draw an immediate added value from the course.

During the tutorial, the participant is introduced step by step to a practical goal (e.g. sending an image via WhatsApp). The participants will receive exercises during the tutorial, that they can complete independently on their own devices and thus have the opportunity to deepen their knowledge directly. For a single course, a period of no more than two hours is regularly provided to promote sustainable knowledge acquisition and not to overstrain the participants.

In order to receive further information or to look up all learning contents more compactly, all course participants receive a course booklet, which contains the content of the training and partly further printed (also technical) information.

The *'BLADL'* project has offered courses on the following topics:

---

[9] No hierarchical course structure. Each session can be vised independently to the participation of other courses

- How do smartphones, tablets & co. work?

- Short messages from and to children, grandchildren and friends via WhatsApp

- Short messages from and to children, grandchildren and friends via e-mail

- Information about doctors, medicine and holidays - using the tablet on the Internet

- Basics of word processing with Microsoft Word

- Take beautiful pictures with your smartphone, edit and save

- Don't be afraid of online banking

- Safe shopping on the internet

By conducting the courses, the inhomogeneity of user devices (especially for smartphones and tablets) is a particular challenge. Often, menus, functions or labels are very different, which makes it difficult for the participant to follow. The tutor therefore needs to pay particular attention to teaching the logic of a system and not having fixed step-by-step introductions that may not work on some user devices. Technically, mirroring the screen with a tutorial device on the projector can be very helpful in solving these difficulties. Further, the tutor may need to support some participants during the tutorial on their own devices so that everyone can follow the course. It should be noted, however, that particularly with smartphone and tablet courses, a very high degree of teacher´s affinity (mainly technical) is necessary to assist the participants on their own device when needed.

To participate in the tutorials a registration is required to guarantee the small course size. This opportunity is also used, among other things, to derive some course-relevant information in advance (e.g. is a Google-Account available?) and to prepare the training accordingly.

An initial evaluation[10] of the tutorials shows that the participants receive the concept very well and that almost all participants are very satisfied with the offer. The feedback also shows that the participants are looking for more, and after the first inhibition threshold is overcome, they are also interested in advanced courses.

4.2   Digital consultation hour

In addition to the tutorials, a digital consultation hour was set up. This format complements the tutorials so that citizens have the opportunity to receive further support for small questions and problems around digital technologies.

The *digital consultation hour* within the *'BLADL'* project takes place on a weekly rhythm for two hours per community. Citizens can also take advantage of this offer without registration, giving them the opportunity to receive free assistance from experienced staff.

---

[10] In March 2019 with currently 305 participants at tutorials

It is interesting to know that the offer is very well received in Frauenau, with an average of 6 people per week, whereas on average in Mauth-Finsterau only 1 person uses the same offer.

The offer should include more detailed information on specifics and individual technical questions and problems. In addition, the feeling of security should be conveyed in order to have a contact person in case of problems with a device. This is to encourage the citizens to experiment with the devices themselves.

The long-term goal of the digital consultation hour is to encourage exchanges between citizens themselves and to encourage seniors to assist each other in technical matters.
In the community Frauenau already first successes were achieved here. Even during the regular digital consultation hour, the seniors help each other with minor concerns.

5   Conclusion and Future Work

As part of the *'BLADL'* research project existing training courses for seniors were evaluated (Section 2) and citizens 55+ in the communities of Frauenau and Mauth-Finsterau were asked about their preferences and wishes for (additional) training on the Internet in the field of digital technologies (Section 3). Based on these results, a two-part training concept was developed, carried out and initially evaluated, consisting of *tutorials* on the one hand and a regular *digital consultation hour* on the other hand (Section 4).

Until March 2019, there were already 37 tutorials with more than 300 participants and 27 digital consultation hours with around 100 participants, which were successfully carried out and initially evaluated. It should be noted, that the two-part concept is very well accepted by the citizens and the course evaluation shows very good results.
The problems reported in the digital consultation hour are also becoming increasingly complex, suggesting that citizens are using for themselves and experimenting with new digital technologies. Citizens are even beginning to communicate the offer to other seniors, so the customer-base for the tutorials and digital consultation hour is continually growing.

The next step is to examine the transferability of the two-part training concept to other regions. For this purpose, the financial feasibility is first examined. An attempt is made to determine to what extent the participants in the tutorial (as well as the digital consultation hour-participants) are prepared to pay for such an offer and how citizens' expectations change when they have to pay for the offer. In addition, various public / voluntary approaches (such as the distribution to multi-generation houses or the continuation of an organized neighborhood assistance) need to be assessed.

In parallel, it is planned to conduct a second survey in the municipalities of Frauenau and Mauth-Finsterau to assess the sustainability of the training concept and the transfer of knowledge.

Acknowledgements

References

[Am15]   Amann-Hechenberger, Barbara; Buchegger, Barbara; Erharter, Dorothea; Felmer, Viktoria; Fitz, Bernadette; Jungwirth, Bernhard; Kettinger, Marlene; Schwarz, Sonja; Knoll, Bente; Schwaninger, Teresa; Xharo, Elka: Tablet & Smartphone: Seniorinnen und Senioren in der mobilen digitalen Welt. Technical report, Österreichisches Institut für angewandte Telekommunikation (ÖIAT), Büro für nachhaltige Kompetenz B-NK GmbH, ZIMD – Zentrum für Interaktion, Medien und soziale Diversität, 2015.

[AR18]   ARD, ZDF: , Anzahl der Internetnutzer in Deutschland in den Jahren 1997 bis 2018 (in Millionen). Statista, 2018. Accessed: 2019-03-13.

[Ba16a]   Bayerisches Landesamt für Statistik: Demographie-Spiegel für Bayern. Berechnungen für die Gemeinde Frauenau. Technical report, Bayerisches Landesamt für Statistik, 2016.

[Ba16b]   Bayerisches Landesamt für Statistik: Demographie-Spiegel für Bayern. Berechnungen für die Gemeinde Mauth. Technical report, Bayerisches Landesamt für Statistik, 2016.

[Ca19]   Caprani, Niamh; Doyle, Julie; O'Grady, Michael; Gurrin, Cathal; O'Connor, Noel; Caufield, Brian; O'Hare, Gregory: Technology Use in Everyday Life: Implications for Designing for Older Users. 06 2019.

[Ch17]   Christine, Weiß; Julian, Stubbe; Catherine, Naujoks; Sebastian, Weide: Digitalisierung für mehr Optionen und Teilhabe im Alter. Technical report, Bertelsmann Stiftung, 2017.

[DB14]   Dandrea-Böhm, Livia: , Die Seniorenstudie von A1, 2014.

[Kl16]   Klein, Ludger: Runder Tisch „Aktives Altern – Übergänge gestalten". Fachgespräch am 21. Januar 2016 in Frankfurt am Main: Digitale Kompetenz älterer Menschen - Dokumentation, 2016.

[Ku18]   Kubicek, Herbert: Leitfaden - Digitale Kompetenzen für ältere Menschen. Technical report, Telefónica Deutschland Holding AG, Stiftung Digitale Chancen, 2018.

[SI16]   SINUS-Instituts Heidelberg: DIVSI Ü60-Studie Die digitalen Lebenswelten der über 60-Jährigen in Deutschland. Technical report, Deutsches Institut für Vertrauen und Sicherheit im Internet, 2016.

[St18]   Statistisches Bundesamt: . Private Haushalte in der Informationsgesellschaft – Nutzung von Informations- und Kommunikationstechnologien, 2018.

[Te]   Telefónica Deutschland Holding AG, Stiftung Digitale Chancen: Digital mobil im Alter. Technical report, Telefónica Deutschland Holding AG, Stiftung Digitale Chancen. Survey only on usage of tablets.