

Beyond the Digital Divide: Digital Skills and Training Needs of Persons 50+

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Abstract: Demographic change and digitalisation are two megatrends which change society and individual life fundamentally. Digital skills and their continuous development are increasingly central prerequisites for participation in private and public life, and it must be ensured that all citizens can develop the skills necessary to participate and to access services. However, these skills are not equally developed in all population groups, an unequal distribution of ICT use, digital skills, and its outcomes, the so-called “digital divide”. However, using a binary classification of Internet use or skills overlooks the broad differences in people’s level of skills. Due to the static and dichotomous theoretical conception, there is a high risk of overlooking the group of people who, in a continuum of digital skills, are not at either end but somewhere in the middle. Especially with persons in the second half of life, due to their biography as they did not grow up with digitalisation but acquired basic skills during their professional lives, a high percentage of people with intermediate digital skills can be assumed. This group is at risk of being overlooked in the context of digital skills courses, which often focus on building basic skills. Strategies and programs should be developed to support the further development of digital skills of this group during and especially beyond working life. Therefore, a mixed-method study, entitled “Digital Skills and Training Needs of 50+. A Study Beyond the Digital Divide”, is conducted by the Institute for Ageing Research (IAF), OST – Eastern Switzerland University of Applied Sciences, funded by the Swiss National Science Foundation (SNSF) within the program NRP 77 “Digital Transformation”. The project will generate broad knowledge of actual and long-term digital competences of Swiss people 50 plus, their training experiences, as well as develop evidence-based recommendations for stakeholders wishing to design new training courses on digital competences for people 50 plus with different educational backgrounds and experiences. This project provides actual and long-term broad knowledge and practical application possibilities to ensure the participation of future generations in digitalisation in Switzerland. This paper presents in detail the project, its individual parts and the methodological approach..

1 INTRODUCTION

Demographic change worldwide and in Switzerland is leading to a significant increase in the number of older adults in the population (Federal Statistical Office, 2020; Vaupel, 2000). In parallel all areas of society are being transformed by digitalisation (Tsekeris, 2018). These two megatrends will change society and individual life fundamentally. Despite these changes and developments, it must be ensured

that all citizens, including older adults, can develop the skills necessary to participate in public and social life and to access health-services as well as other services. In an increasingly digitalised society digital competences and skills and their continuous development are essential (European Commission, 2018; Ferrari, Punie, and Brečko, 2013).

The European Commission (2018) defines Digital Competence as “the confident, critical and creative use of ICT to achieve goals related to work, employability, learning, leisure, inclusion and/or

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participation in society. Digital Competence is a transversal key competence which, as such, enables acquiring other key competences (e.g. language, maths, learning to learn, creativity). It is amongst the so-called 21st Century skills which should be acquired by all citizens, to ensure their active socio-economic participation in society and the economy.” A basic framework for digital competences for all citizens is provided from the European DigCOMP project, listing competences and describing them in terms of knowledge, skills, and attitudes. The main areas of digital competence identified by the DigCOMP (2020) framework are information, communication, content-creation, safety and problem-solving (Ferrari et al., 2013, p. 4).

1.1 Digital Divide

However, the use of ICT and digital skills are not equally developed in all population groups. To capture this inequity, the term “digital divide” emerged in the mid-1990s. Up to now, it still dominates the discourse on the societal distribution of digital competences (Castells, 2002; Eastin, Cicchirillo, and Mabry, 2015; Friemel, 2016). The Organisation for Economic Co-operation and Development (OECD, 2001) defines the digital divide as differences between individuals, households, companies, or regions related to the access to and usage of ICT. These inequalities in access to the Internet and usage of ICT are also called the “first-level digital divide” (Van Dijk, 2005). The concept has received much attention, partly because the digital divide is seen as the practical embodiment of the wider theme of social inclusion (Selwyn, 2004). Over time, broadband Internet access and digital devices became more prevalent in developed countries, and the diffusion of the Internet among households reached high levels. With time, the digital divide discourse shifted from Internet access to issues of Internet skills, which was then referred to as “second-level digital divide” (Hargittai, 2002; Tsai, Shillair, and Cotten, 2017; Van Dijk, 2005). Further, it was found that although Internet access exists and digital skills are available, outcomes of Internet use are not necessarily beneficial, a discussion resulting in the term “third-level digital divide” (Stern, Adams, and Elsasser, 2009; Van Deursen, Helsper, and Eynon, 2016; Wei, Teo, Chan, and Tan, 2011).

In order to counteract these divides and the resulting disadvantages, various efforts have been made to get people, including older adults, online and to provide basic digital skills. The underlying assumption is that once someone is online, they will remain ‘digitally engaged’ (Olphert and Damodoran,

2013, p. 564). However, in their review, Olphert and Damodoran (2013) found statistics showing that some users give up using the Internet and that there is emerging evidence that older adults in particular tend to do so (in the sense of a so-called “fourth digital divide”, Olphert and Damodoran, 2013).

Over time, the complexity of the so-called digital divide became obvious and critical perspectives on the concept emerged, e. g. concerning its range resp. dichotomy (Wang, Myers, and Sundaram, 2013). This primarily emerged due to the wide gap within the generations, especially at the beginning of the ongoing digitalisation. Referred to the dichotomy between non-user and user, a distinction is (still often) made between so-called digital natives, defined as generation Y (born between 1980-1999) and digital immigrants, who were born earlier and thus, learned to use computers in adulthood (Prensky, 2001). Whereas the former ones attributed high competences, the latter ones regarded to have low skills resp. knowledge. However, using a binary classification of Internet use or skills overlooks the broad differences in people’s level of skills, therefore, one should talk about a continuum of digital skills.

Additionally to the problem of actual oversimplification through a dichotomous division into two groups, the rapidity of technical change supports the change of perspective to a continuum of digital skills. For example, it is likely that the use of the Internet will increase in the future, but the rapid technological development will also mean that digital natives will have something new to learn. This does not just comprises certain practical skills in using the Internet, but also knowledge resp. awareness of certain consequences, e. g. questions of sustainability or digital footprints (Vervier, Zeissig, Lidynia, and Ziefle, 2017). Moreover, with the rapid (further) development of modern technologies and the spread of social media, the concrete manifestations of the divides in society are constantly changing (Weibert, Aal, Unbehaun, and Wulff, 2017). In sum, it gets obvious, that the “digital divide” is not a fixed picture, but a quite dynamic process with changing inequalities over time.

1.2 Need for Older Adults Maintaining Digital Skills

Research on digital inequality so far tended to assign people over a certain age (resp. from a certain generation) to a category of “older adults”, assuming that this is a homogeneous group. However, Hargittai and Dobranski (2017) showed with data from a national survey in the U.S. that older adults are not

one homogeneous group with identical online behaviours. For Switzerland, for example, Schumacher and Misoch (2017) found inhomogeneous groups concerning the use of digital services. It should therefore be noted that concerning their Internet experience, the group of people 50 plus cannot be regarded as homogeneous (Stallmann, 2012).

Against the background of these findings and the theoretical conceptions of Internet use as static (ICT use) and dichotomous (digital divide), there is a high risk of overlooking the group of people who, in a continuum of digital skills, are not at one end but somewhere in the middle. Especially the needs of persons in their second half of life, who have not grown up in the course of digitalisation but who have moderate digital skills, have received little attention so far. Considering cohort effects, it can be assumed that the proportion of the group with moderate digital skills is especially high among people 50 plus, as most of these people have gained their digital skills more at work than in school or at home (Van Dijk and Hacker, 2003). A part of this group, often referred to as “Baby boomer generation”, could benefit from an enormous economic growth and, considering that they benefited significantly from a successful expansion of education, was able to achieve good employment opportunities (Höpflinger, 2019; Oertel, 2014). As general trends, technisation and digitalisation were dominant in their later professional phases. Therefore, it can be expected that this large group has at least basic, if not in-depth experience with technology and digitalisation through their professional activity.

It is therefore very important to focus on this group of people, aged 50 plus with moderate digital skills. It remains questionable how this group is supposed to develop its digital competences beyond professional life. Although getting older adults online has been a high priority in many countries, little attention has been paid to whether and how their usage can be sustained over time.

The assumption that once someone is online, he or she will remain digitally engaged might not be true. According to Olphert and Damodaran (2013), older adults are more vulnerable to give up digital engagement. The authors see this phenomenon as a potential but largely unrecognised “fourth digital divide” which has serious implications for social inclusion. Especially when it comes to the post-professional phase in the course of retirement, not just training opportunities on the job, but also informal learning opportunities decline since social networks decrease. As a consequence, this group is at high risk

of being left behind digitally and strategies and programmes should be developed to support the further development of their digital skills, even though it is recognised that courses do not completely prevent people from giving up the Internet and computers, because it may also be the case due to changing needs and priorities. Based on findings of SHARE data that showed that also previous online older adults stop using the Internet, König and Seifert (2020) recommend that possible interventions for addressing those older adults in particular should be promoted, such as skills training.

In order to meet the aforementioned social needs, the project “Digital Skills and Training Needs of 50+. A Study Beyond the Digital Divide”, funded by the Swiss National Science Foundation (SNSF) within the program NRP 77 “Digital Transformation” is conducted with a strong focus on practical application and implementation. The project is carried out from 2020 to 2024 by the Institute for Ageing Research (IAF), OST – Eastern Switzerland University of Applied Sciences. The project, its individual parts and the methodological approach are presented in detail below.

2 PROCEDURE

2.1 Project Goals

The core goal of the project is to analyze the digital skills and training needs of people 50 plus and the current course offers in this context. In addition, recommendations for action are developed. The research project is designed as a mixed-method study, consisting of quantitative and qualitative as well as primary and secondary research with a clear practical implementation and applicability. Furthermore, the project is not only used to generate cross-sectional data, but also to create an infrastructure that allows to generate sustainable long-term data during and beyond the project.

2.2 Work Steps

To meet the project goals, the following steps are realized:

- A) Providing a comprehensive analysis of current training offers on digital skills for 50 plus throughout Switzerland using the method of a program analysis.
- B1) Compilation of a comprehensive questionnaire for a representative, Switzerland-wide survey (in German, French, Italian) to assess the actual digital

competences of Swiss people 50 plus, course experiences, and influencing variables such as sociodemographics, technology interest, self-efficacy, etc.

B2) Developing a self-assessment (in German, French, Italian) for people 50 plus, online available and to be used beyond the project period to generate long-term data on digital competences and knowledge about cohort effects in Switzerland.

B3) Conducting a representative survey (including B1, B2) of people 50 plus in Switzerland (n = 400).

C) In-depth analysis of training experiences with courses for the acquisition and maintaining of digital competences as well as future digital training needs by interviewing people 50 plus (n = 20).

D) Formulation of specific, evidence-based recommendations for stakeholders wishing to design new training courses on digital competences for people 50 plus and with different educational backgrounds and experiences. The recommendations will focus on the content, the didactical, and the structural level. The recommendations will be enriched with best practice examples in a factsheet.

The individual steps are shown in figure 1.

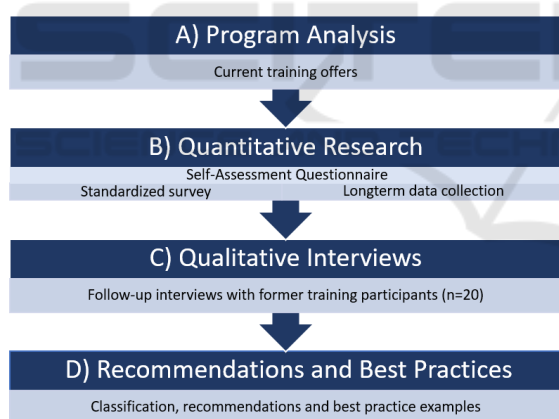


Figure 1: Procedure of the project.

2.3 Methods

A) Program Analysis: Current Training Offers

In part A of the study, an overview of the current course offerings for older adults in Switzerland is gained. With regard to contents, topics, methods used, target groups, needed digital skills and gaps in services the method of program analysis, an adult educational method, focuses on the programmes as the object of investigation. A programme expresses the learning concept of an educational institution, its

understanding of education and qualification (see Gieseke 2008; Gieseke and Opelt, 2003). At the same time, it materializes the provider's ideas about the educational needs of potential participants (Nolda, 2011). Therefore, programmes offered in 2020 and 2021 (online and offline) are identified as the information source that will deliver the most relevant data applicable for the project. The search is focused on providers of non-academic adult education in all parts of Switzerland and will mainly focus on the online information portal of the Swiss authorities (www.ch.ch), a service of the Confederation, the cantons and the municipalities. The analysis follows three steps (Käpplinger, 2008): a) Coding: The programs will be systematically analysed according to a coding system. The coding plan is developed specifically for this study and will be orientated on coding plans already tested in research (see Gieseke and Opelt, 2003; Schrader and Zentner, 2010). Categorisation is inductive and deductive. To increase the reliability and quality of the results, an intercoder-reliability check is carried out (Misoch, 2019). b) Data check: In case of ambiguities, discrepancies are discussed in the research team, and disputed cases will be documented. c) Analysis: The program analysis of this study combines quantitative and qualitative methods. The quantitative results will be prepared in quantifiable form via SPSS 26. Qualitative data will be interpreted under the use of qualitative aspects using content analysis (Mayring, 2015) via Atlas.ti.

B) Quantitative Research on Digital Skills

B1) Compilation of a comprehensive questionnaire to survey digital competences of Swiss older adults 50 plus, their experiences with courses concerning digital skills, and a broad range of influencing variables. The questionnaire includes questions about sociodemographic variables (age, gender, nationality, residence, education level, marital status, household size, income, past and present occupation), technology interest, self-efficacy, health status, digital skills (see B2), experience with digital skills courses, wishes and needs regarding digital training, actual available digital support.

B2) Development of a self-assessment questionnaire. The development process of the self-assessment questionnaire includes several steps. Item generation is based on the indicators of digital competence formulated by the European Commission (2014) as well as on the digital competence framework by the European Commission (Ferrari et al., 2013) and augmented by further literature on digital competences and related already developed

measurement instruments. A first draft of the assessment will be presented to and developed together with an advisory board of the project, consisting of course providers in Switzerland, with the goal to gain consensus from the experts whether the items reflect the characteristics required to measure digital competences. The adapted assessment is also presented to a group of older adults of the Sounding Board of the IAF to gain feedback on aspects like clarity and handling. A pretest with $n \geq 60$ refines the defined items. As often found in research, a convenience sample for the pretest will be used (Connelly, 2008; Mair and Whitten, 2000). The participants for the pretest are recruited in a snowball system via the established internal network of the IAF. By conducting tests evaluating reliability (e. g., Cronbach's Alpha) it is ensured that the self-assessment fulfils the quality requirements regarding consistency and accuracy

B3) A representative telephone survey of people aged 50 plus ($n = 400$), across the three Swiss language-regions (German, French, Italian) is conducted. Besides general demographic variables, the survey contains the self-assessment questionnaire on digital competences (see B2), and various (standardized and open) questions on training experiences and training needs (B1). One focus is on the investigation of possible differences in competences and needs among people with various educational levels as well as on differences within age groups, gender, and income. In addition, analyses are carried out to examine the interaction between competence levels and needs. The standardized telephone survey will be conducted by a social research institute using computer-assisted telephone interviewing (CATI) that provides the research team with the raw data, in the form of an anonymized SPSS dataset. All further processing and evaluation steps will be carried out by the research team of IAF.

Besides the analyse of cross-sectional data, this project will be used to establish a sustainable infrastructure to gather long-term data. The self-assessment questionnaire will be available online in German, French and Italian and will be promoted to course providers across Switzerland. Potential course participants will be able to follow a link, which leads them from the course provider's website to the online version of the self-assessment questionnaire (embedded in the website of IAF). The interested participants can click through the assessment and will receive a summary of their digital competence level. Course providers can begin to indicate what level of competences the offered course addresses and they can create courses based on the existing competence

levels. The data will be stored on the internal server and continuously enrich the data set, that can be analysed cross-sectionally and sequentially.

C) Qualitative Interviews: Training Experiences and Needs

Qualitative telephone interviews are conducted with a subgroup ($n = 20$) from the standardized survey (B1). The semi-structured interviews (Misoch, 2019) are planned six months after the quantitative survey and will be used to learn more about the participants' experiences with the courses: What expectations, needs and motivations were linked to the course participation? Did the course meet the initial expectations? What positive and negative experiences did the participants have with the course? Did the participants feel adequately addressed by the course? The results and conclusions will contribute to developing recommendations for future courses.

D) Recommendations and Best Practice Examples

In the final part of the study, the results of the previous steps will be combined, and recommendations will be derived and illustrated with international best practice examples. Additionally, the formulation of recommendations will also consider research-based pedagogical frameworks, such as "Universal Design for Learning" (UDL) (e. g. Meyer, Rose, and Gordon, 2014) to maximize learning for people 50 plus through the three main pillars affective networks, recognition networks, and strategic networks. A classification that allows the evaluation of current training offers will be developed, and best practice examples will be recommended. The recommendation guideline will be made accessible to all relevant stakeholders and seek to improve and optimize the current training offers for older adults, enhancing the digital competences of people 50 plus on the long-term. The selected best practice examples will be published together with the recommendations as a factsheet. Interested course providers can use the information in the factsheet to learn from each other. The factsheet aims to strengthen national and international networking between course providers.

3 EXPECTED RESULTS

The program analysis (A) provides a comprehensive survey and analysis of the current courses offered in Switzerland for people 50 plus and will be the basis for developing a grid of how courses are categorized

to create a fit between the captured digital skills (B2) and provided courses.

With the compilation of the self-assessment questionnaire (B2), it is intended to meet three objectives: First, it will be the basis for and part of the quantitative survey (B3) and provide information on the current state of digital competences of persons 50 plus in Switzerland. Second, it can be used by training providers and older adults to assess the digital competence before the training (like the level tests before language courses). Therefore, it is possible to match training offers and digital competences in the best possible way. Third, it will be made available to course providers during and beyond the project. This will make it possible to collect long-term data and compare digital competences with each other in a sequential design.

The project steps A to C aim to find out which courses regarding digital skills are available, which digital skills, training needs and expectations persons 50 plus have and whether previous courses could meet these needs and expectations respectively what could be improved.

The summary analysis and evaluation of the project steps A, B, and C lay the foundation for a classification for best practice recommendations (D). The classification contains criteria which, according to the project findings, are important and relevant for the age group 50 plus in terms of ensuring the acquisition of digital competences.

With the project, it is expected not only to contribute to scientific discourse but also to create a significant contribution to practice. By deriving recommendations from the research results and illustrating them with best practice examples, courses for people with medium digital competences can be developed or adapted. The self-assessment questionnaire makes digital competences and knowledge gaps visible to older adults and helps to communicate training needs. It can be the starting point for further course search or open up a conversation with a course provider in order to find the best matching offer. The data thus gathered enables course providers to identify different target groups and to tailor their offers accordingly. The involvement of stakeholders in form of an advisory board (course providers, older adults and other experts in adult education) from the beginning of the project ensures that the results are applicable in practice and implemented into concrete and requested course offerings even beyond the project. On the long-term, the project contributes to ensuring the lifelong acquisition of the required competences to participate confidently in the digital world and

support the needs of social transformation. Findings from this study should be applicable across various age groups and may be applicable in other countries besides Switzerland as well.

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