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# A Qualitative Case Study Focusing on the Relationship of Biography, Education, and ICT Use of Older Adults

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**ABSTRACT**

This qualitative biographical case study presents the case of 79-year-old Mrs. Blade and her attitude toward education and ICT (information and communication technology) use. A biographical-narrative interview with additional PCI questions was conducted. Material was analyzed using the approach of 'reconstruction of narrative identity,'. The case itself is portrayed with a focus on biographical, educational and learning patterns. Results indicate that biographical relevance is an individual key factor for not only educational but also lifelong decision-making. If the relationship between biography, education, and learning is put into perspective with ICT use and if no biographical link can be found, it results that there is no further engagement with ICT. This leads to the hypothesis that by linking biography, education, and learning, predictions on technology use can be made. Future research should address whether this biographical pattern represents a specific type of technology nonuse and therefore can be expanded and what other patterns exist.

## Introduction

The number of people worldwide who use the internet has been increasing continuously over recent years (Statista, 2022). However, research shows that especially older generations lack access, use and competencies in the field of information and communication technology (ICT; Doh, 2020; Fang et al., 2019; Hunsaker & Hargittai, 2018; König et al., 2018). As a consequence, older adults often cannot benefit from the "pivotal role in enriching the quality-of-life, health, and independence" (Fang et al., 2019, p. e1) which ICT solutions provide. This, as the authors conclude, leads to the so-called digital divide. Additionally, digital inclusion is nowadays forming part of social inclusion (Wanka & Gallistl, 2020). In other words, „the crucial issues of the digital divide are not just technological – they are social, economic, cultural and political" (Selwyn, 2004, p. 357).

In addition to access to and information about technology, gender, age, socio-economic status, and educational attainment are identified as factors influencing ICT use (Doh, 2020; Hunsaker & Hargittai, 2018; König et al., 2018). In this article, we aim to focus on age, education, and also on biography, as well as the link to and impact of all three on ICT use. Out of a sample of 30 interviews from the project DiBiWohn ('Digital educational processes for older residents in assisted living arrangements and care facilities' funded by the 'Federal Ministry of Education and Research' in Germany (grant number: 01JD1908); 2020–2025) the case of 79-year-old Mrs. Blade was chosen as an average resident in assisted living arrangements with no interest in using ICT. Residents are mostly 80 years and older as well as single (Kremer-Preiß et al., 2019). As a starting point of our analysis, this case enables us to

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identify underlying biographical patterns. Furthermore, it allows us to highlight barriers for older adults using ICT to better understand the results arising from further studies.

After explaining the background of this study, the case itself will be outlined. A brief overview of her biography will lead to further content-related analysis on an interpretive level. Conclusions will be drawn by outlining the connection of biography, education, and ICT use.

## ICT use and education for older adults

On the one hand, ICT use provides various opportunities and advantages for older adults. Participants (age 60+) mostly use search engines (81%), communication apps (75%) or e-mails (70%; Rathgeb et al., 2022). As a result, communication, accessing health services, or simply maintaining an independent lifestyle are some of the areas that can be facilitated (Fang et al., 2019, p. e1). On the other hand, several challenges arise. Especially being overwhelmed by such devices or underestimating one's own abilities can prevent older adults from engaging with ICT (Rathgeb et al., 2022). Regarding the technology acceptance model, perceived usefulness, ease of use to engage with ICT (Han & Nam, 2021), and internet self-efficacy are also identified as key factors (Jokisch et al., 2020). Interestingly, Buse (2009) highlights that older adults perceive ICT as a tool instead of as a leisure activity, in contrast to younger generations. Lastly, following van Deursen et al. (2011), there is a gap between exploring ICT in the first place and continuously using ICT to reach certain outcomes.

The context of education and learning of older adults is predominantly informal (Tippelt et al., 2014). Informal learning takes place in every-day life, therefore outside of institutions and does not lead to certificates or degrees (Himmelsbach, 2016). Moreover, the author characterizes it as being self-controlled and related to every-day issues. One of the goals when teaching older adults is to reflect on the life course to gain new perspectives for aging (Schmidt-Hertha, 2014). By working with and reflecting on the past, new perspectives for the present can be created. It is important to note, that older adults' learning efforts tend to be dependent on biography and life-stages and are therefore not necessarily related to biological age (Himmelsbach, 2016, p. 360). As a consequence, biography inhabits a pivotal role in older adults' education. Furthermore, past learning experiences greatly influence learning in present day (Schmidt-Hertha, 2014).

Focusing on the individual perspective, biographical research provides the necessary tools to map these educational and learning experiences across the life span (Felden, 2018). One of the main tools in biographic research is biographical-narrative interviews (Klank et al., 2023). These result in a biographic narration, including several life stories (small stories; Bamberg & Georgakopoulou, 2008) that focus on certain events within one's biography. The biographical narratives can be used to analyze such experiences, and to identify patterns regarding learning and education. In the context of aging, this helps us to understand how we use the interpretation of our life stories to shape our own understanding of aging. As a consequence, Himmelsbach (2023) suggests the combination of educational and gerontological perspectives.

In terms of education and ICT use, it evolved for this paper to use biographical patterns to better understand ICT nonuse in age. In our understanding, this perspective, especially on nonuse, is often neglected (Rohner, 2023). In this study, we aim to analyze to what extent biographical learning behavior explains ICT (non-)use. We address contextual factors that appear relevant to (non)-use. Also, we elaborate factors which beyond age shape ICT rejection.

## Method

Mrs. Blade was interviewed using a combination of the biographical-narrative interview (Schütze, 1983) as well as the problem-centered interview method (=PCI; Witzel, 2000). A biographical-narrative interview starts with an open narrative question that is answered by the interviewee in sharing his or her biography during which no interruptions from the interviewer are made. Then follows an inquiry phase with immanent questions on past and present life. After that, PCI questions

will be asked. The combination of the two interview methods offers the advantage that not only a detailed biographical narrative is presented (which can later be reconstructed during the analysis) but also, research questions to derive background information on the occurrence of education and technology across the lifespan can be addressed. In other words, PCI questions are necessary to ensure that the interviewee addresses the ICT topic, in case it might not be relevant within the narrative part of the interview.

Material was fully transcribed in German using GAT (Selting et al., 1998), including smallest details (emphasis as uppercase letters, punctuation serves as pitch, pauses) and subsequently analyzed following Lucius-Hoene and Deppermann (2002; reconstructing narrative identity). The authors specify that identity is created within the autobiographical narration. Narrative identity can be defined as the method in which a person performs identity work. This takes place in concrete interactions and as a narrative representation and production of aspects of his or her identity that are relevant to the respective situation. The method starts off with a structural analysis, focusing on the overall structure and peculiarities of the narrative. On the basis of these results, decisive text excerpts are then selected for a detailed line-by-line analysis. These interpretations are subsequently related to each other and combined to form patterns. All included quotes have been translated to English and proof-read by all authors.

## Results

### *The biographical narration of Mrs. Blade*

Mrs. Blade is born as the third child to a family of six. Four years later, the father returns from being a prisoner of war in Russia, but soon after dies from the deprivations experienced. Subsequently, the family has to cope life despite limited financial resources. Mrs. Blade graduates, completes an apprenticeship and starts working in administration. About ten years later she marries her husband. The couple has two sons and a daughter. After about 20 years of being a housewife, she starts a new job in an administrative setting and works for another eight years. The sudden death of her younger sister and her husband's retirement ultimately cause her to retire early. Due to the husband's health conditions, the couple decides to sell the house and moves into an assisted living apartment. There, the husband dies after a short illness. Mrs. Blade is grandmother to nine grandchildren. Table 1 highlights important life events.

The narrative itself follows a mostly chronological storyline, beginning at birth and ending on the day of the interview. It combines detailed as well as vague life stories in a report-like style. The

**Table 1.** Chronology of life events – Mrs. Blade.

| | |
|---|---|
| 1942 | Birth (two older brothers) |
| 1946 | Father returns from war captivity in Russia |
| 1948 | Birth of her sister |
| 1953 | Death of her Father |
| | Graduates school and apprenticeship |
| Around 1960 | Start of her professional career |
| 1970 | Marriage |
| 1971–1978 | Birth of her three children |
| | The family regularly goes to France for vacation |
| | Two children stay abroad for each a year |
| Around 1991 | English language classes for ten years at the adult education center |
| 1994 | Return to a professional job |
| | Marriage of all children and birth of nine grandchildren |
| 2002 | Sudden death of her sister leads to retirement |
| 2017 | Her husband's health conditions deteriorate |
| 2020 | Relocation to current (assisted living) apartment |
| 2020/21 | Husband's death (daily walks to the cemetery) |
| 2021 | Resumption of personal interests (French language practice, reading, doing crossword puzzles) |

different experiences and events are connected and refer to each other or result in subsequent narratives. Throughout the biographical narrative, new storylines are initiated in the style of an enumeration, that is with a conjunction ('and,' 'but,' 'or') or with a pronoun ('I'). Omissions over years occur, for example, when Mrs. Blade jumps from her children's birth to retirement life. These aspects, such as her own professional career, are addressed when directly asked by the interviewer. Similarly, personal interests (e.g. learning French) are mentioned within the narrative but only when referring to the present. Overall, there is an emphasis on the family. However, now that her husband is deceased, Mrs. Blade's focus on life has shifted to herself and personal interests have become relevant (again).

### A case of biographical continuity rejecting ICT learning

#### Family of origin and affinity for education lead to status despite all circumstances

The biographical narration begins with two different story lines, which are strongly intertwined and appear simultaneously within the narration. The two topoi cover narrations of Mrs. Blade's father and the siblings' background. The father seems to have suffered from the consequences of his imprisonment. The interpretation is that he has not complied with paternal obligations and therefore had a possibly negative impact on his children growing up. He remains distant in the narrative of Mrs. Blade. No emotional bond is shown. Rather an image of a World War II father is depicted. A father who for a long time was geographically distant, then emotionally distant, and who died after a short and difficult time with the family. In contrast to the distant father stands the unity and strong bond of the siblings. These separate story lines are expressed by the interviewee by constantly using the pronoun 'we.'

As the interview, in the very first sentence, starts with the topic of war, Mrs. Blade positions herself growing up within the circumstances of the 1940s and 50s in Germany. Only a few notions characterize the mother whose country of birth is France. Nevertheless, her role is of great influence on Mrs. Blade resulting, for example, in her interest in learning French. Her own family takes regular vacations in France and, surprisingly, her own daughter nowadays lives in France. Due to the difficult circumstances, Mrs. Blade's mother strongly focused on her children's education. As a result, all four siblings graduated and completed an apprenticeship. Mrs. Blade herself later passes this attitude toward education on to her children and, like her mother, she is successful in doing so. Proudly, she reports on high school and academic development of all of her three children.

A representative example for combining the positioning of the contexts of the family of origin and education lies within the anecdote of Mrs. Blade playing her late father's violin. Despite all circumstances, her mother provides musical education for one of her children. She ensures that the violin keeps the father present in family life, as it continues for Mrs. Blade until today.

> i played, the VIOlin, this is my instrument ((pointing at it)); but nowadays it only serves as decoration; (I1: okay) (2.0) that=s actually (. . .) a nice episode it was our father's violin, although he couldn't even play the violin, (I1: mh=mh) it was very important to our mother that one of her kids learned to play the VIOlin. although from a financial perspective it was barely POSSible, but yeah, that=s how it was:s, it was (I2: mh=mh) it was a great PLEASURE to me, i even continued with my kids, back then, two=two of them played the accordion, and during CHRIStmas TIME, we played together; that was nice. my husband really enjoyed that; (79f, p. 7).

This episode merges past, present and future, similar to time travel, and highlights the biographical pattern of education being a family link over generations. The father as owner of the violin, Mrs. Blade`s experiences as a child but also those with her children and husband and the violin's current role represent the still remaining ideal of a head of family. This ideal is transformed to education by her mother and instilled into family life. The violin displays a symbol of support, a connection with the family of origin, and a memento of the entire family biography.

### Overall biographical patterns

Being a mother and a wife is an essential factor in Mrs. Blade's biography. Her narrative is aligned with her children's and husband's careers. Even her interests (e.g. the violin, language classes) or experiences refer to at least either one. She hardly refers to externals. As a wife, Mrs. Blade seems to comply with the middle-class image of women at that time (in central Europe), with corresponding gender image and relations. After getting married, she quits her job and continues as a housewife, with her husband continuing his career as breadwinner. There are only a few notions in the interview, where Mrs. Blade seems to contradict her husband's opinion, at least in the way she positions him and herself. One of these episodes is related to her early retirement. After her sister's passing, her husband convinces her to quit her job, as she says. She positions herself as dependent on external factors, representing again the importance of a head of family. Accordingly, even though she transfers her own educational aspirations onto her children, it seems (from the outside) that her husband makes important decisions and thus provides her with the legitimization to take actions.

> for me the CRUcial factor was that (inaudible) when my sister pASSED? (I1: mh=mh) she was six years younger than ME, my husband then asked why do you have to work? we have the possibility now to enjoy our lives and you see how fast things can change; (I1: mh=mh) and then i decided we decided that i call it quits (79f, p. 8f).

Mrs. Blade's descriptions can be characterized as status driven (e.g. husband in public service, children going abroad), although over the course of the interview, this tendency seems to fade. Still, it is noticeable that her actions as a parent and her statements are constantly justified by former societal norms. She wants to act within what is expected from her role, and thus positions herself, her husband and her children's actions as being in accordance with her attitude. Referring to her children, she teaches them how important it is to continue even though things might not work out as planned. With regard to her interests, Mrs. Blade was indeed able to perform them all (e.g. to start her second job). Therefore, it can be assumed that when possible she took advantage of her position to reach her goals. Reflecting on her life, Mrs. Blade stresses that she is grateful for everything she was given. Her perspective on aging is positioned within the same view on societal norms. For her, it is unthinkable to show weakness, complain or be a burden to her children. She seems overall to have an optimistic and positive (albeit socially desirable) attitude. This can also be inferred from her attitude toward the violin or toward her children. The question that now arises is how and whether this attitude is interwoven within her learning strategies.

### A focus on education

In this study, we define education as the holistic acquisition of self and world and thus both in terms of self-positioning toward appropriation as well as in terms of the contexts within which education (world) takes place, following Humboldt (1969). Accordingly, we define education as corresponding to the German term *Bildung*. Within this broad understanding, education is initiated by a crisis that the individual is not able to cope with in the current state (Koller, 2012). *Bildung* depicts this process and results in the individual's transformation. Often, education takes place in institutions. Besides, learning corresponds to the German term *Lernen*. It focuses on knowledge acquisition and transfer which might also result in the individual's transformation. This process, however, differs from the first as it remains on a lower level.

### Self-positioning: education and learning

Mrs. Blade defines education and learning as „very important"(79f, p. 32) as internalized from her mother and passed on to her children. She repeatedly addresses educational aspects as they seem to be an important component in her life. From her perspective, education includes: knowledge acquisition, decent behavior and a variety of programs.

*Knowledge acquisition* can be identified regarding formal education. As the sole pupil from her final year at primary school, she transfers to an upper secondary level school (Gymnasium). She

graduates with basic degree (Hochschulreife) to start an apprenticeship. Her education leads to her job and enables her to support her children while studying.

Acting according to societal norms makes *decent behavior* (both in society and at home) mandatory for Mrs. Blade. The importance she attaches to one's role in society is again evident. She aims to act according to her role and not to attract attention to herself nor to contradict the system, teaching this to her children as well.

Finally, she mentions different *educational interests*: „one should, what they like, um there are many possibilities out there" (79f, p. 32). The variety of possibilities seems only to be limited by one's interests, according to Mrs. Blade. She prefers learning languages (English and French) and listening to presentations on travels to France. Following a non-formal perspective, Mrs. Blade took English classes for ten years, where she constantly had to do homework and sit exams. In this way, she established her personal learning procedure for languages over the years: 'it's been working fine. (. . .) for me, and. (3.0) (. . .) i will continue doing so. when i feel like doing it; ((laughs))' (79f, p. 35). Nowadays, she has resumed learning French as a leisure activity. When going on vacations to France, her knowledge was an educational asset:

> it was my husband's initiative telling me you know how to speak French we can do it you can do it ((clapping with her hands)) as we went to France for our first vacation there you know that was like a strong sense of achIEVEment, (79f, p. 34).

According to Mrs. Blade, education in all its facets serves as a means to cope with everyday life. Its goal is not to comply with an ideal. Education thus developed from a formal context to an *informal* one. Despite her attitude of perseverance, Mrs. Blade seems to be dependent on a *sense of achievement* during education. Without such an experience, there is no encouragement. Besides, she is guided by her *interests*.

> if you only, (1.0) Open your EYEs, and ears to parTICIpate in life, it is always a learning process; if i am interested, um to learn something new, or to GET new information, or, well YEAH, then, i want to do it (79f, p. 19).

It has been demonstrated that a sense of achievement in learning situations is relevant for Mrs. Blade. Now the question arises whether this can be confirmed in relation to technology.

### A focus on technology

From a technological perspective, Mrs. Blade reports that she does not own any digital devices aside from a telephone, a basic mobile phone, a TV and a CD player including a radio. Her daily routine includes listening to the radio: '[i need] that's what i need, this is part of my everyday LIFe, this is part of my WELL-being,' (79f, p. 29). The mobile phone is used solely in the event of a crisis when she is underway. Only when asked on how she communicates with her daughter, does it emerge that she can operate video calls on her tablet. It remains unclear whether she can initiate calls on her own. This device was with her son at the time of the interview which might explain why she did not mention it earlier. In general, she seems to have basic ICT knowledge as she is familiar with terms such as video calls. However, she does not further interact with any devices and she is unaware that Wi-Fi is provided by the housing unit.

### Self-positioning: ICT use over the life course and age

Mrs. Blade acknowledges that nowadays there is no possibility of living without ICT. Nonetheless, she assigns this task to younger generations such as her grandchildren: „they ALREADY outdo their parents"(79f, p. 24). Regarding her development of digital skills she appears skeptical: „it is a=different world"(79f, p. 24). As a result, she neither identifies the need to interact with her tablet or a smartphone nor change her position in the future. She adds metaphorically: „I BELIEVE this ship has sailed."(79f, p. 31). The underlying reasons are explained when positioning herself and her husband:

my [neighbor] HAD her computer there, and everything and then i thought oh my go=GOSH? (I2: mh=mh) that is YES SHE (.) it's FUN for her probably (.) or certainly, (I2: mh=mh) that's what she needs to do or what she didn't MISS OUT ON; (I1: mh=mh) (-) to get to=um to know and to: INFORM herself, or participate in CLASSes, i chose language classes and like that everyone choses what they, I always BELIEve or my husband also said so as well, 'oh come on MRS. BLADE don't be angry because we didn't do that. WE'LL be fine as long as we live we will be fine for sure' yeah my husband was fine with it but yeah i'm fine too. (79f, p. 30).

### Biography, education, ICT – missing biographical relevance for Mrs. Blade

As the previous narration reveals, Mrs. Blade enjoys learning languages as a hobby, in opposition to someone else who enjoys using ICT. Still, as a person with affinity for education, she could imagine using the tablet: 'but just ((laughing; loud snuffling)) for example i could use it as a LEXICON, ((knocking)) i would be able to find everything in there that, that i cannot find or would not find in here ((pointing toward her head))' (79f, p. 37).

Following Mrs. Blade's narrations, she describes that new topics should be learned in three steps: getting to know a topic, becoming further informed about it and finally attending classes.

It can be assumed that Mrs. Blade largely followed this path when learning a language. She became familiar with the language, received information about it and, later on, attended a language class. Most significant for her now is that this path is initiated by a *biographical relevance* (1; or a biographical connection) as well as an external legitimization (2) which leads to a pattern. As is known, Mrs. Blade's mother and daughter biographically connect her to France (1). She became familiar with the language, received information about it, and continued learning it due to her great interest. According to her understanding of education, this results in the aforementioned knowledge acquisition. Knowledge about French culture and the country itself allows her to behave appropriately. Through her husband, she receives legitimization for her actions in learning the language (he does not speak foreign languages; her knowledge is helpful for vacations; 2). A similar process can be observed in her interest in the English language, due to her children staying in an English-speaking country (1). Her attention was drawn toward her deteriorating English skills that she wanted to approve. Language classes enable her to act in a socially acceptable manner, to connect her with the educational interests promoted on her part toward the children and to be at their level. And again, her husband supported her decision (2) which lead her to taking classes.

In terms of ICT use, her background is different as she has no previous experience in this field and no support from her husband. Later on, she got partially familiar with it on behalf of her daughter in France (1). However, the husband's nonexistent legitimization (2) seems to outweigh this and has an opposing influence. Thus, she did not get beyond becoming familiar and does not want to receive any further information. Additionally, she does not want to participate in ICT classes. Her position seems to be defensive, especially as she is afraid of embarrassing herself. Surprisingly, she is not interested in further language classes either. Nevertheless, her prior knowledge allows her to compensate as she is able to implement her developed learning method and continue to practice on her own, as regards ICT use.

In summary, Mrs. Blade portrays herself as a person with a strong affinity for education. She would like to have learned how to use ICT at an earlier stage. It gives her a certain ambition and, moreover, she recognizes to some extent a value in ICT use. However, there is no legitimization from her husband.

### Externalizing reasons for nonuse of ICT

Mrs. Blade's previous experience with ICT can be summarized briefly: „not much (3.0)"(79f, p. 25). Instead, she reports a variety of reasons why she does not want anything to change.

*No previous experiences in ICT use.* Getting to know something as the first step has so far been fundamental for her learning path. This is only superficially the case in terms of her tablet, and

subsequently, she does not obtain further information or take classes. This contradicts her previous pattern and hinders engagement with ICT as she believes that she has *missed the opportunity*. Also, she does not perceive any vital *use* for ICT in her daily life.

*No social support.*    As Mrs. Blade has not ever pointed out the need of social connections, this aspect stands out. It is possible, however, that it represents her husband's support. As his *legitimization* is missing, there is no biographical relevance. As a consequence, biographically irrelevant tasks are handed over to others (her son, e.g. cash transfer) or simply not attended to.

*Arthritis.*    Her fine motor skills in her fingers limit her in operating the tablet: 'i push a different button and i get all anxious and and (...) there's no point' (79f, p. 32). As a result, the previously mentioned *sense of achievement* fails to occur; rather, it causes frustration and does not support self-efficacy.

*Emotional factors.*    She generally mentions her insecurity as well as the hurdle that ICT represents. In addition, she expresses her fear, 'just imagine (.) i break something ((quietly))' (79f, p. 26). Another concern is to cause damage due to a wrong action, e.g. for cash transactions: 'what if i end up doing something wrong and well push the wrong ((knocking on the table)) and well god knows what happens' (79f, p. 28). Referred to her view on societal norms, she is afraid of embarrassing herself in front of others which is why she has no interest in taking classes. Accordingly, using ICT can be identified as a challenge she cannot overcome.

## Discussion

### *The relationship of biography, education and ICT – What we learn from Mrs. Blade*

The present study placed a focus on education and learning portrayed by the case of Mrs. Blade. She strongly intertwined biographical components with learning efforts while having high educational demands (focus on and expansion of previous knowledge). Biographical relevance was not existent in relation to technology and therefore now prevents the creation of rationale when dealing with ICT. Mrs. Blade thus represents a first pattern in our cases, one where educational classes would not lead to development, as the use of ICT cannot be related to her biographical demands. Koller (2012) describes education to be a process initiated by a crisis resulting in the transformation of one's own self as well as one's perception of the world. In the end, there is no transformation of Mrs. Blade's self. However, she describes and acknowledges a changing world. On the one hand, results indicated that insisting on earlier acquired basic beliefs (I do not need ICT) can also prevent individuals from learning (Felden, 2018, p. 58). On the other hand, when reconstructing educational processes it is necessary to draw attention to the influence of contextual factors (representing world perception here) that surround the individual in the past and the present (Koller, 2012).

It is obvious that Mrs. Blade has a strong connection to education and aims at expanding her (prior) knowledge as far as it complements her interests. As outlined, several aspects give her an excuse to not engage with ICT, e.g. that she has no prior experience. Pelizäus-Hoffmeister (2018) describes a difference in using „non-digital devices"(e.g. radio or TV; p. 104) and digital ones. She argues that knowing how to use the one cannot be transferred to the other. To sum up, Mrs. Blade is familiar with such non-digital devices, but was unable to transfer her knowledge to ICT use. In addition, little is known about the process when 'moving from exploring new technologies to a more robust use of new technologies' (Tsai et al., 2019, p. 729). Thus, trying out digital devices is a much lower hurdle than continuously retaining and using them. Nonetheless, this transition needs to be positively designed or guided for long-term use.

In the end, Mrs. Blade remains at her level of knowledge and focuses her learning strategies on maintaining and not on expanding this level. If one wanted to work with Mrs. Blade on ICT use, this

would have to be done with *her educational understanding* referring to her biography. A pen might help with her fine motor skills and language apps may be a starting point. However, as she has her routine established, close support would be necessary and not immediately successful, as teaching older adults to use ICT is a long-term process (Balestrieri, 2022). With this in mind, it may be helpful to draw attention to the potential of biographical prerequisites for educational programs (e.g. regarding ICT) with older adults.

## Take-away messages

Fang et al. (2019) show that education has the greatest impact on ICT use. However, this case illustrates that education in age is not a matter of achieving a missed opportunity (although this might be the case) but rather to shape life according to one's own interests and preferences and focusing on topics that are important for everyday life.

Therefore, the previously mentioned informal learning activities are preferred and are interpreted as connecting to biographical interests and as expanding one's own preferences. In addition, an informal learning context can protect against the danger of 'embarrassment' which may arise in non-formal settings. The case highlights that one's own pace, own demands and self-control are important. Additionally, it can be shown that educational activities in age break away from a status-driven ideal and change toward personal interests and relevance to everyday life moderated by biography. In other words, we assume that there is a focus on using learning strategies for maintenance of and not acquisition of knowledge.

As important as it is to bridge the digital divide, a variety of reasons such as attitudes, motivation, lack of knowledge and personal preferences are responsible for adults not using the internet even though training or access might be provided (Jung et al., 2010; Peacock & Künemund, 2007). Furthermore, age and gender issues are a relevant factor in ICT use (Rathgeb et al., 2022). As regards age, it can be stated that research frequently does not differ between third and fourth age. Consequently, the focus lies upon the younger old, as can be found in a literature review that is currently being conducted. Future research should therefore address ICT use by the oldest old as the SIM study concludes (Rathgeb et al., 2022). The study itself reports that internet use varies according to age. When referring to participants from the ages of 60–69, 92% report usage of the internet. However, for the ages of 80 and above, only 51% are regular users (Germany in 2021; Rathgeb et al., 2022). Regarding gender, various aspects are relevant that require further research, not all can be addressed here. According to Buse (2009), women in retirement find it difficult to define a difference between leisure and work compared to men as taking care of a family might equate to work. Additionally, Gales and Loos (2020), although only addressing the younger old, conclude that female tasks are likely to intensify in older age. Both of these results can be related to the case presented so far as that family plays an important role in everyday life and can be considered as a relevant cause for biographical relevance.

Accordingly, one's biography provides valuable key considerations for education amongst older people (Schmidt-Hertha, 2014). As a result, we propose to consider biographical aspects when planning and designing educational programs. As there are 'different learning speeds, styles, and strategies' (Han & Nam, 2021, p. 348), it may be wise to use different instructional approaches. One method is 'peer-to-peer concept' (Doh, 2020) which is applied in the project DiBiWohn. This concept pairs two peers of the same age, with one taking on the role of the teacher and the other the role of the student. The author identifies several advantages, such as the aspect that being of the same age allows the 'student' to identify with their 'teacher' as a role model. In addition, by being of the same generation, both participants use similar language.

Perceived usefulness, ease of use (Han & Nam, 2021), perceived value (Jung et al., 2010) and internet self-efficacy (Jokisch et al., 2020) cannot be detected in this study. Han and Nam (2021) point out that it is necessary to address those factors among older adults. Finally, following Gallistl et al. (2021), it is recommended to avoid binary variables:

> Even if a person does not use a smartphone, they might still be involved in smartphone practices, as this person knows about, has tried before to, desires to, or resists pressure to buy a smartphone. . . . instead acknowledge that technology practice in later life is a continuum that encompasses usage and non-usage practices, among many others (p.2).

This single-case study leads to the hypotheses that by linking biography, education, and learning, predictions on the understanding of and usage of ICT can be made and used for educational settings. It will now be interesting to see to what extent this relationship between educational understanding, learning patterns, and technology use will be corroborated or expanded in further analyses with other biographical cases. Does it represent a specific type of technology restricted use or will the relationship between ICT use, education, learning methods, and biography show up in other constellations? What kind of learning strategies are further linked to and influenced by biography? And what conclusions regarding ICT use can be drawn when focusing on gender, on a distinction between age and old age, as well as on past experiences within one's professional career?

## Conclusion

The present qualitative case study provides first insights on patterns connecting biography, education and learning with ICT use. The case of Mrs. Blade demonstrates that through the analysis of an individual's biography, educational and learning experiences can be identified over the life course. Then, by connecting biography, education and learning experiences, predictions on ICT use can be reconstructed. In this case, the relationship of the four aspects was influenced by biographical relevance, which was developed over life and guided the individual's actions. In the future, research should address this pattern by taking a look at contrastive cases to widen the set of patterns. With a focus on biography and its potential, promising results regarding the connection of education and ICT (non-)use might be expected.

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## Ethics

The Deutsche Gesellschaft für Erziehungswissenschaft (The German Educational Research Association – GERA) in Berlin gave ethical approval for the study (file reference: 06/2022/DGfE).

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