Education in Older and Oldest-Old Age

A Comparison Between the United States and Germany

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For Tina And My Grandmother Käthe

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„You've got it, just keep on pushing and,
keep on pushing,
and push the sky away!"
(Nick Cave & The Bad Seeds)

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List of Abbreviations

AES	Adult Education Survey
BASE	Berlin Aging Study
BMFSFJ	*Bundesministerium für Familie, Senioren, Frauen und Jugend* (Engl.: Federal Ministry for Family Affairs, Senior Citizens, Women, and Youth)
Ch.	Chapter
CJE	Council for Jewish Elderly
E.g.	For example
Engl.	English
EPS	Education Participation Scale
Etc.	Et cetera
EU	European Union
F.	Following page
FF.	Following pages
Fig.	Figure
Figs.	Figures
GDR	German Democratic Republic
Ger.	German
Hrs.	Hours
Ibid.	Lat. *ibidem*, meaning “the same place”
Incl.	Including
IRB	Institutional Review Board
LLI	Lifelong Learning Institute
MFR2	McFadden Pseudo R^2
NCES	National Center for Education Statistics
OLLI	Osher Lifelong Learning Institute

OLLI @Berkeley	Osher Lifelong Learning Institute at University of California, Berkeley
P.	Page
PP.	Pages
SCA	Shepherd's Centers of America
Sec.	Section
Secs.	Sections
SvD	Sandra von Doetinchem (Author)
Tab.	Table
Tabs.	Tables
U3L	*Universität des Dritten Lebensalters (*Engl. University of the Third Age)
U.S.	United States of America
VSC	Virtual Senior Center
WHO	World Health Organization

1 Introduction

The objective of this thesis is to investigate education in older and oldest-old age and to explore the field further with an international comparative empirical study of educational behaviors, preferences, and motivations of learners aged 65 and older in the United States and Germany. This work is motivated by the underlying understanding that access to education is a fundamental human right at every stage in life. Also Brian Findsen postulates in his article "Social Institutions as Sites of Learning for Older Adults. Differential Opportunities" that "whether a person is just beginning life or nearing its end, regardless of circumstances, should not affect his or her right of access to education" (Findsen 2006, p.68). However, what is the current status of lifelong learning regarding education for older adults in aging countries, like the U.S. and Germany? Can we generally assume that older adults are in need of an education after retirement, and, if yes, does this need also apply to oldest-old adults who may be of risk of physical or cognitive impairments?

In addition to the human rights aspect, older adult education is especially important because it can play a crucial role in responding to current and future demographic developments. In particular, many developed countries, such as the U.S. and Germany, are facing a massive social transformation due to aging of their populations, which will result in a reversal of the population's age structure with a decreasing percentage of younger and an increasing percentage of older members of the population. These demographic trends create new challenges, but also opportunities, for many aspects of our societies, including the economy, workforce, health care, housing, retirement systems, and the educational sector. For instance, the fact that there will be fewer adults in traditional working age and more individuals in retirement age raises the questions of how labor productivity can be maintained, retirement systems can be financed, and personal financial security in old age can be ensured in the future. One possible strategy could be to utilize the skills and knowledge of older adults on a paid or unpaid basis more effectively. In this regard, a platform for ongoing professional development opportunities for older workers and volunteers needs to be established. Moreover, learning in old age can be an essential strategy for leveraging health care costs that accompany aging

populations, as research emphasized the benefits of education and learning for the older individual in regard to, e.g., well-being, physical and cognitive health, and life satisfaction. Participation in education also provides opportunities for social networking and active engagement. This aspect appears especially important when considering that the time spent in retirement has developed into an independent, in many cases, multidecade long life stage that needs to be filled with meaning. However, older adult learners are so far underrepresented in education, and oldest-old or frail individuals are often entirely overseen by educational providers. Keeping the aforementioned multifaceted benefits of ongoing learning and education in old age in mind, expanding educational efforts towards all subgroups of the older population is critical.

In general, no consensus exists whether old age, and specifically oldest-old age, requires a separate form and method of education. Also, comprehensive national and international comparative research on the participation patterns of mature adults in education is lacking, which emphasizes the neglect of the topic by educational politics, policies, and research. Therefore, this thesis responds to the need for further research on education in older and oldest-old age.

The following thesis is organized into six chapters: Chapter 2 discusses current and future demographic developments in developed countries, like the U.S. and Germany, and addresses population aging as well as the factors that influence a country's age structure, including shrinking fertility, increasing life expectancy, declining mortality, and migration.

Chapter 3 explores age and aging, including definitions of age and old age as well as associated characteristics, risks, and opportunities. The concept of the third and fourth age as well as selected theories that try to explain human aging find particular attention. Since knowledge of these aspects is of special relevance for the educational work with older and oldest-old adults, the chapter will also discuss the learning abilities and cognitive potentials of the elderly.

Chapter 4 focuses on educational theories relevant to the (oldest-)old age and lays the foundation for the understanding of learning and education in this very diverse and heterogenous age stage. The conceptual frameworks of learning, education, and geragogy are discussed, and discourses on education in old age as well as didactical ideas are presented. Furthermore, characteristics and educational preferences of older adult learners as well as motivations for participation in education in old age, potential barriers, and influential factors are highlighted. For an understanding of the current state of older adult education in both countries, an overview of the most common providers of education for older adults in the U.S.

and Germany is given. Since most of the highlighted providers focus on active older adults, selected program ideas that include frail and homebound elderly are discussed.

Chapter 5 presents the empirical Silverlearning Study, which investigates educational behaviors, preferences, and motivations of learners aged 65 and older in comparison between the U.S. and Germany. The study also explores if these aspects are subject to change during the life phase of old age.

Chapter 6 concludes this thesis with a final summary.

2 The Demographic Change

The world's total population is growing. At the same time, many countries in the world experience a significant aging of their populations, which results in a reversal of the populations' age structure. Critical factors for this global population growth and aging are increasing fertility, a declining mortality rate, and increased life expectancy. These social transformations create opportunities and challenges for many aspects of our societies, including health care, the workforce, housing, and retirement systems. As they will also impact the education sector, including adult and older adult education, this chapter discusses global demographic trends while also highlighting the population developments in the U.S. and Germany. Selected demography-related terminologies are introduced to provide a foundation for more detailed discussions.

2.1 Important Terminologies

Demography

Demography is the scientific discipline that studies the dynamics of populations by focusing on three main processes that cause changes in populations: birth, mortality, and migration (see Max Planck Institute for Demographic Research 2017). To evaluate and understand population trends and structures, demographers collect official statistics, conduct surveys and censuses, and analyze heritage books. In addition, they incorporate knowledge from both social and biological sciences, such as geography, genetics, and anthropology. As demographic scenarios have become the subject of political and policy-making discussions in many developed countries, the field increasingly receives public interest (see Kohler/Vaupel 2000, pp.19f.).

Demographic Change

A demographic change describes changes in the population structure and size caused by changing death and birth rates as well as by migration. These days, this change is characterized by both an increasing life expectancy and a declining birthrate. Together, both effects cause a

reversal of the age structure of a population, which will eventually lead to its shrinkage (see Rostocker Zentrum zur Erforschung des Demografischen Wandels 2017a).

Fertility

From a demographic viewpoint, fertility describes "the average number of live births a hypothetical cohort of women would have at the end of their reproductive period if they were subject during their whole lives to the fertility rates of a given period and if they were not subject to mortality. It is expressed as live births per woman" (United Nations 2017b). The internationally standardized age range 15 to 49 years is typically used to classify women of reproductive age. Fertility calculations do not take into account childless women or women who give birth before or after this standardized age period. However, these children are included in the total birth statistics of a population (see Statistisches Bundesamt 2012b, p.8).

Life Expectancy

Life expectancy is a measure for standardizing the development of mortality during specific periods, which is calculated based on mortality tables (see Rostocker Zentrum zur Erforschung des Demografischen Wandels 2017b). When discussing the life expectancy of populations, demography distinguishes between life expectancy at birth and further life expectancy at the age of 60. According to the United Nations (2015b, p.48), life expectancy at birth determines "the number of years a person would be expected to live if he or she were exposed throughout life to the prevailing age-specific mortality risks of a given period." Further life expectancy at the age of 60 is measured by describing "the number of additional years a 60-year-old person would be expected to live if exposed throughout the remainder of life to the prevailing age-specific mortality rates of a given period" (ibid., pp.48f.). As the mortality risk is lower in older age, the further life expectancy at age 60 is always slightly higher than the life expectancy at birth, assuming that outer influential factors remain stable (see Bundesinstitut für Bevölkerungsforschung 2016, pp.34f.).

Migration

Migration are "moves that cross jurisdictional boundaries" (Goworowska/Gardner 2012, p.2). Persons who live outside the country in which they were born for a minimum of one year can be classified as international migrants (see United Nations 2017d). The difference between immigration to and emigration from a particular area during a specific time period is defined as net migration. A positive net migration rate indicates that more people have moved to an area,

while a negative number means that more people have left than arrived (see Goworowska/Gardner 2012, p.2).

2.2 Population Growth and Shrinking Fertility as Influential Factors on the Demographic Developments

For a long time, the global population grew very slowly. After the one billion mark was met for the first time at the beginning of the 19th century, the population increase accelerated in the following two centuries, reaching seven billion people in 2011. Predictions estimate that the world population will continue to increase at a similar pace until 2050 when the global population is expected to reach the 10 billion mark. Starting from mid-century, the speed of growth will likely extenuate and stagnate at about eleven billion people by 2100. The vast majority of the world population currently resides with about 4.4 billion people in Asia, followed by Africa (1.2 billion), North/Latin America (992 million), Europe (738 million), and Oceania (39 million; see Bundesinstitut für Bevölkerungsforschung 2016, pp.74f.).

In contrast to world population growth, global fertility has decreased drastically over the last decades. While a woman in 1975 had on average 4.5 children, the number declined by 80 percent to currently about 2.5 children per woman and is expected to further decrease to 2.4 by 2030 and 2.0 by the end of the century (see United Nations 2015a, p.6; 2015c, p.5).

The discussed developments vary between the different parts of the world. Two opposite population trends are visible: while the developing[1] and least developed[2] countries see a growing young population since a few decades, the developed[3] countries face a shrinking aging population (see Bundesinstitut für Bevölkerungsforschung 2016, pp.74f.). The reason for the increasing population in developing and least developed countries lies within a growing overall

[1] Developing country: "A country having a standard of living or level of industrial production well below that possible with financial or technical aid; a country that is not yet highly industrialized." (https://www.dictionary.com/browse/developing-country, 01/20/2020)

[2] Least developed countries: "Low-income countries confronting severe structural impediments to sustainable development. They are highly vulnerable to economic and environmental shocks and have low levels of human assets." (United Nations, 2018, 01/20/2020)

[3] Developed country: "A sovereign state with high industrial and Human Development Index compared to other countries. It must also have a technologically advanced infrastructure, and its economy must be highly developed. It is also referred to as industrialized country or more developed country." (https://www.worldatlas.com/articles/what-is-a-developed-country.html, 01/20/2020)

birth rate. Nevertheless, this trend is not visible in all of the developing and least developed countries. Some of these countries also experience a decline in the birth level due to more comprehensive sex education and greater accessibility to contraceptives (see Bundesinstitut für Bevölkerungsforschung 2016, pp.74f.). For example, more than half of the mentioned global population growth will likely occur in Africa, which had the most substantial population growth worldwide in 2015 (2.6%) because of the country's high fertility rate (4.7 children per woman). Although Africa's population is expected to grow drastically, the fertility rate will decrease to 3.1 children per woman by 2050 and to 2.2 by 2100 due to the reasons mentioned above (see United Nations 2015c, p.3). On the other side, the developed regions will see a shrinking population. For instance, Europe's population is projected to decrease by about 70 million people by 2050. As a consequence, the fraction of Europeans to the total world population will decline from 11 percent in 2011 to below 7 percent by the end of the century (see Bundesinstitut für Bevölkerungsforschung 2013, p.70). Europe's fertility rate is with currently 1.6 children per woman the lowest worldwide, followed by Northern America, where the current rate is 1.9. Hence, both regions are below the necessary replacement level of 2.1 children per woman (see United Nations 2015a, p.3; 2015c, p.3). Although Europe's fertility rate is low, European countries are not among the countries with the lowest fertility rate worldwide. In 2015, a woman in China's Taiwan Province could expect to have on average 1.1 children, followed by China's Macao special administrative region, China's Hong Kong special administrative region, and Singapore, where the rate was 1.2 (see United Nations 2015b, pp.127ff.). China's one-child policy, which was in place between 1979 and 2015 and which limited families to one child, influenced the country's fertility rate.

Like the global population, the population in the U.S. also experiences strong growth. Over the last six decades, the de facto population size had more than doubled from 158.8 million people in 1950 to 324.5 million in 2017 (Fig 2.1). Further growth is anticipated, albeit at a slower pace, reaching 389.6 million people by 2050 and 447.5 million by 2100 (see United Nations 2017l). The reasons for the growth lie within increased life expectancy, strong immigration, and a fertility rate, which is with currently 1.9 children per woman higher than in other developed countries, like Germany or Japan (see United Nations 2017k). Different fertility patterns of the various racial and ethnic groups account for the country's overall higher fertility rate (see Shrestha/Heisler 2011, p.6; Martin et al. 2017, pp.5ff.). Although the fertility rate in the U.S. is higher than in other developed countries, it is below the replacement level since more than four decades. After the fertility peaked at 3.6 children per woman during the

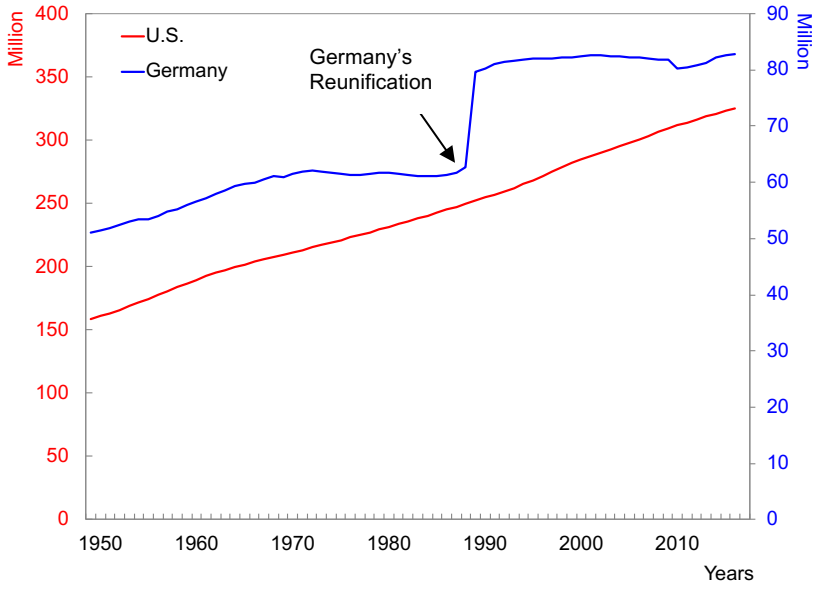

Figure 2.1: **Total population U.S. and Germany, 1950-2017.**
(West Germany until 1989 only; Source: United Nations 2017l; Statistisches Bundesamt 2019a)

post-World War II "baby-boom years" of 1946 to 1964, the fertility rate dropped in the 1970s and has remained with about 1.9 children per woman relatively stable since the mid-1980s. A similar rate is projected in the future (see United Nations 2017k).

While the U.S. population experiences a constant growth, the population in Germany has remained relatively stable since the 1990s (Fig. 2.1) and is expected to shrink by 14 percent to 71.0 million by the end of the century due to the country's low fertility rate (see United Nations 2017l). Currently, the de facto population in Germany is 82.1 million (see United Nations 2017l). However, the German Federal Statistical Office anticipates with 82.8 million people a slightly higher population size due to current immigration trends (see Statistisches Bundesamt 2017a). A decline of the fertility rate from a peak value of 4.7 children per woman was first noticeable in Germany at the end of the 19th century. During the "baby-boom" years of the 20th century, the fertility rate increased again to 2.5 children per woman, followed by a decline. After the number of live births reached its lowest point in 2011, the fertility rate started to slowly increase again, but is with currently 1.4 children per woman far below the necessary replacement level. As a consequence, a generation gets only replaced by two-thirds, which leads to a decrease in the number of women of reproductive age. While 17.1 million women were between 15 to 49 years old in the early 1980s[4], the number had dropped by about two million

[4] East and West Germany combined

in 2011. Generally, increased educational levels and labor force participation among women are important influential factors on the fertility rate in Germany. While 20 percent of the women aged 15 to 64 had a college degree in 2001, the number rose to 26 percent until 2011. Consequently, their participation in the work force increased over the last years due to a greater willingness of women to work, changed regulations in labor market policies, and an overall positive economy in Germany. In 2011, 71 percent of women were employed, which is an increase of 9 percent from 2001. In addition to the increased educational levels of women in Germany, the educational level of men also increased, albeit at a slower pace. In 2011, 29 percent of men had a college degree, which was thus 3 percent higher than among women. Nevertheless, in the younger age group 30 to 34 years, women (35%) already outnumbered men (31%) in advanced educational degrees (see Statistisches Bundesamt 2012a, pp.6&18). Similar trends are also visible in the total U.S. population. While 26 percent of adults aged 25 and over in the U.S. completed at least four years of college in 2001, the number rose to 30 percent in 2011 and 34 percent in 2017. During this time, the educational level of women increased at a much faster pace than those of men. While 24 percent of the women completed at least four years of college in 2001, the percentage rose to 35 percent in 2017. For men, a smaller increase from 28 percent (2001) to 34 percent (2017) took place (see United States Census Bureau 2017b).

Higher education levels of women also correlate with childlessness, which is, compared to other European countries, the highest in Germany. In 2012, about one-fifth of the 45 to 49-year-old women did not have children, with the largest percentage among female college-graduates (see Bundesinstitut für Bevölkerungsforschung 2016, pp.26f.). Greater educational attainment also impacts the childbearing age. Mothers today have their first child at an average age of 30.9 years, which is 6.5 years older than in 1970 (see Statistisches Bundesamt 2017d). The mean age of women at their first birth has also increased in the U.S. (see Taylor et al. 2010, p.2). While women in 2000 had their first child at an average age of 24.9 years, the number grew to 26.3 years by 2014. This increase is caused by a decline in the proportion of women who gave birth to their first child below the age of 20 and an increase of first-time mothers over the age of 30. In the age group 30 to 34, a growth from 17 percent in 2000 to 21 percent in 2014 occurred. For the age group 35+, the percentage increased from seven percent to nine percent during the same time period (see Mathews/Hamilton 2016, pp.1f.). In summary, Germany and the U.S. as well as other developed countries in the world, currently experience a so-called demographic-economic-paradox (see Birg 2001, p.42), which means that the wealthier, innovative, and better

educated a country is, the fewer children it has (see Birg 2001, p.42; Bundeszentrale für politische Bildung 2011, p.13).

2.3 Declining Mortality and Increased Life Expectancy as Influential Factors on the Demographic Developments

The global life expectancy at birth has increased substantially since the middle of the last century due to medical improvements that led to an increased survival rate among children below the age of five. While the life expectancy at birth was 46.9 years for both genders combined in 1950, the number grew to 70.8 years in 2015. Although a further increase in the global life expectancy at birth is projected, a precise calculation is complicated because of its dependencies on different influential factors, like political situations, environmental conditions, or medical developments. However, current estimations expect an increase to 76.9 years until 2050 and to 82.6 years until 2100, respectively (see United Nations 2013, p.6; 2015b, p.48; 2017f). Not only has the life expectancy at birth increased globally, but also the further life expectancy at age 60. While older adults could expect to live another 14.1 years in 1950, the number increased to 20.2 years in 2015. By 2050, this number is projected to reach 22.9 years and 26.0 years by the end of this century (see United Nations 2015b, p.50; 2017f).

In 2015, the life expectancy at birth in more developed regions was about 78.4 years, which is 9.3 years higher than in less developed regions and 15.7 years higher than in the least developed countries. Similar results are visible for life expectancy at age 60. Older adults in more developed regions could expect to live another 22.9 years and in the less developed regions 19.0 years. The life expectancy at age 60 in the least developed regions was about 17.4 years (see United Nations 2017f). Looking at the different regions, the highest life expectancy at birth had Northern America with 79.2 years, followed by Oceania with 77.5 years, and Europe with 77.0 years. All three regions also had the highest life expectancy at age 60. In the same survey period, older adults in Oceania could expect to live another 23.7 years, in Northern America 23.5 years, and in Europe 21.9 years. In contrast, Africa had with 59.5 years the lowest life expectancy at birth and with 16.7 years the lowest life expectancy at age 60. Although Africa has the lowest life expectancy among all regions, the continent experienced the most significant growth in life expectancy. Between 1995 and 2015, life expectancy at birth increased here by 7.3 years mainly due to reduced mortality in early childhood and improvements in the

survival rate above the age of 60. A further increase in the region's life expectancy is expected (see United Nations 2015b, pp.50ff.).

Life expectancy at birth is continuously increasing in the U.S. and Germany. In the early 1970s, life expectancy at birth in the U.S. was 75.4 years for girls and 67.7 years for boys. At the same time, female newborns in Germany could expect to live 74.1 years and males 67.9 years. More than forty years later, life expectancy at birth increased in the U.S. for girls by about 9 percent to currently 81.9 years, and for boys by 14 percent to 77.3 years. An even higher percentage increase is visible in Germany, where life expectancy at birth increased by 13 percent for girls, reaching 83.6 years, and by 16 percent for boys, reaching 79.0 years (see Bundesinstitut für Bevölkerungsforschung 2016, pp.34f.; United Nations 2017f). A further increase is expected for both countries. Although an exact prediction is not possible, the United Nations (2017f) anticipate that life expectancy at birth will increase for female newborns to 90.9 years in the U.S. and 93.2 years in Germany by the end of the century. If all influential factors outlined above would remain stable, boys born in the U.S. could expect to live 88.4 years and boys born in Germany 89.9 years.

As discussed earlier, the reason for the increase in the life expectancy at birth can be seen in reduced perinatal, infant, and child mortality due to medical developments of the 20th century. In both countries, infant mortality reached a historical low point. The current infant death rate per 1,000 live births is 5.8 in the U.S. and 3.2 in Germany (see Bundesinstitut für Bevölkerungsforschung 2016, p.35; Kochanek et al. 2016, p.2; United Nations 2017e). Improvements in medicine and hygiene as well as technological advancements and stable political circumstances also led to an increase in the life expectancy at age 60 over the last decades, and thus to a longer time spent in retirement. In comparison to the early 1970s, the further life expectancy increased in the U.S. for women from 21.0 to currently 25.1 years and for men from 16.2 to currently 22.3 years. During the same period, life expectancy at age 60 increased for women in Germany by 34 percent from 19.1 to 25.5 years and for men by 44 percent from 15.4 to 22.2 years (see United Nations 2017f).

The discussion shows that although the gap between the genders will decline, women have a slightly longer life expectancy than men. On a global scale, women can expect to outlive men by about 4.5 years (see United Nations 2015b, p.2). Research pointed to different biological preconditions and health behaviors between the genders as a possible explanation (see Luy/Gast 2014, pp.150ff.; Luy/Wegner-Siegmundt 2015, pp.708ff.; Bundesinstitut für Bevölkerungsforschung 2016, pp.34f.). As a result, a larger percentage of the older population is female. During the years 2010 to 2015, women accounted for 54 percent of the total

population aged 60 and over[5] worldwide and for 61 percent of the oldest-old population aged 80 and over (see United Nations 2015b, pp.2&127ff.). In 2015, the female ratio in the U.S. was 54 percent in the age group 60+ and 62 percent in the population 80+. In Germany, women accounted for 55 percent of the total population aged 60+ and for 64 percent of the total population aged 80+ during the same period (see United Nations 2017j). A slightly more balanced gender ratio is expected by 2050 in the oldest-old age group due to improving life expectancy of men. By mid of this century, women in both the U.S. and Germany are expected to account for 55 percent of the total population 80+ (see United Nations 2015b, pp.2&127ff.; 2017l).

2.4 Migration as an Influential Factor on the Demographic Developments

Immigration into and emigration from an area is another factor that impacts the demographic structure of a population. For example, as international migrants are typically younger, immigration can help to slow down or even reverse the aging of populations in countries that experience a strong immigration flow (see United Nations 2015b, pp.61f.; 2017d). Nevertheless, as the migrants will also age, this effect can only be maintained with an ongoing flow of young immigrants. In contrast, the emigration of younger workers can accelerate population aging (see United Nations 2015b, pp.61f.).

Traditionally, the U.S. has been an immigration country and still has the largest number of international migrants worldwide. Currently, about 48.8 million foreign-born people live in the U.S., which accounts for 19 percent of the world's total number of international migrants. The share of international migrants on the total U.S. population is about 15 percent (see United Nations 2017c, p.6; 2017l). The most substantial immigration growth occurred between 1990 and 2017, where a total of 26.5 million people immigrated to the country with the majority coming from Mexico, China, India, the Philippines, and Vietnam (see United Nations 2017c, p.6). Consequently, the net migration rate peaked with 6.3 per 1,000 people in the late 1990s. Also, more people are immigrating into than emigrating from the U.S., resulting in a positive net migration rate of 2.8 (see United Nations 2017h).

[5] For better readability, the age groups 60 and older and 80 and older are abbreviated to 60+ and 80+ in the following. This format is also applied to other age groups in this thesis.

Germany has also become an important country of immigration since the mid of the last century. However, the type and flow of immigration have changed over the decades. After the end of World War II (1939-1945), the country focused on recruiting temporary working migrants from Southern Europe as an attempt to counteract the shortage of human resources in the workforce. In 1973, a time where 2.6 million foreigners were employed in Germany, a recruitment ban was released and ended the country's organized working immigration. As the worker's direct family members were exempt from this ban, their arrivals characterized the country's immigration activity during the 1970s and 1980s and led to an increase to 4.6 million foreign-born people by 1980. Even today, the working immigrants and their families still account for the largest group of people with a migration background living in Germany. Another immigration wave of mainly political refugees, (late) repatriates, and asylum seekers from countries, such as Africa, Asia, Yugoslavia, or Rumania, occurred in the 1990s. During the early 1990s, about 1.4 million people immigrated to Germany (see Bade/Oltmer 2004, pp.127ff.; Bundesinstitut für Bevölkerungsforschung 2016, pp.38ff.; Statistisches Bundesamt 2016b, pp.28ff.). In the following years, the influx of immigrants steadily decreased and reached with about 600,000 new arrivals its lowest point in 2006. Especially high-qualified employees, self-employees as well as seasonal and contract workers moved to Germany during this time. Since the beginning of this decade, immigration to Germany has increased again. Until 2014, this increase was primarily caused by Southern Europe's market crisis and the first free movement of workers from Eastern European countries. In 2015 and 2016, especially international refugees seeking protection from the ongoing conflicts in the Middle East immigrated to Germany. In the first of these two years, more than one million asylum seekers were registered, with the majority of refugees coming from Syria, Albania, and Kosovo (see Bundesinstitut für Bevölkerungsforschung 2016, pp.38ff.). Currently, about 18.6 million of the people living in Germany have a migration background, which is a drastic increase from 1.5 million in 2015. About half (9.6 million) of them are German citizens (see Statistisches Bundesamt 2017b).

Although Germany currently sees strong immigration, it is also a country of emigration. International mobility and the emigration from Germany into other countries have especially increased since the 1990s. These days, about 150,000 people leave the country every year, which is an increase from 50,000 emigrations in 1970 (see Bundesinstitut für Bevölkerungsforschung 2016, p.41).

As a consequence of these developments, the net migration rate in Germany has seen sharp fluctuations over the decades and is with a current rate of 4.5 relatively high. Although the rate

has mainly remained positive since the mid-1950s, indicating that more people immigrated than emigrated during the last seven decades, the rate is not large enough to counteract the discussed decline in the population size and the aging of the population. (see United Nations 2017h).

2.5 Aging of the Populations

Developments in fertility and mortality rates as well as migration are important influential factors on the population aging. Between the years 2015 and 2050, the number of older adults aged 60+ years worldwide is expected to increase by 133 percent from 901 million to nearly 2.1 billion (see United Nations 2015b, p.9). In comparison to 1950, the proportion of older adults aged 60+ on the world's population has grown from 8 percent to 12 percent in 2015 and is expected to experience a further increase to 21 percent by mid of the century. Therefore, about one in every five people will be 60+ years old (see United Nations 2013, p.11; 2015b, p.3). While the older adult population proliferates, the number of children and young adults will only slightly increase. As a consequence, the number of younger people in the world population decreases. For a long time, the global population consisted of more children under the age of 10 than older adults. The opposite will be the case by the mid of the century. In 2050, older adults (2.1 billion) will outnumber the youth aged 10 to 24 (2.0 billion; see United Nations 2015b, p.24).

Not only is the total global population aging, but also the older population itself. The reasons for this can be seen in the discussed increased life expectancy as well as in the aging of larger cohorts, such as the “Baby Boomers”, which were born in the post-World War II period. The oldest-old adult population aged 80+ will experience the fastest growth and will grow even faster than the overall older adult population. By the mid of the century, the oldest-old population is expected to triple from 125 million in 2015 to 434 million. Their fraction on the older population will grow from 14 percent (2015) to 21 percent until 2050 (see United Nations 2015b, pp.2&10).

The rate of aging is not evenly distributed in all parts of the world. The fastest growth of older adults aged 60+ is expected to occur in the less developed regions, which accounted for two-thirds of the global older adult population in 2015. This number is predicted to increase to nearly 80 percent by 2050. In comparison to 1950, the size of the older population in developing regions has grown from 108 million (1950) to 602.1 million (2015). Predictions estimate a further growth to 1.7 billion by 2050 (see United Nations 2013, pp.4&9; 2015b, p.9). The more

developed parts of the world are also aging, albeit with a much slower and even declining rate. Between 2000 and 2015, the older population grew in these regions by 29 percent from 231 million to 298.8 million and is expected to continue to increase with a three percent slower rate, reaching 375.2 million people by 2030. Until 2050, the growth rate will continue to decline to about 12 percent, reaching 421.4 million older adults (see United Nations 2013, pp.4&9; 2015b, p.9).

While Europe and Northern America are expected to see a strong increase in the number of older adults aged 60+, their share on the world's older population will decline. In Europe, the share is expected to decline from 20 percent in 2015 to 12 percent by 2050, taking into account a growth from 176.5 million in 2015 to 242 million older adults by 2050. In Northern America, the older population will grow from 74.6 million in 2015 to 122.7 million by 2050. Its share on the world's older population will, therefore, decrease from eight percent to six percent during these years (see United Nations 2015b, pp.9&122ff.).

High-income countries see the strongest aging process. Out of the countries with at least 90.000 inhabitants, Germany has together with Japan and Italy the oldest populations worldwide. In 2015, 22.3 million people in Germany were 60 years old and over. The country's age structure of the population has changed profoundly during the last century. At the beginning of the 20th century, mortality in the population in Germany was still high due to, for example, lower infant and maternal survival rates as well as to lower medical and hygiene standards. As a result, the age structure of the population had a pyramid-like shape with a broad base of young people and a small top of older adults (see Statistisches Bundesamt 2006, p.16; Bundesinstitut für Bevölkerungsforschung 2016, p.10). Consequently, the median age of the population was relatively young (23.6 years; see Rostocker Zentrum zur Erforschung des Demografischen Wandels 2005, p.11). In the following years, the age distribution of the population lost its pyramid shape and the base of younger adults got thinner due to a declining birth and mortality rate. Deep cuts in the population's age distribution were also caused by the two world wars and the economic crisis, which increased the average age of the German population to 34.7 years in 1960 and also over-proportionately decimated the number of men in the population for a long time (see Rostocker Zentrum zur Erforschung des Demografischen Wandels 2005, p.11; Bundesinstitut für Bevölkerungsforschung 2016, p.11; United Nations 2017g). Over the next five decades, the median age increased by about eleven years, resulting in a fir-tree-shaped age distribution. As discussed projections estimate a further growth of the older adult population. By 2050, the median age is expected to increase to 50.4 years, which will cause the age structure

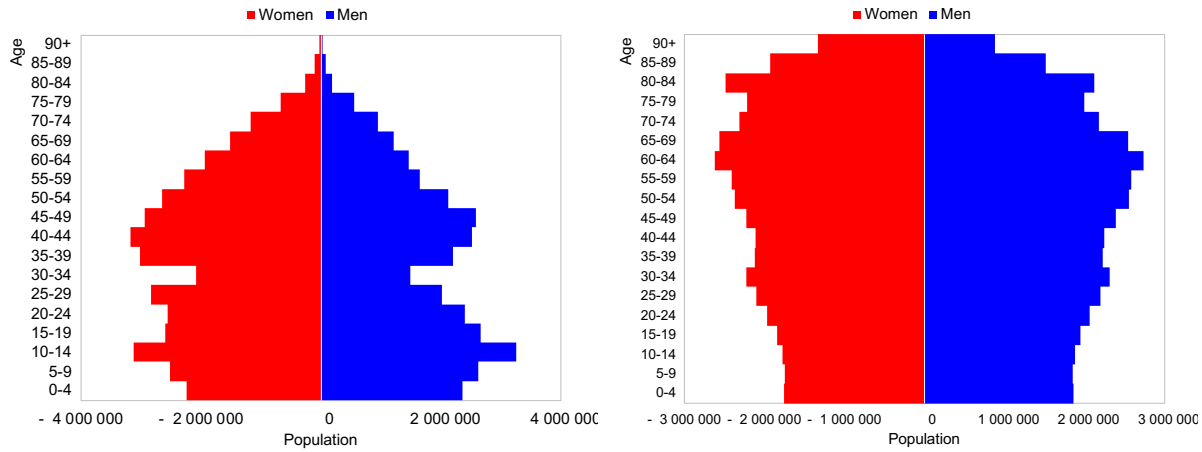

Figure 2.2: **Germany's population structure by gender in 1950 & 2050.** *(Source: United Nations 2017j)*

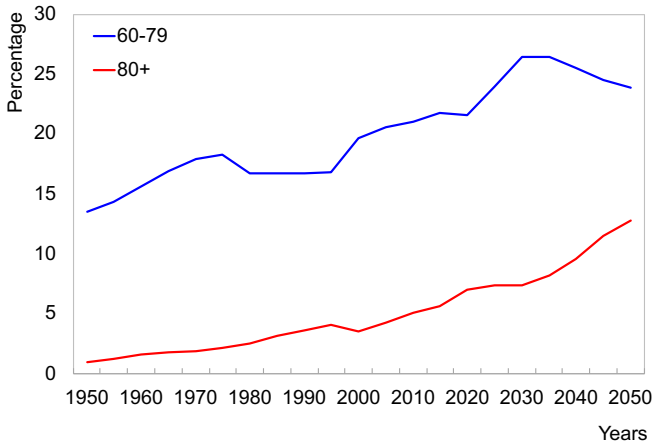

Figure 2.3: **Relative population growth of age groups 60-79 and 80+ in Germany, 1950-2050**.
(Source: United Nations 2017j)

of the population to reach a mushroom-like shape (see Bundesinstitut für Bevölkerungsforschung 2016, p.10; United Nations 2017f). Figure 2.2 visualizes this development of the population's age structure in comparison between the years 1950 and 2050.

According to the Bundesinstitut für Bevölkerungsforschung (2013, p.11), this trend would also continue if the number of children per woman would increase because of a general decrease of potential mothers. A reversal seems only possible on a long-term basis. In addition to an overall increase in the median age of the population, the share of older adults on the total population in Germany is expected to grow. While only 15 percent of the population were aged 60+ in 1950, the number increased to 27 percent in 2015. In comparison, the ratio of young people in the age bracket 0 to 24 years decreased from 38 percent to 24 percent during the same time period. Projections indicate a further change in the old and young people ratio to 38 percent

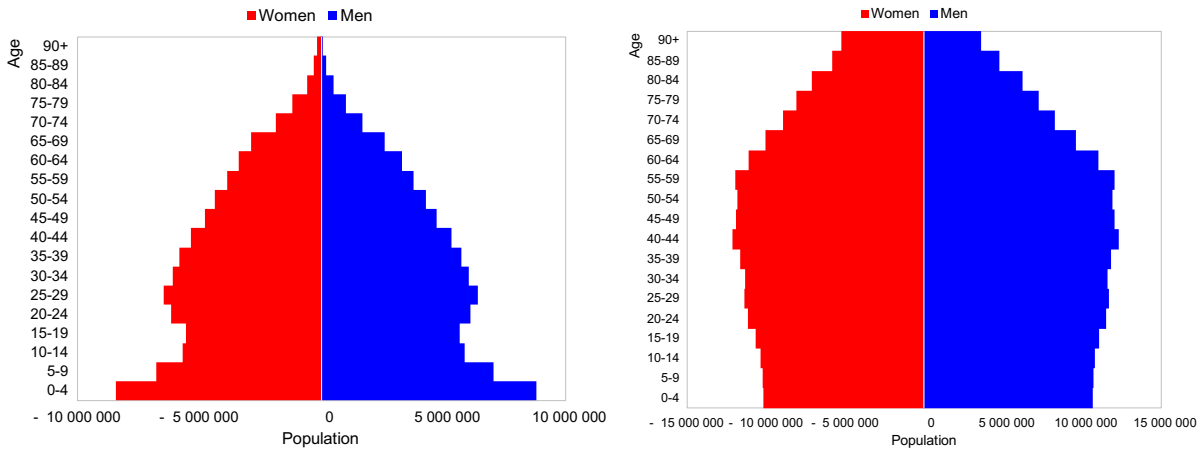

Figure 2.4: **Development of the population structure in the U.S. by gender, 1950 & 2050.**
(Source: United Nations 2017j)

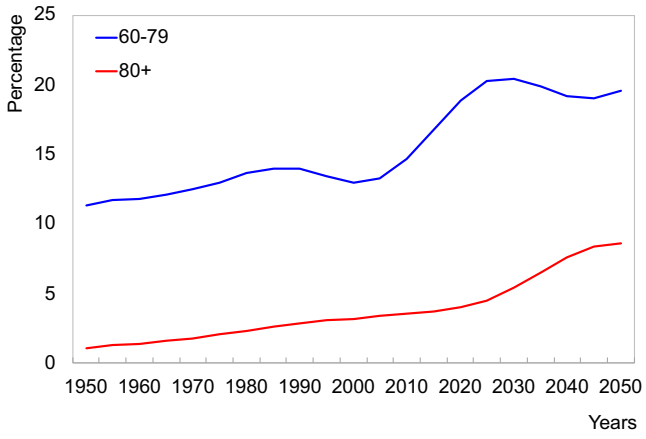

Figure 2.5: **Relative population growth of age groups 60-79 and 80+ in the U.S., 1950-2050.**
(Source: United Nations 2017j)

(60+) and 22 percent (0-24) by the mid of the century (see United Nations 2017i). The oldest-old population aged 80+ will experience the strongest growth in Germany. In 2015, about six percent of the total population in Germany was 80 years old and over. Their share is expected to double by 2050 (13.3%) and to triple by 2100 (15.2%; see United Nations 2017i). The relative population growth of the age groups 65 to 79 and 80+ in Germany is visualized in Figure 2.3. According to these developments and a shrinking working-age population, Germany can be described as an "oldest country" (Hayutin 05/2010, p.1).

The U.S. is a "middle-aged country" (Hayutin 05/2010, p.1). In 2015, 54 million adults were 60+ years old (see United Nations 2017j). Although the country is also facing an aging and thus shrinking working-age population, the U.S. is with a current median age of 37.6 years about eight years younger than Germany (see United Nations 2017g). At the beginning of the

last century, the median age in the U.S. was 22.9 years. During the 20th century, the country experienced a rapid population aging, but strong immigration trends and the mentioned "baby boom" (1946-1964) resulted in an overall younger age structure and median age (see Hobbs/Stoops 2002, p.51; United Nations 2017g). Although the U.S. is still younger than other developed countries, an ongoing aging of the population is anticipated. By 2050, the median age will increase to 42.0 years and the structure of the population is expected to shift towards a house-like shape in which the younger and middle-aged groups are relatively evenly distributed and the older adults build a pointed roof (see Hayutin et al. 2010; United Nations 2017g, p.10). In addition, the share of older adults in the total population is projected to increase. In 1950, the majority of the population consisted of young people aged 0 to 24 (42%), and only 12 percent were older adults aged 60+. By 2015, the ratio changed to 33 percent for young (0-24) and 21 percent for older people (60+) and is projected to become more balanced by the mid of the century, reaching a 29 percent and 28 percent ratio, respectively. Figure 2.4 visualizes the development of the population's age structure in comparison between the years 1950 and 2050. Like in Germany, the oldest-old population aged 80+ will experience the strongest increase. While their share on the total population was four percent in 2015, the number is expected to grow 2.5 times, reaching nine percent by 2050 (see United Nations 2017i). The relative population growth of the age groups 65 to 79 and 80+ is highlighted in Figure 2.5.

2.6 Conclusion and Relevance for Older Adult Education

Increased life expectancy has led to a new generation of older adults. Together with the decrease in the number of working-age adults in countries like Germany and the U.S., this development leads inevitably to the question of how the workforce and current retirement systems can be maintained in the future. Utilizing the older generation as a resource on either a paid or volunteer basis could help to counterbalance the increasing shortage of younger people in the labor force. In this regard, second careers after retirement – Freedman (2008) popularized the term "encore career" – will serve an important function. Such careers do not only respond to individual motivations, like the wish for further contribution to the labor force, professional fulfillment, or financial reasons, but also have to be discussed from a resource-oriented and social responsibility standpoint (an in-depth discussion of post-retirement careers and volunteering in old age takes place in Sec. 3.4.4). A general trend of increased paid labor force

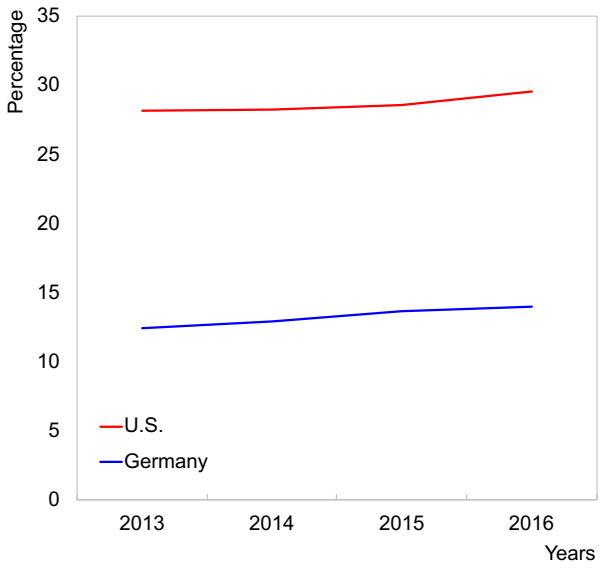

Figure 2.6: **Percentage of adults aged 55+ with a college degree in the U.S. and Germany, 2013-2016.** *(U.S.: 4+ years of college completed, Germany: Fachhochschulabschluss and higher; Source: Own calculations; Statistisches Bundesamt 2013; 2014; 2015a; 2017c; United States Census Bureau 2017a)*

participation of older adults in Germany and the U.S. is already visible (see Deutscher Bundestag 2013, p.6; Encore.org 2014, p.1). Also, the educational attainment of older adults sees a constant increase in both countries (Fig. 2.6). Between 2013 and 2016, the percentage of adults aged 55+ with a college degree has increased in Germany from 12 percent to 14 percent. In the U.S., the percentage of older adults who have completed at least four years of college is generally higher than in Germany. Here, the rate grew from 28 percent (2013) to 30 percent (2016). Looking at the population in retirement age (65+) only, about one-fourth (27%) of the 65+-year-olds in the U.S. held a Bachelor's degree or higher in 2015 (see Ryan/Bauman 2016, p.2). In Germany, 13 percent of the total population aged 65+ held an academic degree in 2017 (Bachelor, Master, Diploma, Doctoral degree), with the majority being men (men: 20%, women: 8%; see Statistisches Bundesamt 2018a, p.40). Due to a constant increase in the educational backgrounds of older adults in both countries since the middle of the last century (see Bundeszentrale für politische Bildung 2014; United States Census Bureau 2017c), further growth in the educational attainment of the elderly can be expected in the future. In this regard, learning in later life gains relevance. As a result, older adults will also likely have higher demands for ongoing learning and high-quality education, which older adult education needs to

address. In addition, education in later life also needs to fulfill the vital function to prepare and accompany the older adult for new labor force or volunteering tasks. However, as Klercq (2010, p.24) claims, a vision for the importance of education in old age still needs to be developed in aging societies as well as structured attempts to address the growing educational demands and needs of older adults.

3 Age and Aging

Improvements in public health, hygiene, and health care during the last century have led to increased life expectancy and declining death rates in developed countries, like the U.S. and Germany. As a consequence, the remaining life time after retirement has developed into an independent and expanded life stage. However, a generalization of old age as only one life phase is not adequate as the older population shows a strong heterogeneity in terms of their cognitive and physiological abilities, their overall health status, and living situation. Although aging is a highly heterogenous and individualized process, older adults are often generalized with stereotypes, such as frailness, apathy, social exclusion, and low mobility (see Lehr 1979, p.6). In addition, declining productivity and uselessness are other common ascriptions of the late life stage (see Findsen/Formosa 2011, pp.12f.). These stereotypes are not adequate anymore as older adults nowadays are more active, healthier, (see Baltes/Smith 2003, p.126) better educated than previous generations (see BMFSFJ, pp.169ff.; United States Census Bureau 2017), and also show a growing interest in second careers after retirement (see Deutscher Bundestag 2013, p.6; Encore.org 2014, p.1). In addition, studies suggested that the size of personal social networks remains relatively stable (see van Tilburg 2003, p.355). Considering these trends, society needs to move away from a loss-oriented to a resource-oriented perspective of old age.

This chapter discusses the multi-dimensionality of age, old age, and the idea of multiple age stages. In this regard, the concept of the third and fourth age find particular attention. In addition, the chapter presents selected aging theories as well as definitions, characteristics, and potentials of older and oldest-old age. Also selected physical and psychological changes that accompany the natural aging process are discussed.

3.1 Age Stages

3.1.1 Dimensions of Age

The term age has multiple meanings. It is commonly used to describe the "state of being old" (Oxford Dictionaries 2017). Furthermore, it is also used to classify the age of an individual or the age of a society as a collective of individuals. In both cases, the chronological time passed since the birth of an organism or the beginning of a specific time period is used to express such age (see Laslett 1991, p.24). The following discussion focuses on the age of an individual.

The chronological age is one of the most essential information pieces about an individual in our society (see Schroots/Birren 1988, p.5). Shared with members of the same birth cohort, it is together with skin color or gender one of the most important social categories and serves as a universal distinguishing mark to classify individuals (Wahl/Heyl 2004, p.14; Kade 2009, p.14). For example, the chronological age specifies when children have to enter the school system or when employees may transition into retirement (see Neugarten 1996, p.19). However, this index does not take different personalities, developmental stages, or life and socialization experiences into account. Strong heterogeneity is an especially promoted characteristic of the older population. For instance, Lowsky et al. (2014, p.640) emphasized that some people are in good health in their 90s while others experience severe physical or cognitive impairments much earlier in life. In general, the inter-individual variance – meaning the comparison of one individual with another – increases with age (see Laslett 1991, p.25; Oswald 2000, p.108; Wahl/Heyl 2004, p.19). As Wahl and Heyl (2004, pp.19f.) discussed, older adults show a larger inter-individual variance than any other age group in regard to, e.g., cognitive abilities, social relationships, and personality features. The authors pointed out that a variety of cognitive tests indicate a general performance decline with increasing age, but that the variance of cognitive abilities between individuals is the highest for the older population (Sec. 3.3). To address these inter-individual differences, various authors (e.g., Birren/Cunningham 1985; Schroots/Birren 1988; Laslett 1991) suggested dividing age into multiple dimensions. The most common ones are discussed in the following.

While the chronological age measures the actual time that has passed since the birth of an individual (see Schroots/Birren 1988, p.5), the biological age describes the developmental stages between birth and death (see Laslett 1991, p.25; Kohli/Kühnemund 2000, p.94). Birren and Cunningham (1985, p.8) understood the biological age as the estimate of "the individual's present position with respect to his potential life span", which should allow a more precise prediction of the remaining years than the chronological age (see Schroots/Birren 1988, p.6).

Closely related to the biological age is the functional age, which characterizes the ability of an individual to adapt to a particular environment and to fulfill everyday functions, such as climbing stairs or memorizing specific word associations (see Höpflinger/Stuckelberger 1992, p.69). Also related to the biological age is the psychological age, which refers to the developmental stages of the mental system of a person (see Kohli/Kühnemund 2000, p.94) and to the "behavioral capacities of individuals to adapt to changing environmental demands" (Birren/Cunningham 1985, p.8). This includes not only biological and social factors, but also intelligence, motivations, memory, learning, skills, and emotions (see ibid.). Höpflinger and Stuckelberger (1992, pp.70f.) had a different understanding of the psychological age and refered to it as the "felt age" of an individual. Bühler (1977, pp.36ff.) emphasized in her work that this personal self-evaluation of age, to which others also referred to as the "subjective age" (e.g., Laslett 1991) or "perceived age" (e.g., Uotinen et al. 2005), is of greater importance for satisfaction and longevity than the actual chronological age. Studies found that adults generally tend to feel younger than their chronological age and that this phenomenon gets more pronounced with advanced age (see Barak/Stern 1986, pp.571ff.; Montepare/Lachman 1989, pp.74ff.; Barak 2009, pp.2ff.). Other research indicated that the health status correlates with the personal self-image. While a higher level of life satisfaction is visible in individuals who rate their subjective age lower than their chronological age (see Westerhof/Barrett 2005, p.S132), an increased mortality risk correlates with a higher subjective than chronological age (see Uotinen et al. 2005, p.371). In contrast to the subjective age stands the social age, which is assigned by other society members, including family, friends, or coworkers (see Laslett 1991, p.25). It is defined by the roles the individual fulfills in society and within social networks (see Birren/Cunningham 1985, p.8), and thus describes the affiliation to defined age groups or age phases (see Kohli/Kühnemund 2000, p.94). The individual is expected to accept the role assignments that are appropriate for the specific life phase and to behave in a role conformal manner. Therefore, a strong attachment to social age norms is apparent in this age concept (see Rüberg 1991, p.20).

3.1.2 The Beginning of Old Age

The previous discussion emphasizes that a person's chronological age can differ from the subjective age or the individual's biological, social, or psychological development stages, which makes a definition of the time when a person can be characterized as old difficult. The understanding of when old age begins is also influenced by cultural and historical contexts as well as by individual beliefs (see BMFSFJ 2002, p.5). As a result, no universal definition of the

beginning of old age exists. Some attempts have been made to associate the beginning of this life phase with a certain chronological age. For example, the United Nations (2017a) and the World Health Organization (WHO; 2017a) set the cutoff for reporting purposes to the age of 60. However, research on the personal understanding of old age revealed that individuals who are already past their 60th birthday (study participants ranged from age 63-96) did not associate themselves as old (see Oswald 1991, pp.280ff.), which again emphasizes the discussed discrepancy between the chronological and the subjective age. The research results also showed that although none of the study participants classified themselves as old, they were still able to indicate a certain chronological age as the beginning of old age (on average 72 years; see ibid.). This finding led Filipp and Mayer (2005, p.27) to the conclusion that the understanding of old age can vary depending on whether the personal or other people's age is taken into account.

Due to the lack of a binding definition, old age can primarily be understood as a social construct, which is influenced by social expectations and social attributions (see Filipp/Mayer 2005, p.27). In our society, being young is commonly associated with beauty, strength, innovation, and health. In contrast, decreasing health, frailty, poverty, and dependence are common associations of old age (see Lamdin/Fugate 1997, p.3). In addition, retirement is often associated with the later life stage. Hence, the transition out of the active occupational phase and into retirement is widely understood as the beginning of old age (see Nühlen-Graab 1990, p.35; Bubolz-Lutz et al. 2010, p.28).

However, these associations will increasingly lose meaning, considering that a growing number of older adults will age healthy due to improving health care and declining mortality (see Neikrug et al. 1995, pp.348f.; see Sec. 2.3). Also, the retirement age will see an increase. For example, the average retirement age for employees in Germany has increased from 63.0 years in 2005 to 64.4 years in 2015 (see Statistisches Bundesamt 2015b, p.13). The typical U.S. American leaves the workforce with 63.0 years, which is 1.4 years earlier than in Germany (see Dixon 2016). However, most occupational fields in the U.S. do not have a mandatory retirement age (see U.S. Equal Employment and Opportunity Commission 2017).

Following this discussion, the term old age is used in this thesis to describe the life phase that typically begins at an age of 60 to 65. Individuals in the old-age life phase are referred to as older adults, elderly, mature adults, or elders.

3.1.3 The Concept of the Third and Fourth Age

Neugarten (1974) and Laslett (1987, 1991) were among the first who introduced the idea of multiple age stages by subdividing old age into young-old and old-old. According to Neugarten

(1974, p.47), young-old age is characterized by activity, good health, financial stability, social involvement, and education. The oldest-old age is described as a time of care-dependency, physical, mental, and social losses. Due to the diversity of old age, the distinction between both stages is based on individual competencies and living conditions rather than on a specific chronological age. Nevertheless, Neugarten (1974, p.48) pointed out that young-old adults are typically in their late 50s to 70s and the old-old adults in their 80s and older. Other authors followed Neugarten's bisection of age but made modifications in the terminology and subdivision. Suzman and colleagues (1992) for example, shifted the focus even more on the high-old age and suggested a distinction between young-old and oldest-old age. Others carried the idea of multiple age stages further. Veelken (1988, p.15) discussed a trichotomy of old age by separating this life phase into young-old (*"Junge Alte"*), old-old (*"Alte"*), and oldest-old (*"Hochbetagte"*).

As a further development of the concept, Laslett (1987; 1991) as well as Margret and Paul Baltes (Baltes 1997; 1998; Baltes/Mayer 1999; Baltes/Smith 1999; 2003) established the idea of a third and fourth age. Laslett (1991, pp.144ff.) understood the human life cycle as four stages, which are defined by life situations rather than by calendric or biological factors. The first age is an exception for him, which spans the time between birth and the development of maturity. Dependency, education, and socialization in childhood and adolescence are the characteristics of this life stage. The longest of the four stages is the second age and is characterized by independence, maturity, responsibility, and productivity. During this time, individuals typically start and maintain their families. The third age is the time of personal achievement, fulfillment, arrival, and completion, and thus the highlight of the individual's life path. Although this life phase cannot be assigned to a certain chronological age, Laslett (ibid, pp.152ff.) remarked that entering the third age is typically only possible in retirement age due to the absence of work responsibilities and the gain of free time. In strong contrast to the third age is the fourth age, which is influenced by the individual's biological conditions. Characteristic for this life stage are dependence, frailty, withdrawal from social life, and a final decline. However, the author emphasized that the fourth age does not occur in everyone's life and stated that if a positive mindset and life satisfaction can be maintained, a physical or mental decline does not necessarily withdraw a person from the third age. According to Laslett's theory, the fourth age is not synonymous with oldest-old age and can also be experienced by younger individuals who would be thrown into this stage through life experiences, such as accidents or illnesses. Findsen (2006, p.67) criticized that Laslett's theory primarily focused on

the middle-class and that life decisions are not always a matter of personal choice, but also impacted by, e.g., financial resources or social support.

While Laslett tried to untie the different stages from specific age groups, Baltes and Smith (2003) used the terms third and fourth age synonymously for young-old and oldest-old age. Like Neugarten and Laslett, Baltes and Smith had a positive understanding of the third age (young-old age) and referred to it as a time of "the good news" (Baltes/Smith 2003, p.125). In this life stage, older adults are mostly of good health, physically and mentally active, optimistic, and can utilize strategies to master loss experiences in old age. The "bad news" (ibid., p.125) is the fourth age (oldest-old age), which is characterized by frailty, multimorbidity, and a decline in cognitive potentials and learning abilities. Also, a higher prevalence of dementia is associated with this life stage. Some of these health risks and changes are discussed in more detail in Section 3.4.1. In addition to these psychological and physiological characteristics, Baltes and Smith (ibid.) defined the beginning of the fourth age as the time when half of the population of a specific birth cohort has already passed away, which would be in developed countries around the age of 75 to 80. The authors argued that "such a criterion increases the likelihood that people beyond that cutoff age are indeed subject to aging processes" (ibid.). Wahl and Rott (2002, pp.24ff.) also confirmed that the age range 80 to 85 is commonly used in gerontological publications to chronologically determine the beginning of the fourth age. This age threshold will likely need to be increased in the future due to growing life expectancy (Sec. 2.3) as well as better cognitive and physical constitutions caused by medical advancements and decreased mortality (see Neikrug et al. 1995, p.349). Hence, the usefulness of the chronological age for the discussion of the fourth age can be again questioned (see Wahl/Rott 2002, p.24).

3.2 Theories of Aging

Aging is a dynamic biological and irreversible development process of an organism, which starts with birth and continues over the whole life cycle (see Kade 2009, p.14). Indicators of human aging include a variety of biological and physical changes, such as graying hair, the development of wrinkles, or the decline of the reproductive capacity (see Findsen/Formosa 2011, p.9). Nevertheless, if and when these changes occur is subject to a large inter-individual variance (see Kruse/Rudinger 1997, p.46; Wahl/Heyl 2004, p.19). Although every individual will experience these signs of aging at some point, the reasons why organism age are not yet fully scientifically explained and subject to ongoing research. As a result, different scientific

disciplines have developed a variety of theories and explanatory approaches (see Kade 2009, p.37). Some of these are discussed in the following.

3.2.1 Biological Explanations of Aging

The field of biology sees the reasons for aging in human molecular genetics (see Höpflinger/Stuckelberger 1992, p.72). A popular theory understands aging as a result of programmed cell death. At the end of the 19th century, the biologist August Weismann hypothesized that organisms age and die because of finite possibilities of cells to divide and renew tissue (see Shay/Wright 2000, p.72). About forty years later, the Nobel laureate Alexis Carrel challenged this understanding by suggesting that cells of vertebras are immortal, and therefore can constantly replicate themselves. To prove his theory, Carrel examined cells from embryonic chicken hearts and the results showed a steady, ongoing cell division. In 1961, the American anatomist Leonard Hayflick discovered weaknesses in Carrel's approach by pointing out that the dividing cells could not be cultured for more than one year (see Hayflick 1977, pp.161ff.). With the help of fibroblasts derived from healthy human embryo cells, he found that the cells could divide on average about 50 times in culture before they stop and die (see Hayflick/Moorhead 1961, pp.590ff.), proving Weismann's speculations and disproving Carrel's theory. After the discovery of this phenomenon, known today as the "Hayflick limit", Hayflick conducted follow-up studies and found that fibroblast cultures derived from human embryo cells undergo more cell divisions than those from an adult population, which can only divide on average about 20 times. He also found that every somatic cell has a natural upper limit on its division abilities, which is influenced by nutrition and individual living conditions. Hayflick (1977, p.163) referred to several medical follow-up studies that showed that the body cells of organisms with long life expectancy, such as the Galapagos tortoises, reproduce themselves more often *in vitro* than the ones from organisms with a short life expectancy, like mice. Although Hayflick's findings received skepticism, his observations helped to make progress towards the understanding of cellular aging and his achievement is also connected with the development of cellular gerontology (see Shay/Wright 2000, pp.72ff.).

3.2.2 Selected Psychosocial Theories of Aging

In addition to the biological perspective, aging processes can also be evaluated from a psychological and sociological viewpoint. As Höpflinger and Stuckelberger (1992, pp.73f.) discussed, individuals age differently due to different social, economic, ecological, and cultural environments. Also, the acceptance, perception, and personal shaping of the life phase of old

age varies between individuals, which is emphasized in the following discussion of two complementarity theories. While some older adults might choose to withdraw from social life, others are actively involved in social activities and networks even in oldest-old age.

Disengagement Theory

The disengagement theory by Cumming and Henry (1961) understands a disengagement from social life in old age as a natural and positive process. Diminishing social interactions and decreasing participation in public life should prepare the aging individual for the end of life and help to control the social order. The authors believed that the voluntary acceptance of this new role is accompanied by life satisfaction in old age. However, later studies emphasized that many older adults do not withdraw from social life and that a relatively high level of social and psychological involvement can also be maintained in advanced age stages (see Hochschild 1975, p.555). Hence, the theory received a lot of criticism over the years, resulting in aging researchers to abandon it (see Höpflinger/Stuckelberger 1992, p.73). Although generally considered as outdated, Wahl and Rott (2002, p.46) raised the question if the disengagement theory may have validity for the discussion of the fourth age. In this regard, the authors argued that a withdrawal from social activities or responsibilities, which the individual can no longer fulfill, might help to prepare for a time where specific roles do not longer exist.

Activity Theory

The same authors (see Wahl/Rott 2002, p.46) thought that the activity theory, which was developed by Havighurst and Albrecht (1953), is more appropriate for the active third age. The key understandings of the theory are that life satisfaction in old age correlates with the level of social activity and that activity and training could help to counteract age-related function decline. Therefore, the more active an older adult is, and the more social interactions are maintained, the higher the individual life satisfaction and morale are. Consequently, the personal responsibility for the own aging process is reflected in this theory (see Kade 2009, p.39). While Kade (ibid.) generally understood this aspect as positive, she also criticized the personal responsibility aspect of the theory since dying and death could be interpreted as failure. This latter interpretation of failure could also be associated with the time when an individual enters the frail and more inactive fourth age. In addition, Birren and Schroots (2001, p.25) criticized that active involvement in old age can also depend on other factors, such as finances or health, and is thus not always within an individual's control.

Although concerns were raised, the activity theory generally received higher approval than the disengagement theory (see Höpflinger/Stuckelberger 1992, p.73) and research supported

the benefits of active engagement in old age. For example, Lemon and colleagues (1972, pp.517ff.) found a direct correlation between life satisfaction and the level of activity. However, it seems reasonable to assume that active involvement can postpone the onset of the fourth age, but that biological aging effects will eventually take over, and thus limit an individuals' abilities to actively engage.

Excursus: The Concept of Active Aging

Since the concept of active aging is closely related to the activity theory, this concept is briefly highlighted. According to the discussion of Fernández-Ballesteros et al. (2013, pp.1ff.), a positive understanding of aging has emerged in the field of gerontology in the late 20th century due to various research that pointed out that humans can actively influence the own aging process and well-being. This understanding emphasizes the possibility of aging healthily and actively and is contrasting the discussed disengagement theory as well as the common belief that longevity inevitably goes hand in hand with morbidity.

Inspired by these findings as well as by the aforementioned activity theory, a modern understanding of active aging was developed by the WHO in the early 2000s. The organization's policy framework on active aging, which was intended as a contribution to the Second United Nations World Assembly on Aging in Madrid (2002), was based on the three pillars participation, health, and security. It evoked the idea that continuing participation in a variety of contexts over the course of life, including social, educational, cultural, and economic settings, can help to preserve mental and physical health. The goal of this framework was to inform discussions and actions on how opportunities for active aging can be created so that quality of life and well-being in old age is possible. Action suggestions included providing lifelong learning opportunities, promoting active participation of older adults in economic developments, decreasing disability and disease burdens, and developing age-friendly social services (see WHO 2002, p.12 & pp.47ff.). The concept of active aging inspired national and international policies and actions and was also adopted by the United Nations in its Madrid Plan of Action on Ageing in 2002. One of the stated objectives highlighted the provision for opportunities that foster personal development, well-being, and self-fulfillment, through, e.g., lifelong learning and education for older adults (see United Nations 2002, p.17; Fernández-Ballesteros et al. 2013, p.2). Although the concept received global approval and active aging has become not only an important political concept but also a global goal in the discussion of population aging, no commonly accepted definition and strategy for active aging exist so far (see Walker 2002, p.124; Fernández-Ballesteros et al. 2013, p.2). As an attempt to develop a

framework and strategy consensus, Walker (2002, pp.124f.) proposed seven key principles of active aging: (a) since active aging should be understood as a preventive concept, activity should be promoted in all age groups; (b) solidarity between the generations is a key idea and should be maintained through, e.g., the promotion of intergenerational activities; (c) the concept should include rights and obligations, such as the right of lifelong learning and the obligation to make use of educational opportunities as a possibility to stay active; (d) opportunities for older adults to become active should be fostered; (e) cultural diversity that find expression in, e.g., different cultural understandings of activity in older age, needs to be considered, (f) all older adults, regardless of their chronological age or living situation, should be included; and (g) all activities that contribute to the well-being of an individual, family, community, and society should be understood as activity. Regarding the latter two points, the Sixth Report of the Eldery of the German Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (see BMFSFJ 2010, p.125) argued that the term activity primarily focuses on the productive and consequently younger-old age, but that the understanding should also be expanded towards frail individuals in the fourth age. Activity here could, for example, include an active engagement with topics that are relevant to oldest-old adults and the communication about this.

In addition to active aging, other terms, such as “positive” or “successful” aging, emerged in this regard (see Fernández-Ballesteros et al. 2013, pp.1ff.). The latter term was introduced by Margaret and Paul Baltes in their theoretical explanations of successful aging (Sec. 3.3.1).

Continuity Theory

The continuity theory of normal aging, proposed by Maddox (1968) and Atchley (1971; 1989), is another attempt to explain how individuals develop in old age. The theory suggests that older adults attempt to maintain and preserve the same activities, relationships, and behaviors as they did in the past to adjust to the aging process. To be able to maintain this continuity even if age-related impairments occur, the individual adapts strategies that are reinforced by their past experiences (see Atchley 1989, p.183). Concerning the discussion of the third and the fourth age, Wahl and Rott (2002, p.46) raised the question if such a continuity might not be possible in the fourth age because health impairments and frailty may force a discontinuity in general. However, the authors understood the acceptance of a possible discontinuity of certain activities or known relationships as a personal task of the oldest-old adult.

3.3 Cognitive Abilities of Older Adults

Changes in cognitive abilities and learning potentials occur with increasing age. According to the discussion of Jonker and colleagues (2000, p.985), about 25 to 50 percent of older adults aged 65+ report some form of memory function disorders, with the highest prevalence in the cohort of lower educated oldest-old females. However, also cognitive performance is subject to inter-individual fluctuations and influenced by a variety of factors, such as health, educational background, social class, nutrition, and individual motivation (see Helmchen/Reischies 1998, p.372; Cullum et al. 2000, pp.858f.). In addition, the condition of sensory systems, like hearing or vision, can impact cognitive performance in old age (see Smith/Baltes 1996, p.227). Moreover, life events can negatively impact cognitive abilities and contribute to a cognitive decline, including birth complications, neurological treatments, amnesia, multiple concussions, and general anesthesia as well as alcohol and drug abuse (see Houx 1991, p.353). The following sections discuss selected age-related changes in the area of intelligence and memory, which form the foundation for learning processes. In this regard, the question if cognitive achievements, such as learning gains or the development of wisdom-related knowledge, are possible in old age is addressed. How an individual ages and adapts to the personal aging process can depend on a variety of factors, like social interaction, physical activity, and nutrition. Another critical aspect is cognitive stimulation. As this factor is of special importance for the discussion of older adult education, the effects of cognitive training on the aging brain are highlighted.

3.3.1 Intelligence

Intelligence allows humans to adapt to the environment and to cope with its specific requirements (see Mietzel 1997, p.108). However, “intelligence is a multifaceted area of the mind […] and not at all a single and unitary category” (Baltes 1993, p.581). Psychology distinguishes between two types of intelligence, the “fluid” and the “crystallized intelligence” (Horn/Cattell 1966), which both serve different functions. Fluid intelligence is responsible for the individual’s basic learning capacities and based on processing speed and accuracy of memory performance (see Horn/Cattell 1967, pp.118ff.). A decline of this type of intelligence, which finds expression in reduced information processing speed and plasticity of the neuronal system, already occurs in early adulthood. Damages to the central nervous system and failures to neuronal processes drive the loss of fluid intelligence (see Kruse/Rudinger 1997, p.52; Baltes 2003, p.16). Crystallized intelligence, on the other hand, describes the abilities needed for

solving cognitive challenges, which are based on both knowledge and experience (e.g., cultural knowledge, vocabulary, and social behavior) and are acquired through lifelong learning, training, and skill accumulating processes. If these abilities are practiced, they steadily improve until old age and can also be maintained in oldest-old age, given that no cognitive illnesses and impairments occur (see Horn/Cattell 1967, pp.118ff.; Baltes 2003, p.16). Therefore, crystallized intelligence can at least partially compensate losses in fluid intelligence (see Baltes 1993, pp.583ff.). As an attempt to explain the process of successful adaption to losses in certain functional areas, such as intelligence, Margaret and Paul Baltes proposed the "Model of Selection, Optimization, and Compensation" (Baltes/Baltes 1980; M.M. Baltes 1987; P.B. Baltes 1987; Baltes/Baltes 1990). The key idea of the model is that individuals at all stages of human development seek to manage their life by aligning and applying three fundamental and interacting processes: "selection", "optimization", and "compensation". Through selection, the individual focuses on personal goals and areas that have a high priority by taking into account personal resources, biological capacities, individual skills, motivation as well as environmental demands. To maintain control and satisfaction, the individual has to adjust personal resources, goals, and expectations. The second process, optimization, refers to behaviors and actions an individual takes to focus and maintain set goals. Compensation, as the third process, focuses on the adaption of new strategies when specific capacities are reduced or lost (see Baltes/Baltes 1990, pp.21ff.). Although Baltes and Baltes (ibid, p.21) emphasized that individuals in all life stages try to align these three areas, this adaption process gains special significance in old age due to increasing losses not only in cognitive functions, but also in physiological, and social reserves (Sec. 3.3).

Sternberg (1985; 1997) suggested that the discussion of human intelligence should include creative, practical, and analytical abilities because the everyday and social life requires such intellectual skills. While creative intelligence allows individuals to adjust to new situations, practical intelligence is the understanding and knowledge needed to deal with the tasks of everyday life. Analytical intelligence includes abstract thinking, problem-solving skills as well as mathematical and verbal skills. However, the author pointed out that mostly practical and everyday intelligence (e.g., Sternberg/Wagner 1986; Baltes/Smith 2003) can be maintained in old age. Salovey and Mayer (1990) also formed the idea of emotional intelligence, which describes the ability to understand, manage, and influence both own and other individuals' emotions. As emotional intelligence develops with experience and age, studies reported that older adults show significantly higher levels of this type of intelligence in comparison with

younger age groups (see Chapman/Hayslip 2006, pp.413f.; Tsaousis/Kazi 2013, p.172). Therefore, Baltes (2003, p.16) understood this area as one of the strengths of old age.

3.3.2 Memory and Learning

Psychology differentiates between three types of memory systems: (a) the sensory register, (b) the short-term or working memory, and (c) the long-term memory. The ultra-shortest form of memory is the sensory register, which takes in sensory information and impulses received through the five senses. Slightly longer information storage occurs in the short-term memory, which stores forwarded information for a maximum of 30 seconds. The longest information storage occurs in the long-term memory.

Like all other human organs, the brain and its memory functions are subject to aging processes. While the capacities of the long-term memory remain relatively stable in old age, the short-term memory is subject to an age-related decline (see Horn 1982, pp.852ff.; Dobbs et al. 1989, p.501). This decline is caused by a decreasing capacity of the working memory (see Kruse/Rudinger 1997, pp.58ff.) and by a reduced processing speed of information stored in this memory system (see Eriksen et al. 1973, pp.259f.). According to the discussion of Helmchen and Reischies (1998, p.372), cross-sectional studies found that in comparison with the 20-year-old sample, the cognitive performance rate for the 70-year-old sample decreased to only 40 percent. However, the authors criticized that these studies did not take into account that a variety of factors, such as time, individual motivation, and endurance, can influence test performance.

A decreasing functionality of short-term memory affects learning abilities in old age. Learning processes become more prone to interferences and recently learned items may be harder to recall, whereas earlier learned knowledge is still easily retrievable. In addition, simultaneous information is more difficult to learn and time pressure negatively impacts the learning results (see Kruse/Rudinger 1997, pp.58f.). Findings from the longitudinal and multidisciplinary Berlin Aging Study, which focused on the quality of life and functional capacities of individuals aged 70 to 100+ since 1989 in Germany, also suggested that recall performance declines with increasing age (BASE; see Lindenberger/Reischies 1999, pp.349f.). Nevertheless, learning gains were still possible in the group of participants without dementia impairments. Therefore, Lindenberger and Reischies (1999, pp.349f.) summarized that learning and memorizing abilities remain preserved in non-demented older and oldest-old adults if sufficient assistance in the learning process is given, e.g., by repetitions and additional time. In addition, Kruse and Rudinger (1997, pp.63f.) stated that clear and structured learning materials as well as a positive and intimate learning atmosphere can enhance memory and learning

performance. In contrast, unclear learning materials as well insecurity and fearfulness of, e.g., not being able to keep up with the instructor expectations, lead to a higher error rate in learning and testing situations. They also emphasized that the individual health situation can impact cognitive capacities. In this regard, the authors highlighted that intact senses and proper blood flow of the brain positively contributes to concentration and attention as well as to adaption to complex situations.

As discussed, specific cognitive abilities, such as short-term memory, are subject to an age-related decline. However, declining cognitive functions are not always an unchangeable reality because interventions, like physical or cognitive training, can positively contribute to brain health, even in old age. After reviewing the literature on this topic, Law et al. (2014, p.62) concluded that human and animal studies found positive impacts of physical exercise on cognitive abilities and brain functions. The authors highlighted that physical activity can, besides others, increase the cerebral blood flow, which enhances learning and also contributes to cardiovascular fitness, which consequently decreases risk factors for cognitive decline, such as hypertension. In addition to physical activity, Kruse and Rudinger (1997, pp.52ff.) pointed out that brain and memory training can help reduce and counteract losses in cognitive abilities through a general knowledge increase, the activation of learning strategies, or the development of memorizing techniques. Intervention studies documented the positive effects of memory training on learning and memorizing functions. For example, Oswald et al. (1996, pp.68ff.) researched the impact of a nine months-long memory training on participants aged 75+ and measured significant increases in the quality of cognitive strategies, memorizing functions, and the ability to apply existing strategies to new situations. Improvements in the cognitive performance of older adults aged 65+ through memory, reasoning, and speed-of-processing training were also measured by Ball et al. (2002, pp.2278f.). Furthermore, Bherer and colleagues (2015, p.3) observed that cognitive training positively impacts cognitive plasticity, which describes the brain's ability to change throughout the life course by forming new connections between brain cells. In a series of studies with older adults, the researchers measured that cognitive training helped to preserve cognitive plasticity in the area of executive control processes, which include working memory and cognitive flexibility.

3.3.3 Wisdom

Old and oldest-old adults may be the possessors of wisdom. As Ardelt and Jacobs (2009, pp.732f.) stated, no general definition of wisdom exists due to the multifariousness of the concept and its dependency on cultural understandings. The authors distinguished between

"explicit (expert)" theories of wisdom that emerge from expert subject knowledge and "implicit (lay) theories of wisdom" that are rooted in folk and general knowledge. As an example of an expert theory, Baltes (1993, p.586) defined wisdom as "an expert knowledge system in the fundamental pragmatics of life permitting excellent judgment and advice involving important and uncertain matters of life." After studying the understanding of the wisdom of respondents of different age groups, Clayton and Birren (1980, p.118) concluded that from an implicit theoretical viewpoint, wisdom can be understood as an attribute that combines affective, reflective, and cognitive personality characteristics. Affective personality characteristics include, for example, empathy and peacefulness, while reflective components consist of intuition and introspection. Cognitive components focus on specific cognitive qualities, such as intellect, knowledge, experience, observation, and pragmatism.

As Clayton and Birren (1980, pp.104f.) discussed, wisdom has been traditionally positively associated with old age and has been the subject of ancient Eastern and Western texts and modern literature. The Bible, for example, stated that "wisdom is found with the elderly, and understanding comes with long life" (Book of Job 12:12, Christian Standard Bible). Baltes (1993, p.588) shared this understanding by pointing out that the development of wisdom requires life experience, time, and growth. Hence, only older adults could achieve wisdom. Various researchers (e.g., Smith/Baltes 1990; Staudinger et al. 1992; Baltes et al. 1995) made attempts to measure wisdom empirically and to understand age differences in performance or knowledge that could indicate wisdom. The results suggested that an increase in wisdom-related knowledge is possible with age and that older adults can achieve top test scores. For example, Smith and Baltes (1990, p.502) found in their study with participants ranging from 25 to 81 years that older participants were able to produce "wisdomlike performances" in tasks that related to crystallized or practical intelligence, such as planning and problem-solving. However, no comparable result was measured in tasks that required memorizing items, which are related to fluid intelligence (Sec. 3.3.1). Baltes (1993, p.588) remarked that the growth of wisdom does not occur linearly with increasing age because an age-related decline in cognitive abilities can limit the quality of wisdom-related reasoning and knowledge. The educational background of an individual can also have an impact on the likelihood of wisdom growth. As Ardelt (2010, p.200) emphasized, wisdom-related knowledge positively correlates with high educational levels.

Summarizing, Simonton (1990, p.325) concluded that although "(…) the acquisition of wisdom is by no means guaranteed among elderly citizens, the individuals who are most wise will be disproportionately found among the older subjects."

3.4 Life Situations and Risks of Old Age

After reviewing the results of various aging studies, Baltes and Smith (2003, p.126) concluded that older adults nowadays are healthier than previous cohorts and that a 70-year old person today can be compared to a 65-year-old who lived three decades ago. The authors saw the reasons in cultural and social developments, including medical, technological, and educational advancements as well as in improved material and economic environments. However, the increase in longevity (Sec. 2.3) also has downsides. For example, the prevalence of illnesses and functional restrictions grows with advancing age. The longer an individual lives, the greater the effect of risk factors, such as negative environmental impacts or an unhealthy lifestyle, like smoking, will get (see Saß et al. 2009, pp.31ff.). However, functionalities do not decrease in a generic (affecting all areas of the body) and universal (affecting all individuals) manner, which accentuates again the discussed heterogeneity of old age and the need for a differential evaluation of the later life phase (see Lehr 1979, p.6). This section discusses selected health risks of old age as well as influential factors on health and well-being. As these risks can serve as a participation barrier, the knowledge of potential health implications that accompany aging is of importance for the discussion of education in older and oldest-old age. Considering the previously discussed cognitive abilities and resources of the elderly, strategies on how education can overcome health-related barriers need to be developed (Sec. 4.3.1).

3.4.1 Selected Health Risks of Old Age

Multimorbidity

Age-related multimorbidity, which is the simultaneous or staggered occurrence of severe, mostly irreversible or chronic diseases, is prevalent among older adults and greatly increases the risk of long-term care. A concentration of chronic diseases can occur with advancing age and intensify in their severity over time. In Germany, about two-thirds of all causes of death are caused by chronic diseases, including Diabetes mellitus, hypertension, cardiovascular diseases, and chronic pulmonary infections (see BMFSFJ 2002, p.138). Hypertension, high cholesterol levels, and arthritis are also among the most common chronic conditions of adults aged 65+ in the U.S. (see National Council on Aging 2017a). To treat these diseases, strong drugs and analgetics are often prescribed, which can interact with each other and may cause toxicity or organ failure in older patients (see Wilder-Smith 1998, p.459). The BASE also found a high medication level in old age, with nearly all (96%) of the study participants aged 70+ taking at

least one, and more than half (56%) taking five or more remedies frequently (see Steinhagen-Thiessen/Borchelt 1996, p.163).

Dementia

One of the greatest risks in old age is dementia, which is not a disease by itself, but a syndrome that is impeding memory, thinking, perception, learning, orientation, and reasoning. With progression of the cognitive impairments, changes in, e.g., perception, personality, and impulse control occur. In most cases, the symptoms get so severe that the patients are no longer able to live autonomously and that caregivers have to utilize external caregiving options, such as the placement of the patient in assisted living facilities or nursing homes (see BMFSFJ 2002, pp.172ff.).

The most common cause of dementia is Alzheimer's disease, which accounts for approximately 60 to 80 percent of the cases. Early symptoms include depression as well as difficulties remembering names and following conversations. With further progression of the disease, disorientation, confusion, behavior changes, impaired communication, and immobility are common. Pathological features of the disease are abnormal tau proteins inside the brain's neurons and progressive accumulation of beta-amyloid plaques between the neurons. Damage and death of neurons ultimately follow these changes.

The major causes of vascular dementia are damages or blockages in the blood vessels leading to brain infarcts. The characteristics of this second most common cause of dementia include difficulties making plans and decisions as well as a decline in motoric functionalities (see Alzheimer's Association 2017, p.6). Vascular dementia is more common among men, while women have a higher Alzheimer's disease risk because of their overall longer life expectancy (see BMFSFJ 2002, pp.169f.).

About 47 million people worldwide are currently affected by dementia, with almost 10 million new cases every year. By 2050, the number is expected to nearly triple to 132 million cases due to increasing numbers of dementia patients in low- and middle-income countries (see WHO 2017b). In addition to other influential factors, the risk of developing dementia increases with age. Results of the BASE showed that the prevalence of dementia increased from 0 percent in the age group 70 to 74 to 33 percent for males and 47 percent for females in the age group 90+ (see Reischies et al. 1997, p.723). The WHO (2017b) estimated that five to eight percent of the adults aged 60+ are affected by dementia. In addition to age, women with a low educational level have a higher probability of developing dementia (see Reischies et al. 1997, p.723). The BASE, for example, found that study participants with a lower educational level

had a 2.7-fold higher risk of developing dementia than individuals with an advanced educational background (see Helmchen et al. 1996, p.204).

Loss of independence

The need for external help is increasing with age and is especially pronounced in oldest-old age. Findings from the BASE showed a significant increase with advancing age in need for help with daily activities, such as shopping, transportation, and showering, with an overall higher prevalence among women (see Steinhagen-Thiessen/Borchelt 1996, pp.168ff.). For example, while 23 percent of the 70 to 84-year-old women and 18 percent of the same-year-old men were no longer able to use transportation independently, the percentage increased to 84 percent for women in the age group 85+ and 60 percent for men, respectively. In addition, sensory functionality impairments grow with age, which often require additional devices. The BASE indicated that in the age group 85+ about two-thirds of the women (66%) and more than half of the men (57%) had visual impairments. About half of the participants (43% women, 45% men) reported hearing loss. Although the prevalence of need for external help increased with age, the study found that about two-thirds of the study participants aged 70+ were utterly independent (see Steinhagen-Thiessen/Borchelt 1996, p.169) and that 70 percent felt that they were in control of their lives (see Smith/Baltes 1996, p.235).

3.4.2 Influential Factors on Health and Well-being

The aforementioned physical and psychological developments in old age are only partially influenced by genetics. According to Tesch-Roemer and Wurm (2009, p.15), genetic factors can explain only less than half of the variance in mortality and illnesses. Influential on health in old age are also social framework conditions, social inequality, living situations as well as personal health behaviors and lifestyle choices.

Personal health and lifestyle decisions, such as nutrition, utilization of health services, harmful behaviors, like smoking, and the level of exercise can impact healthy aging and the functioning of the organs. For example, exercise can prevent chronic diseases, such as cardiovascular diseases or diabetes, help to maintain functional competencies, and also counteract degenerative biological processes through compensation of weakening bone mass, lung volume, and muscular strength. In addition, regular exercise can maintain mental health and prevent depression. Although the positive effects of an adequate level of physical activity in old age are tremendous, older adults are significantly more often physically inactive than younger adults. Older adults also less often utilize preventive health care services, including regular

check-ups and early detection health screenings (see Tesch-Römer/Wurm 2009, pp.8ff.). Especially oldest-old adults have an increased risk of being under-diagnosed (see Steinhagen-Thiessen/Borchelt 1996, p.165ff.). Tesch-Roemer and Wurm (2009, pp.15f.) saw the reason for this in difficulties of older adults to distinguish between age-related function declines and treatable illnesses.

Psychological and social factors also impact longevity and health in old age. Negative emotions, such as anxiety or stress, can either directly or indirectly contribute to the development of illnesses. Optimism positively influences health in old age due to a lower perception of stress, a more resilient immune system, and an overall more positive health behavior. In addition to these individual psychological competencies, social integration, social support, and the possibility to be active in social roles can positively impact the health of aging adults. Tesch-Roemer and Wurm (2009, p.16) referred to various studies, which showed that social integration in old age is associated with lower mortality and morbidity as well as with less frequent utilization of medical services, which result in lower overall health care costs. The reasons for this correlation can be linked to direct and indirect factors, which consequently impact the individual's health. Social support has a direct effect on the overall wellbeing and contributes to reduced loneliness, while social network members might indirectly ensure a positive health behavior and the utilization of preventive health screenings (see ibid.). A positive correlation between active involvement and life satisfaction in old age was also already discussed in the framework of the activity theory (Sec. 3.2.2). Although older adults often have to deal with physical and cognitive decline, many adjust well to the challenges of this life phase (see Carstensen et al. 2000, p.649ff.), making a positive life outlook and life satisfaction still possible in older and oldest-old age. According to the BASE, 94 percent of the respondents aged 70 to 103 had distinct life goals and 63 percent expressed satisfaction with their past and present life as well as had a relatively carefree view towards the future (see Smith/Baltes 1996, p.232; see Smith et al. 1996, p.509). Also the *Wohlfahrtsurvey*[6] (1998) showed a relatively high satisfaction level in old age, in which 87 percent of the respondents aged 70+ in West Germany and 82 percent in East Germany indicated to be either very or somewhat happy. In comparison, 93 percent of the 40 to 54-year-old adults in West Germany and 87 percent in East Germany reported to be very or relatively happy (see Noll/Schöb 2001, pp.278ff.). Although subjective well-being and health interpretations are not an accurate reflection of the actual life situation (see Baltes/Smith 2003, p.127), the aforementioned results indicate that compared to the

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younger cohort, older adults have only a slightly lower satisfaction level. However, this result is not the case for all aspects of subjective well-being. Older adults feel more often than younger individuals that their life has gotten complicated and that they are not able to find solutions to current problems (see Noll/Schöb 2001, pp.278ff.). Although the overall satisfaction level is only subject to a minor decrease in old age, the previous discussion reveals that certain areas of well-being are subject to change and that positive feelings are less often experienced by the elderly (see Smith et al. 1996, pp.510f.).

In general, the individual life satisfaction and well-being depend on many different factors, which are often interdependent. For example, life crises, such as the onset of severe illnesses or the loss of the partner can have a massive influence on a variety of aspects, including the social network, the financial situation, or the individual living environment.

3.4.3 Social Worlds of Older Adults

The personal and professional social network plays a vital role in life for many people. The feeling of being loved and appreciated by others contributes significantly to personal well-being and life satisfaction. However, for a long time, the literature on old age mostly depicted retirees as individuals who feel useless and with low self-esteem. Old age and retirement were seen as reasons that forced them to withdraw from social roles and responsibilities and thus excluded the older individual from social life (see Findsen/Formosa 2011, pp.12f.). These ascriptions are not adequate anymore. Modern research suggested that the size of personal social networks remains relatively stable in younger-old age and that mainly the number of work-related network members declines (see van Tilburg 2003, p.355). Nevertheless, considering that an increasing number of older adults pursue a second career after retirement (see Deutscher Bundestag 2013, p.6; Encore.org 2014, p.1; Secs. 2.6, 3.4.4), maintaining work-related social contacts appears still possible in old age.

Although the number of social contacts remains relatively stable in younger-old age, the size of the social network and the frequency of social get-togethers declines towards the oldest-old age (see Wagner et al. 1996, p.306; Wahl/Heyl 2004, p.178). Carstensen (1993; 1995) explained this decline with the socio-emotional selectivity theory, which suggests that due to a limited remaining lifetime oldest-old individuals focus on the fulfillment of immediate needs and well-being. With regards to social networks, they actively select only those social contacts that appear important for the current living situation and are more likely to drop relationships if they no longer fulfill these criteria. As a result of this selection, research found that although oldest-old adults have smaller social networks than younger-old people, they have more

emotionally close social relationships (see Lang/Carstensen 1994, p.322; Lang et al. 1998, p.P28). In addition to this active selection, a passive selection of social contacts through death gets more likely in oldest-old age (see Wahl/Heyl 2004, p.179). In the following, important personal social contacts of older adults and possibilities to maintain professional connections through, e.g., volunteerism, are discussed.

Important personal social contacts for older adults are the partner, siblings, children, extended family members, and friends (see Antonucci 2001, p.438). The majority of the generation 65+ are married (see Statistisches Bundesamt 2016a, pp.62ff.; Social Security Administration 2019). However, widowhood increases with increasing age. Women are especially affected by widowhood. In contrast, men are more likely to be in a relationship until the end of their lives (see Wagner et al. 1996, p.306; Statistisches Bundesamt 2016a, p.62). For example, while 61 percent of the 85-year-old men in Germany were married in 2014, only 14 percent of the women at the same age had such a relationship status (see Statistisches Bundesamt 2016a, p.62). Different life expectancies of the genders (Sec. 2.3), a higher likelihood of men to remarry after the death of the partner or divorce (see Livingston 2014, pp.10ff.), and the fact that women typically marry men that are older (see Drefahl 2010, pp.314f.) serve as possible explanations. In addition to the partner, older adults may have to deal with the death of close relatives and friends. While about half of the 70 to 74-year-old participants in the BASE had a living sibling, the number dropped to only 15 percent in the age group 95. A similar strong decline occurred in regard to friends. However, although the number of social contacts generally decreased in oldest-old age, the study found that the frequency of get-togethers with children increased with advanced age (see Wagner et al. 1996, pp.306ff.). The move-in of parents into children's homes as well as a greater need for help in daily activities, often carried out by immediate family members, can positively affect the frequency of visits (see Linden et al. 1996, p.481).

Loneliness and social isolation may go hand in hand with a dwindling social network and are, therefore, one of the greatest risks of oldest-old age (see Smith/Baltes 1996, p.239). Loneliness is defined as a subjective feeling in which the number and quality of social relationships do not align with the individual wishes. In contrast, social isolation is the objective lack of social relationships whose number and duration are below a necessary minimum (see Tesch-Römer 2000, p.163). According to this distinction, a person can feel lonely even with an objectively large number of social contacts around. For example, Noll and Schöb (2001, p.268)

discussed that one-seventh of the total participants aged 18+ in the German *Wohlfahrtssurvey*[7] (1998) who indicated to have close friends often felt lonely. About 75 percent of the participants without a close friend agreed with this statement. Overall, the survey showed that about every fourth participant (27%) in West-Germany and more than one-third (38%) of the respondents in East Germany experienced loneliness. Widowhood, poor health, reduced mobility, and childlessness are risk factors for the development of loneliness. Also, nursing home residents have a higher prevalence of loneliness. A stable social network can contribute to greater life satisfaction, better health, and the development of creativity (see BMFSFJ 2002, p.131 & pp.351f.).

3.4.4 Post-Retirement Careers and Volunteering

As discussed in Section 3.1.2, older adults in the U.S. typically leave the workforce with 63.0 years (see Dixon 2016) and in Germany with 64.4 years (see Statistisches Bundesamt 2015b, p.13). The reasons why individuals retire are diverse. Clemens (2001, pp.92f.) saw the main reasons in old age, gender, educational background, financial considerations, health status, subjective expectations towards retirement, attitudes towards work, and the preferred retirement time. Nevertheless, retiring is not always pursued linearly (see Cahill et al. 2011, p.34). Longitudinal data suggested that about 15 percent of older U.S. Americans return to the workforce after retirement (see Clemens 2001, pp.92f.) to temporary "bride jobs" or new "encore careers" (Freedman 2006, p.45). In addition, general trends of later retirement (Sec. 3.4.4) and increased paid labor force participation of older adults are visible in the U.S. and Germany (see Deutscher Bundestag 2013, p.6; Encore.org 2014, p.1). Freedman (2006, p.44) considered the reasons for increased labor force participation of older adults in the opportunity to stay physically and mentally active as well as socially engaged and connected. Another important reason is growing financial insecurity in retirement due to disappearing traditional employer-based pension plans, not sufficient saving amounts, and increasing health care costs that make privately organized retirement income necessary. As Neumann and Damico (2016) pointed out, fewer employers in the U.S. offer retiree health benefits. In comparison with 1988, the share of large employers with more than 200 employees that offer such benefits has declined from 66 percent in 1988 to 23 percent in 2015 due to, e.g., increasing healthcare costs. In addition to financial reasons, post-retirement work also offers the opportunity to pursue a long-cherished career wish without the constraint of an earlier occupation choice.

[7] Engl. (SvD): Welfare survey

Volunteering is another opportunity to remain active in retirement. As the German *Freiwilligensurvey*[8] (2014) showed, an increasing number of older adults are volunteering in Germany because of, e.g., a more extensive discussion of the importance of volunteering in politics and society and an expansion of the educational system since a few decades. In 2014, 35 percent of the surveyed population age 65+ volunteered in different fields, especially within sports, educational settings, and religious organizations. The highest participation levels were visible among men and higher educated individuals. Although 11 percent more older adults volunteered in 2014 than in 2009 in Germany, the age group 65+ still showed the lowest volunteer activity among all surveyed age groups (see Simonson et al. 2016, pp.15ff.&93ff.). Health impairments can serve as one possible explanation for the overall low volunteer attainment in old age (see Simonson et al. 2016, p.98). Especially in oldest-old age, a lack of accessible volunteering options can exclude individuals with limited mobility and health from the positive benefits of those activities. Such a lack of volunteering options also lowers possibilities for the individual to contribute to the community (see Greenfield 2012, p.2&7), which consequently adds to a negative stigmatism of old age.

While older men are more likely to volunteer in Germany, older women show a greater participation willingness in the U.S. A strong correlation between educational background and volunteering is also visible in the U.S. (see Bureau of Labor Statistics 2016c). Moreover, older adults are, compared with other age groups, also among those with the lowest volunteer activity in the U.S.. About 24 percent of the population aged 65+ volunteered in 2015, with the majority serving in religious organizations or social and community services (see Bureau of Labor Statistics 2016b; c). Nevertheless, the number of volunteers aged 65+ is also growing in the country (see Grimm et al. 2006, p.3). Grimm et al. (2006, p.5) saw the reason for this growth in a recognition of volunteering as a possibility to share professional knowledge, to contribute to the community, and to remain healthy through activity. Research confirmed the latter aspect by suggesting that volunteering can positively contribute to well-being in older age (see Morrow-Howell et al. 2003, pp.141ff.; Greenfield/Marks 2004, pp.S261ff.) and that moderate amounts of volunteering activities have a protective effect on mortality (see Musick et al. 1999, pp.S175ff.). Studies also indicated that in comparison with non-volunteers, older volunteers show less anxiety and depression as well as higher levels of life satisfaction and living will. The researchers saw the reason for this in the number of social contacts that emerged from the volunteer work (see Hunter/Linn 1981, p.207). Generally, the possibilities to make social

[8] Engl. (SvD): Volunteer survey

connections and to get into an intergenerational dialogue are some of the main motivation factors for older adults to volunteer (see Simonson et al. 2016, p.421). In addition, the EdAge Study found that volunteers show a higher participation frequency in education than non-volunteers (see Schmidt/Sinner 2009, p.116).

3.5 Conclusion and Relevance for Older Adult Education

Several studies established that cognitive training positively contributes to cognitive functioning (see Oswald et al. 1996, pp.68ff.; Ball et al. 2002, pp.2278f.) and cognitive plasticity (see Bherer 2015, p.3) in old age. Furthermore, research indicated that learning and participation in various forms of education in old age has a positive impact on health, wellbeing, civic engagement, and social attitudes (see Bynner et al. 2003, pp.348ff.; Feinstein/Hammond 2004, pp.208ff.). For example, a higher level of formal education completed in adolescence or early adulthood is associated with decreased risks for developing dementia (see Helmchen et al. 1996, pp.203f.; Mortimer et al. 2003, pp.673ff.) and disabilities in old age (see Amaducci et al. 1998, p.M487). Participation in educational activities also has psychological benefits. It can increase self-confidence and independence as well as help structuring daily life in retirement (see Amaducci et al. 1998, p.M487). The activity theory suggests that life satisfaction in old age can be maintained through active involvement and social relationships. In this regard, educational institutions can serve as important foundations for the social networks of learners, and hence actively contribute to healthy and joyful aging. However, a more detailed understanding of old age is crucial for the development of efficient older adult education implementations.

The discussion of different age classifications highlights the limited separation power of the chronological age because it can significantly differ from an individual's biological, social, or psychological development stage. In a more individualized categorization, old age can be subdivided into, e.g., young-old and oldest-old age or into the third and the fourth age. The third age is understood as a time of fulfillment, good health, and productivity and mostly attributed to the young-old age, while the fourth age is dominated by a loss-focused perspective and attributed to the oldest-old. However, this perspective is not entirely justified as the latest life stage can be understood as a time of resources and potentials. For example, depending on the individual, oldest-old adults still have the possibility to learn, be socially active, and independent. Research also suggested that the possession of wisdom-related knowledge is

disproportionately found in old age. Understanding these cognitive and physiological potentials, without denying limitations of the late life stage, allows faculty and educational administrators working with older and oldest-old learners to adequately respond to the specifics and needs of these student groups. For example, although processing speed and recall performance decline with age, learning gains are possible in old age. To accommodate sufficient processing time and to foster concentration, authors (see Kruse/Rudinger 1997, pp.63f.) suggested that educational approaches should include limiting and structuring the amount of new learning material. In addition, educators should avoid exposing the older learner to unknown test situations that create anxiety and pressure and provide possibilities for repetitions. Moreover, focusing on learning materials and topics that are based on already acquired knowledge, life experiences, or social interactions could be envisioned. An incorporation of life experiences and life review possibilities into the older adult education practice, instead of pure information delivery, could potentially also help growing wisdom-related knowledge (see Moody 1986, p.135).

The discussed self-images of older adults together with research findings that even oldest-old adults may not identify themselves as old can provide insights for the marketing of older adult education. For instance, avoiding terms, such as old age, older adult, or senior, could be suggested.

Also post-retirement work or volunteering activities can provide possibilities for active engagement and social contacts in old age. Various studies emphasized the positive social and health-related effects of volunteering. However, mostly healthy and active older adults pursue such activities. A general lack of accessible volunteering options for older individuals with limited mobility and health leads not only to an exclusion from the positive benefits of such activities but also to reduced possibilities to actively contribute to the community. As a consequence, the loss-oriented stigmatism of the fourth age as a time of losses gets reinforced. In this regard, educational providers for older adults cannot only offer courses that prepare elders for new volunteering or post-retirement work responsibilities, but also serve as providers of such engagement possibilities. This could include teaching or administrative responsibilities or classroom management functions. To include health- or mobility-impaired elderly, expanding those possibilities towards virtual forms of education, such as involving homebound elders as online instructors or facilitators, could be an active response towards a resource-oriented perspective of old age (Sec. 4.4.3 further explores how learners in the fourth age can be involved in education).

In conclusion, moving away from the chronological age as a typical categorization variable towards a more personalized and resource-oriented understanding of old age is vital for the planning of older adult education and will allow to better take into account the individual life and health situation.

4 Education in the Third and Fourth Age in the United States and Germany

Education in old age is gaining relevance in the American and German societies due to the aforementioned demographic developments (Ch. 2). Especially pronounced in Germany, but also visible in the U.S., the number of adults in working-age decreases and the number of older adults in retirement age increases. Among other issues, this consequently raises the question of how retirement systems can be financed in the future and requires individuals to rethink their financial security in old age. As discussed, one possible strategy to address these developments is to make more effective use of the skills and knowledge of the elderly (Secs. 2.6, 3.4.4). This requires politics to provide a platform for education and professional development over the life span. Moreover, continuous learning provides numerous benefits for the older individual, e.g., in regard to well-being, health, self-esteem, and social inclusion (Sec. 3.5). Although learning in old age is beneficial for both society and the individual, older adults are underrepresented in education. If educational programs reach older adults, they mostly focus on active elders in their 60s or beginning 70s, while oldest-old or frail elders are typically neglected. Considering the discussed benefits of ongoing learning and education for the older individual, expanding the view towards these older target groups appears necessary. This is also backed up by the fact that oldest-old adults are the fastest-growing population group in the U.S. and Germany (Sec. 2.5), and thus older adult education cannot be limited to the sixth or seventh life decade. A neglect of the importance of the topic of education in old age by educational politics, policies, and research is also visible in a lack of studies on the educational behaviors, motivations, and barriers of older and oldest-old adults.

This chapter discusses education in (oldest-)old age and provide an overview of this broad topic. In addition to a discussion of the terms learning, education, and geragogy, the motivations for participation in education in old age as well as potential barriers are presented. Furthermore, this chapter highlights the educational preferences of older learners, while also addressing the specific educational requirements of oldest-old adults. The most common providers of education for older adults in the U.S. and Germany also find attention.

4.1 Learning and Education in Old Age: A Conceptual Approach

Learning is an ongoing process in every stage of the human life cycle. Through constant learning, the individual acquires new skills, knowledge, or behaviors, which help to adapt to different natural and cultural environments (see Bubolz-Lutz et al. 2010, p.14; Leipold 2012, p.20). Hence, learning can be understood as a change in state due to new experiences (see Kolland/Ahmadi 2010a, p.28). Since the brain continuously learns through everyday interactions with the environment, Siebert (2015, pp.47&88ff.) pointed out that it is not possible for humans to not learn.

In this section, the terms learning and education are discussed, which are often synonymously and inconsistently used in the scientific literature and discussion (see Findsen/Formosa 2011, p.21). Different contexts of learning and factors that influence learning are presented. Since the focus of this work is on older adults, characteristics of the elderly as learners are highlighted and the question if education needs a separate understanding in old age is investigated.

4.1.1 Conceptual Frameworks of Learning

Different conceptual frameworks and theories have tried to explain how humans learn. According to Bubolz-Lutz et al. (2010, pp.14f.), the psychological learning theories are commonly divided into three paradigms: (a) the behavioristic paradigm, (b) the cognitive paradigm, and (c) the paradigm of situated learning. All three paradigms are introduced in the following, while basing the discussion on the aforementioned authors.

The behavioristic paradigm describes learning as a lasting behavior change caused by external factors, such as stimuli or reinforcements, and experiences that the individual makes in the interaction with the external environment. While first behavioristic theorists understood learning as a simple stimuli-reaction model, later theorists added other intervening factors, including previous learning experiences, individual cognitive conditions, or internal values.

The cognitive paradigm describes learning as an internal information process that occurs within the human body, like memorizing, perceiving information, or thinking. Since the individual subjectively interprets and constructs reality within these internal processes, the constructivism is often understood as a subarea of cognitivism. According to the constructivism, the individual learns and constructs knowledge based on previously made experiences, and therefore actively creates a subjective reality and views of life.

The third paradigm of situated learning focuses on the context and environment in which learning occurs. In this regard, the learning environment and social interactions are of particular importance as they provide the individual with the possibility to make daily life experiences and develop competencies through learning from each other. According to this paradigm, learning is enhanced when the learner is given the possibility to solve authentic problems.

4.1.2 Contexts of Learning

Learning can take place in a variety of contexts. The distinction between "formal", "non-formal", and "informal learning" (see Jarvis 1987, p.1) helps to classify the different learning activities. However, Schmidt-Hertha (2014, p.20) pointed out that a consistent understanding of these three dimensions is lacking, especially for the area of informal learning.

Formal learning takes place within a traditional hierarchical and chronological education system and is primarily pursued between childhood and early adulthood years. A degree or credential typically ends the formal learning endeavor (see Manheimer 2007, p.463; Schmidt-Hertha 2014, pp.20ff.). While the institution fully controls the learning process and content, the learner is given no or only little control authority (see Mocker/Spear 1982, pp.2f.).

Non-formal learning takes place outside of the formal education system and consists of organized and systematic educational activities that do not lead towards a degree or credential and that are presented to selected population groups, such as working professionals or older adults (see Jarvis 1985; Manheimer 2007, p.463; Schmidt-Hertha 2014, pp.22ff.). Instead of focusing on academic qualifications, non-formal education focuses on teaching personal and social skills as well as promoting participation in social and political processes. Participation in non-formal education typically occurs on a voluntary basis (see Rauschenbach et al. 2004, pp.32f.). Although the instructor determines the teaching methodology, the learner is in control of the topic selection (see Mocker/Spear 1982, pp.2f.).

As previously discussed, the human brain constantly learns. However, the majority of learning happens *en passant* in a variety of different contexts and in an unstructured, informal manner (see Schmidt-Hertha 2014, p.24). Informal learning is not only a conscious and intentional form of processing information from the environment, but an individual also selects, interprets, orders, compares, and relates received perceptions to previous experiences, ideas, or behaviors in an unconscious manner. As a consequence, the individual develops competencies that are based on biographical and personal biases that help to navigate the environment (see Dohmen 2001, pp.11f.). Dohmen (2001, p.12) remarked that learning is a biased subjective and selective confrontation of an individual with its environment, resulting in ongoing experience

renewal through the growth of knowledge and the development of interpretation patterns and worldviews. Therefore, the author emphasized the need for individuals to stay open and curious in the ongoing and lifelong process of learning and adaption to the environment. Dohmen (2001, pp.27ff.) discussed four different forms of informal learning: (a) experiential learning, (b) implicit learning, (c) everyday learning, and (d) self-directed learning. While experiential learning refers to the active perception and processing of new experiences and encounters from the environment, implicit learning describes learning processes that occur in an unconscious, non-intentional, and non-verbalized manner. In this regard, the author provided the example of a child learning its mother's language. Everyday learning occurs through experiences the individual makes in everyday life that help to build pragmatic everyday knowledge to navigate daily situations and social interactions better (see ibid., pp.37ff.). Self-directed learning is characterized by active and self-determined learning processes that are triggered by individual interests (see Knowles 1975, pp.18ff.). The individual independently or with the help of others takes on the initiative to learn, identifies learning resources and strategies as well as evaluates the outcome of the learning process. Therefore, Dohmen (2001, p.41) suggested that learners should be encouraged to actively organize and shape the personal learning process, content, and methods. In this regard, the author pointed out that self-directed learning can occur in formal and non-formal learning contexts.

The majority of education for older adults occurs in the context of non-formal learning (see Manheimer 2007, p.407). Therefore, this context is the focus of this thesis (Ch. 5). Also Schmidt-Hertha (2014, pp.20f.) emphasized that that older adults mostly do not participate in formal learning contexts with the exception of higher education institutions. Although higher education enrollment statistics showed that a growing number of elderly students pursue formal degrees (see NECS 2007; 2015; 2016a), older adults in the U.S. and Germany typically participate in non-formal programs at universities or colleges that do not lead towards a formal degree, such as guest-auditing programs or courses designed exclusively for older students (see Schmidt-Hertha 2014, pp.20f.). A detailed discussion of educational offerings for older adults at higher education institutions takes place in Section 4.4.

The questions of how formal or non-formal learning contexts should be designed and what the individual needs to learn depend mainly on a specific society and time, and results from economic and societal change (see Merriam/Caffarella 1999, p.5; BMFSFJ 2005, p.125). As an example, Merriam and Caffarella (1999, p.5) pointed out that the content of learning was different for an individual in colonial times and that today's society requires new and more technology-oriented skills. In this regard, Kruse and Wahl (2010, p.266) indicated that the

knowledge of humankind doubles approximately every forty years and in some technology sectors nowadays even every six months. Since the learning content relevant to the success of a culture is subject to constant change, the authors argued that lifelong learning in dynamic societies cannot be limited to a particular life stage and that the need for ongoing learning should be considered a common good. Furthermore, society, culture, and specific contexts do not only influence the content of learning, but also the understanding of the meaning of learning, which can, therefore, vary between individuals (see Findsen/Formosa 2011, p.117). A variety of different interpretations and meanings of learning was also visible in Withnall's (2010, pp.67ff.) study of older adult learners in the UK. While some of the post-work study participants understood learning as the acquisition of knowledge and skills, others felt that learning helps to broaden the horizon and mind as well as contributes to health and successful aging.

4.1.3 Influential Factors on Learning

The preconditions that (older) individuals bring into the learning process are diverse and depend on a variety of factors, such as cognitive conditions, overall health status, or generation-specific experiences. Also personal learning preferences and learning attitudes as well as the individual learning biography, which developed throughout life and in specific learning situations, are influential. For example, negative experiences made in previous formal learning contexts can lead to lasting barriers and the avoidance of organized learning settings in adulthood. In addition, a general lack of learning opportunities can create passiveness, such that individuals do not actively seek new learning situations (see Schmidt-Hertha 2014, pp.37f.). Different studies emphasized the correlation between formal and non-formal learning. For example, the EdAge Study (Tippelt et al. 2009b) evaluated for the first time the formal, non-formal, and informal educational behaviors of adults aged 45 to 80 in Germany through both a quantitative and qualitative research approach. The study showed a high correlation between the individual educational background and participation in education. In all evaluated age groups, participants with a lower secondary school degree were less likely to participate in adult education than those with an advanced secondary school degree (see Tippelt et al. 2009a, p.39). Also, adults with high educational attainment participated in education much more often than those with a lower school degree (see Theisen et al. 2009, p.56). Furthermore, Barz and Tippelt (2003, pp.333ff.) found in their empirical study of the continuing education behaviors of adults aged 19 to 75 from different social milieus in Germany that in addition to socio-cultural factors and internal values also educational experiences made in early life impact learning behaviors, motivations, and barriers in old age. The study indicated that participants with an average or

higher school degree were more likely to participate in non-formal learning than those with a lower educational background. Schmidt-Hertha (2014, pp.20f.) explained the correlation between formal and non-formal learning with four factors:

(a) Personal learning strategies that were developed in formal learning settings can be relevant for the success in non-formal learning contexts, which are typically less structured, and thus require a higher amount of self-regulated learning.
(b) Positive experiences made in school lead to an overall greater willingness to participate in education throughout life, while negative experiences can create an aversion or anxiety towards learning.
(c) Relevant for participation in education in later life is also the self-confidence and self-image an individual has developed as a learner in earlier learning experiences.
(d) A higher educational attainment often leads towards a better socio-economic and occupational situation, which can both impact the possibilities for further education, due to, e.g., better financial resources or a job status that allows continuing education. A more in-depth discussion of barriers towards participation in learning contexts and education in old age takes place in Section 4.3.1.

4.1.4 Characteristics of Older Adult Learners

As discussed in Section 4.1.1, different conceptual frameworks and theories have tried to explain how humans learn. With regards to learning in adulthood, the theoretical understanding of how adults learn has moved away from the behavioristic to the constructivist paradigm, which is based on the idea that the individual constructs knowledge only on the basis of previously made experiences (see Bubolz-Lutz et al. 2010, p.16). From this perspective, Siebert (2003, pp.22f.) characterized adult learning by, e.g., the following:

(a) Central are the individual biography and life experiences as learning in adulthood is always follow-up learning. The individual creates new knowledge based on previously made experiences and learned information.
(b) The individual also learns through the interaction with others and their experiences, which can differ from the personal ones.
(c) Adults only learn what appears to be relevant and integrable.
(d) Therefore, learning in adulthood is a highly individualized and self-structured process, for which the learner is self-responsible.

Characteristic for learning in adulthood is also a high level of autonomy and self-directedness (see Kruse/Rudinger 1997, pp.62f.). While learning in childhood and adolescence often occurs

in mandatory and specific institutional settings, adult learning is much more voluntary and driven by intrinsic motivation rather than external factors (see Kruse/Rudinger 1997, pp.62f.). With increasing age and more life experiences, self-constructions of reality strengthen. Furthermore, individual characteristics and differences in learning styles and interest increase due to socio-cultural, biographical, and occupational experiences. As a consequence, the older individual mainly learns in a way she or he was used to and chooses content that appears important, stabilizing, and relatable (see Siebert 2015, pp.88ff.). Kolland and Ahmadi (2007, p.11) concluded from their qualitative study on the learning needs and learning arrangements in old age that adults aged 60+ rarely show new forms of learning. Exceptions are new technologies and the Internet, which provide the older learner with the possibility of new information acquisition strategies.

In order to respond to these characteristics of (older) adult learners, instructors need to recognize and incorporate the learner's knowledge and skills so that follow-up learning becomes possible. In addition, options for sharing life experiences should be provided (see Jarvis 2001, p.57) and discussions between the learners and their differences should be fostered (see Siebert 2003, p.22; Bubolz-Lutz et al. 2010, p.16). As the learner's interests stand in the center of the learning arrangements, Bubolz-Lutz et al. (2010, p.17) pointed out that the initial didactical question that educators should ask is what the individual wants to learn instead of what the individual should learn. A more detailed discussion of didactical approaches for older learners takes place in Section 4.2.3.

4.1.5 The Difference between Learning and Education

The terms learning and education are often synonymously and inconsistently used in the scientific literature and discussion (see Findsen/Formosa 2011, p.21). However, several distinguishing attempts have been made, which are discussed in the following.

Findsen and Formosa (2011, p.22&117) understood learning as a "broader concept which is both lifelong and life-wide", which emphasizes that learning takes place throughout the whole life (lifelong) and in various settings and situations (life-wide). In contrast, the authors indicated that education is more organized, structured, and systematic. Jarvis (2001, p.2) had a similar understanding. He described education as learning processes that occur in organized contexts only. In this regard, Jarvis et al. (2003, p.5) distinguished between learning as a more individualized process of acquiring knowledge and education as an institutional one. However, education does not only describe the process of acquiring and accumulating knowledge and skills, the term also points to the outcome and the status that emerged from this process (see

Long 1986, p.16). Incorporating both understandings of education, Darkenwald and Merriam (1982, p.2) followed Cremin (1976) and defined education as "the deliberate, systematic, and sustained effort to transmit, evoke or acquire knowledge, attitude, values, or skills as well as any outcome of that effort." According to these authors, education takes place in a variety of different contexts, such as school, workplace, family, or mass media.

4.1.6 Adult vs. Older Adult Education

Although the aforementioned authors emphasized that the contexts in which education can occur are wide and not limited to a specific time in life, Darkenwald and Merriam (1982, p.2) stated that education has been traditionally associated with childhood and formal schooling. Such an understanding is also apparent in Durkheim's (1956, p.71) definition of education as "the influence exercised by adult generations on those who are not yet ready for social life." Long (1986, p.14) also followed the traditional view of education as the process of developing from a child to an adult, which also finds expression in the original translation of the term. According to him, the translations of the Latin word *educere* "to train", "to lead out", and "to mold according to some specifications" are more associated with a child than an adult. Knowles (1980, p.50) argued that one critical aspect of education is life experience, which necessitates a distinction between education in childhood and adult years. While children tend to define themselves through outer circumstances, such as who their family is, he pointed out that adults make that self-definition through their sets of life experiences. The author concluded that adults especially value their experience and that they feel rejected if such experiences are not considered. Since life experience increases with age, this aspect appears especially relevant for education with older and oldest-old adults.

Education in Old Age

The previous discussion shows that the understanding of education can differ between childhood and adulthood. Some authors (e.g., Breloer 2000, p.44; Kolland/Kahri 2004, p.466) raised the questions if old age itself requires a separate education and how far education in old age can go. Different considerations and definition attempts for education in older and oldest-old age have emerged. While some authors advocated for a separate education in old age, others thought that the understanding as well as the goals and content of education in adulthood could also be translated to education in old age.

Kruse and Wahl (2010, pp.265f.) thought that education in both adulthood and old age follows similar goals. Although the authors remarked that job-related objectives, including

maintaining employability or securing economic growth, lose importance in older age, other goals, such as social participation, independence, and self-determination of the individual as well as helping to realize personal interests, also apply to an elderly audience. The authors emphasized that education in all age stages needs to incorporate individual experiences and skills and cannot be limited to the transfer and acquisition of knowledge only.

Also Kolland and Kahri (2004, p.466) argued that education in adulthood and older age can overlap in terms of content, organization, or methods. However, the authors stated that the process of aging and the later life stage can be accompanied by specific tasks and challenges that go beyond the typical content of general adult education. Therefore, Kolland (2005b, p.114) concluded that old age requires a separate education, which acknowledges the specifics of the later life phase and incorporates the learner's life experiences and personal learning biography. Kolland and Ahmadi (2010a, p.27) emphasized the importance of everyday knowledge, experience, and social interaction for education in older age and suggested that an educational theory in old age needs to conceptualize the complexity of the relationship between systematic knowledge and experience as well as acknowledge the specific relationship frameworks in which learning occurs.

Kalbermatten (2004, pp.113f.) had a similar understanding. He thought that the educational content could in principle be the same for older and younger adults so that all adult education offerings should generally be open to an elderly audience. However, he argued that specific offerings, such as aging-related courses, should only be available to older adults as they pertain to their living situation. Regarding the goals of education, the author highlighted that education in all life stages should assist the individual in shaping the course of life, discovering new goals, meanings, and personality. For an elderly audience, the author named six goals that should help classifying educational offerings: (a) assistance with staying up to date with societal changes and developments as a possibility to remain an active part of society (e.g., computer or intergenerational courses), (b) fostering cognitive activity and preventing cognitive and physical decline (e.g., brain fitness courses), (c) supporting the individual in finding meaning in life and planning the later life stage (e.g., biographical or life philosophy courses), (d) provision of information and skills on how independence and quality of life can be maintained (e.g., traffic safety or courses that help to adapt to physical changes), (e) assistance with the development of new social contacts and social roles in all kinds of courses, and (f) empowering older adults for societal engagement.

The Sixth Report of the Elderly (see BMFSFJ 2010, pp.81f.) highlighted the importance of everyday skills in the discussion of education in old age. The report argued that education for

older adults cannot be limited to the acquisition of qualifications and knowledge, but should also include skills and experiences that help to solve current and future tasks in daily life settings so that an independent lifestyle in all areas of life can be continued.

Schlutz et al. (1992, p.11) shared the view that education in old age cannot be limited to a general knowledge transfer, but also needs to provide life support to assist the individual in maintaining her independence. Accordingly, the author saw the goals of education for the elderly in preserving existing and developing new competencies, assisting with life crises as well as in supporting the individual in his search for new social roles and meaning after the employment and family phase.

Also Knierim (1986, p.2) tied the goal of education in old age to the specifics of the later life phase. According to the author, education in old age should help to compensate the loss of professional roles and social contacts as well as declining physical and cognitive abilities through the creation of new tasks and activities that are important for the elderly.

Tews (1976, p.68) saw the role of education in old age in life support. The author argued that the educational content should focus on everyday topics, such as nutrition, health, sexuality in later life, or being a grandparent.

The *Projektgruppe Lernen im späteren Lebensalter*[9] (see Waxenegger 2011, pp.10f.) emphasized the importance of the individual biography for the education of older adults. The working group placed the individual's autonomy, life experiences, and competencies in the center of educational processes. Instead of teaching new skills and knowledge that enhance efficiency in, e.g., work settings, education in old age should discover individual resources and potentials and support the elderly in recognizing and utilizing these for their personal living situation and maintenance of independence. Furthermore, education in old age should prevent social isolation by fostering social interaction and integration. The group saw the role of education also in the realization of personal interests and qualifications for post-occupational activity areas, such as volunteering tasks. In general, the acknowledgment of diversity and inclusiveness, regardless of the individual's socio-economic background, age, gender, ethnicity, or educational background, should be the guiding principles of education in old age.

Bubolz-Lutz (1984, p.175) placed the individual's specific living situation and biography in the center of educational work. Therefore, Bubolz-Lutz et al. (2010, pp.129ff.) advocated for a differential approach to education in old age[10] and emphasized that the content of education

[9] Engl. (SvD): Project group learning in older age

[10] The authors referred in this regard to the term geragogy, which is discussed in Section 4.2.

cannot be generalized for older adults, but should be tailored to the individual and her personal interests. Consequently, the authors argued that education in old age cannot be limited to institutional educational contexts and the traditional teacher-student relationship because education in old age should primarily combine specific thematic work with reflection of the learner's self- and world understanding.

Education in Oldest-Old Age

Such a differential approach to education in old age also becomes apparent in Bubolz-Lutz' (2000b, pp.327f.&341) understanding of education in oldest-old age[11], which she defined as a time characterized by both competencies and loss experiences. Since the author saw tendencies that society often marginalize oldest-old adults as being care-dependent, she emphasized that education needs to acknowledge the individual autonomy, freedom of choice, and personality also in the latest life stage. Therefore, the author advocated for a separate understanding of education in oldest-old age due to the specific health and living conditions that can accompany this life phase and that require the individual to adapt to. While education in younger age can provide general knowledge and help to grow everyday competencies, she saw the role of education in the last life stage in the transfer of orientation knowledge. This includes the development of individual potentials as well as an intellectual engagement with the discussed changes and challenges that necessitates a new orientation on different levels. Bubolz-Lutz (2000b, p.328) highlighted three areas in which education can assist with orientation: (a) orientation in regard to the relationship to oneself – education should help to strengthen self-confidence, promote self-care and self-affirmation, and provide support in finding meaning and identity, (b) orientation in regard to ongoing societal changes – education should help diminish the feeling of helplessness with systems or institutions by empowering the individual to be in charge of the new situation, and (c) orientation in regard to the social life - when social contacts change or decline, education can foster communication, social integration, and help to re-grow social networks. To counteract the possibility of a diminishing network and health decline in oldest-old age, the author (ibid, p.341) pointed out that the educational content needs to provide opportunities for joyful experiences and social contact as well as have everyday relevance for the learner. She followed the previously discussed constructivism and highlighted the importance of social connection for the educational work with oldest-old adults by enabling learning through discussions and the exchange of experiences.

[11] In a later publication, Bubolz-Lutz et al. (2010) used the terms oldest-old age and fourth age synonymously as oldest-old adults show in comparison with other age groups, an increased likelihood to be in the fourth age.

Also Kösler (2004, pp.116ff.) thought that education in oldest-old age can assist the elderly in adjusting to the changes that can accompany the latest life stage and can also help discovering new competencies and experiences to maintain a positive self-image and happiness.

Kade (2009, pp.61ff.&131ff.) saw the primary role of education in enabling self-determination of what, how, and with whom the oldest-old individuals want to learn. She emphasized that this aspect should also apply to the care-dependent fourth age[12]. However, the author criticized that oldest-old adults are often underestimated in their educational capabilities and that especially care facilities do not provide options for personal self-determination that go beyond the general decision for attendance. The author argued that education needs to be tailored to the personal living situation and incorporate the learner's everyday life even in the fourth age. Kade (2009, pp.135ff.) considered the following areas to be of importance for educational work with elders in both life stages: (a) biography (reflection), (b) everyday life (information), (c) creativity (communication), and (d) productivity (competence). She thought that previously learned knowledge and experiences are of greater importance for the educational work with older than with younger adults. Hence, education in the third and fourth age should incorporate possibilities for reflection of the individual life story and experienced historical contexts. Regarding her point (b), Kade remarked that everyday life experiences can create an incentive to learn so that educational offerings should provide orientation and assistance with navigating the changing daily life. The development of an art appreciation through creative reception and expression should be the goals in area (c), which should assist with unfolding (unknown) creative potentials and provide new experiences. In area (d) the author focused on the development of skills and knowledge needed for new productive tasks, such as volunteer responsibilities. Didactical ideas that address these four areas are presented in Section 4.2.3.

Neikrug et al. (1995, pp.345ff.) explored the necessity for a separate education in oldest-old adults to some extent by studying a sample of oldest-old adult learners that differed greatly from the stereotypes of the latest life stage. The results of this qualitative study, which consisted of a sample of 43 individuals aged 81+ who participated in a university-based older adult education program in Israel, indicated that the oldest-old participants still lived an (intellectually) active and autonomous life that did not match negative stereotypes of old age. For example, the study showed that the majority of the respondents still lived independently (86%), rated their subjective health relatively high (67% described their health as good or fairly good), visited

[12] Since oldest-old adults have an increased likelihood to be care-depended, also Kade (2009, pp.136&171) used the term fourth age to describe the latest life stage.

cultural events on a regular basis (74%), and were socially active (about half of the elderly saw their friends at least once a week and 28% were still active as volunteers). A correlation between the subjective health rating and frequency of family contacts as well as between independence in daily instrumental activities and frequency of contacts with friends was observed. As a conclusion, the researchers suggested that policymakers should balance "the realities of the support and care needs of the very impaired old old with the quality-of-life needs of the healthy old old" (Neikrug et al. 1995, p.354). Such a balance also appears of importance for the educational practice with oldest-old adults.

Breloer (2000, p.40) concluded that education in old age has been primarily discussed and justified from a socio-scientific viewpoint. From this perspective, education can be understood as organized learning that takes place in institutional contexts. This understanding of education is adapted for this thesis and also influenced the design of the empirical Silverlearning Study (Ch. 5). Considering the heterogeneity of old age, another understanding of education that is adapted for this work builds on the previous discussion that older and oldest-old learner's interests, experiences, skills, and specific living circumstances should be in the center of the educational work. The importance of this differential, person-centered, and resource-oriented approach was pointed out by, e.g., Bubolz-Lutz. Following this holistic approach, education in the later and latest-life stage cannot be limited to knowledge transfer only, but also needs to fulfill other functions, such as life support, socializing opportunities, and orientation in regard to the previously discussed cognitive, psychological, and social changes that can accompany old age. However, due to the large inter-individual variance of old age, this thesis also incorporates Kruse and Wahl's view that adult and older adult education could in principle follow similar goals and understandings, as long as the older and oldest-old individual is given the opportunity to determine the mode and content of education that fit the personal interest and individual living situation. Since some of the aforementioned authors raised the question if old age, and specifically oldest-old age, require a separate education, the empirical Silverlearning Study in Chapter 5 explores this aspect further.

In addition to different understandings whether old age requires a separate education, the previous discussion also highlighted that the underlying images of old age vary between the authors. While some authors, such as Schlutz et al. (1992, p.11) or Kalbermatten (2004, pp.113f.), indicated that further development of skills and personality is possible through education in old age, others, such as Tews (1976, p.68), focused on the preservation of competencies. Since Chapter 3 highlighted that old age can be understood as a time in which

learning gains, optimization processes, and the utilization of resources are still possible, the first perspective is adapted for this work, which acknowledges that older and oldest-old adults have the potential to not only maintain their competencies through education but also to develop their skills and personality further.

4.1.7 Theoretical Foundations and Motivations for Learning and Education in Old Age

As stated earlier, humans learn over their entire lifespan. Himmelsbach (2012, p.530) claimed that lifelong learning has become the most glamorous term in adult education. Although the term is nowadays mainly used in regard to learning in (older) adulthood, lifelong learning emphasizes that humans learn in different contexts and forms over the entire life span (see Hof 2009, p.15; Leipold 2012, p.20). However, lifelong learning has not only become a necessity for humans to adapt to the continually changing environment, but the topic itself has also become the subject of a societal discourse (see Hof 2009, p.16).

The idea of the importance of lifelong learning goes back to the early 1970s when the United Nations Educational, Scientific and Cultural Organization (UNESCO) commissioned the report "Learning to be", also known as the "Faure Report", named after the chairman Edgar Faure. This report provided governments with strategies for the development of lifelong learning opportunities and helped to establish lifelong learning as a global educational concept. Central to the report is the understanding that learner-centered learning opportunities should be available to everyone, regardless of age, race, or class (see Faure et al. 1972, p.66; Schuetze 2006, pp.289ff.). "Equal opportunity for all does not mean nominal equality, the same treatment for everyone, as many still believe today, it means making certain that each individual receives a suitable education at a pace and through methods adapted to his particular person" (Faure et al. 1972, p.66). Boshier (1980, pp.4ff.) understood this democratic and inclusive view of lifelong learning as intrinsic to learning in later life. While the topic of lifelong learning did not get much attention in the 1980s, the idea re-emerged two decades later as a policy goal in the discussion around the importance of education as a strategy to ensure global competitiveness through a trained and skilled workforce (see Schuetze 2006, pp.289ff.).

Over the years, different models for lifelong learning were developed. Schuetze (2007, p.9) distinguished between (a) the "social justice model", which is based on an equal opportunity and inclusive understanding of learning for everyone, (b) the "human capital model", which understands lifelong learning as work-related training that should equip the workforce with skills in order to contribute to the needs of an economy and ensure economic competitiveness,

and (c) lifelong learning as a general set of educational opportunities for citizens from democratic countries, including distance and online learning. Although the focus of these models is different, the author concluded that they are all based on the understanding that learning is not only a "lifelong", but also a "life-wide" endeavor, which emphasizes that learning occurs in a variety of settings, and not exclusively in institutional contexts.

Although international policy statements advocated for the importance of learning in late-life, learning and education in old age still play a minor role in the educational systems in many countries, including Germany and the U.S. (see Kolland/Ahmadi 2010b, p.44; Withnall 2010, p.13). Kolland and Ahmadi (2010b, p.44) argued that the main focus of adult education and lifelong learning is on individuals in working age and their employability in the workforce. Findsen and Formosa (2011, p.89) stated that the question of why older adults should continue to learn is one of the key debates in older adult learning and that the absence of such a reflection in the educational practice has already been pointed out by Moody in the late 1970s. Over the years, theorists embedded the field of older adult learning in different contexts. Some of these rationales are discussed in the following. Although some of these aspects were already discussed earlier, they are mentioned at this point again for completeness.

Economic Benefits

In the context of the demographic change and the shrinking number of adults in working-age (Sec. 2.5), utilizing the older generation as a resource on either a paid or volunteer basis could help to counterbalance the increasing shortage of younger people in the future labor force, and therefore help to maintain the retirement systems. In this regard, learning in later life and the participation in non-formal or formal education can fulfill the important function to prepare and accompany the older adult for these new tasks (Sec. 3.4.4).

Physiological and Psychological Benefits

As discussed in Section 3.5, research indicated that participation in various forms of education and learning has a positive impact on health, wellbeing, civic participation, and social attitudes in old age (see Bynner et al. 2003, pp.348ff.; Feinstein/Hammond 2004, pp.208ff.). Education in old age can increase self-confidence and independence as well as help structuring daily life in retirement (see Amaducci et al. 1998, p.M487). The importance of lifelong learning in every age as a strategy for personal development, well-being, and self-fulfillment was also highlighted in the aforementioned 2002 Madrid Plan of Action on Ageing (see United Nations 2002, p.17; Sec. 3.2.2). Referring to her unpublished work in 2008, Withnall (2010, p.14) commented that participation of older adults in lifelong learning can also help to maintain

independence, contribute to longevity and social inclusion, promote empowerment and tolerance, and help to develop skills and competencies, which benefit not only the individual, but also the respective families, communities, and the overall economy.

Activity Theory

The importance of learning and participation in education can also be explained with the discussed activity theory (Sec. 3.2.2), which argues that life satisfaction in old age correlates with the level of social activity. Hence, activity and training can help to counteract age-related function decline. Therefore, the more active an older adult is, and the more social interactions are maintained, the higher the individual life satisfaction and morale are (see Havighurst/Albrecht 1953). In this regard, educational institutions can serve as important foundations for the social networks of learners, and thus contribute to active and joyful aging.

Theory of Tertiary Socialization

The previous chapter emphasizes that the aging process can be accompanied by various physical, cognitive, social, and emotional changes that can cause the individual to question his role in life or personal identity. Education can fulfill the important function in supporting the older adult in her development of an identity in later life (see Veelken 2000a, pp.90ff.). Veelken (2000a, pp.89f.) connected education in old age with the theory of tertiary socialization, which describes how a person's identity develops over the whole life cycle and in certain historical contexts. The tertiary socialization takes place after the primary and secondary socialization. The author defined primary socialization as a time in which a child learns the values and behaviors important to a specific culture and how to actively influence its environment. The secondary socialization describes the development of an individual into new roles and appropriate behaviors during adolescence and adulthood. Veelken's foundation of this understanding is that socialization occurs in the dynamic interaction between (a) culture (knowledge base that helps to interpret the world embodied by, e.g., books, theories, technologies), (b) society (given regulatory systems that are embodied by traditions, rules and laws), and (c) the individual (whose identity develops through a lifelong process). This is followed by the tertiary socialization, which is the development of an age-specific identity within the context of the corresponding society and culture. The author based his understanding on Erikson's psychosocial development tasks of the later life stage, which are "Generativity versus Stagnation" (Erikson 1980, p.103) and "Integrity versus Despair and Disgust" (Erikson 1980, p.104). According to Erikson (1980, pp.103f.), generativity describes the interest and the ability of caring for others and the society and nurturing things that will outlive the person.

Consequently, individuals who succeed in this stage of psychosocial development will feel active in their communities and social environments, while those who failed the development tasks of this stage may feel disconnected and unproductive in their communities. Integrity refers to the ability to accept the individual life cycle with all its successes and failures. If a person does not have the feeling to have lived a successful life, hopelessness, guilt about the past, or the feeling that life goals were not accomplished can result. Veelken (2003, p.30) concluded that the task of older adult education is to establish transfer processes between a changing society and culture and the developing individual.

4.2 Geragogy

As Section 4.1.6 discuss, different authors have a varying understanding of education in old age and what it should entail. This also finds expression in a wide range of terminologies that have been suggested over the years to describe the subject area of education and learning in old age. Since the previous sections already discussed some of the underlying understandings, some terminologies are briefly reviewed in the following. Different aspects of the subject area are highlighted in the terminology spectrum (see Kalbermatten 2004, p.113). For example, some authors focused on the aspect of learning and that learning abilities are still given in old age (see Breloer 2000, p.39). In this regard, terms, such as "elderlearning" (e.g., Lamdin/Fugate 1997), "later life learning" (e.g., Withnall 2006), "older adult learning" (e.g., Eisen 1998; Fisher 1998), and "learning in later life" (e.g., Jarvis 2001; Findsen 2016), emerged. Others discussed the subject under the aspect of education so that terms, such as "late-life education" (e.g., Browning 1995), "third age education" (e.g., Jarvis 2001), "lifelong education" (e.g., Harootyan/Feldman 1990), "education for older adults" (e.g., Courtenay 1989; Glendenning/Battersby 1990), and "older adult education" (e.g., Manheimer et al. 1995; Peterson/Masunaga 1998), are found in the literature. In the German language, terms, such as "*Altenbildung"*[13] (e.g., Breloer 1974; Tews 1976; Eirmbter 1979; Siebert 1989; Becker et al. 2000), *"Bildung im Alter"*[14] (e.g., Kruse 1988; Bubolz-Lutz 2000a; Sommer et al. 2001; Kalbermatten 2004; Veelken 2006; Siebert 2011), and *"Bildung im vierten Alter"*[15] (e.g., Kösler 2004) prevailed in this context. For the description of the scientific discipline,

[13] Engl. (SvD): Education of the elderly

[14] Engl. (SvD): Education in old age

[15] Engl. (SvD): Education in the fourth age

terminologies, such as "eldergogy" (e.g., Yeo 1982), "gerontagogy" (e.g., Bollnow 1962; Eirmbter 1979; Schneider 1993; Lemieux/Sanchez Martinez 2000), "educational gerontology" (e.g., Peterson 1976; Glendenning/Battersby 1990; Glendenning 1993; Cusack 1999), and "geragogy" (e.g., Petzold 1965; Mieskes 1971; Hartford 1978; Lebel 1978; John 1988; Bubolz-Lutz et al. 2010), and their corresponding German translations were established. Although the latter terms are often synonymously used, geragogy has become a particularly well-known term (see Formosa 2012, p.37). The following discusses the concept of geragogy in more detail.

4.2.1 Historical Outline and Classification

According to Bubolz-Lutz (2010, p.37), geragogy is a relatively young independent scientific discipline, which focuses on the research and practice of learning and teaching in and about old age. Etymologically, the term geragogy derived from the two Greek words *Geraios/Geraros*, meaning old or the older adult, and *Ago*, which can be translated with "I lead" or "I guide." In addition to pedagogy as the discipline of the education of children and adolescents, and andragogy as the discipline of the education of adults, Mieskes (1971, p.279) defined geragogy as the discipline of the pedagogical conditions and effects of aging, and, therefore as the discipline of the education of aging and older adults (see Mieskes 1970, p.90).

Geragogy is closely affiliated with other disciplines and is settled between educational sciences and gerontology. While educational sciences provide guiding didactical principles, gerontology contributes the knowledge base of aging (see Bubolz-Lutz et al. 2010, p.57). Others, such as Veelken (2000a, p.89), saw the discipline also in close proximity to social work since the individual should be supported in managing the later life stage together with crises or issues.

The history of geragogy traces back to the 1950s when Kehrer (1952, pp.128f.) used the term for the first time by arguing that education can support individuals in their aging process. Bollnow (1962, p.386) followed this idea and emphasized that a confrontation with the own aging process through education provides older individuals with the possibility to discover and utilize hidden potentials. In the late 1970s, the term geragogy received attention in the U.S. after Lebel (1978, pp.16f.) used it to advocate for a new educational theory for the elderly by arguing that older adults learn differently and that the concepts of pedagogy and andragogy are, therefore, not suitable for the later life phase.

Over the years, different sub-disciplines of geragogy emerged. For example, Veelken (2000a, p.89) advocated for a social geragogy, which should support the older individual in her socialization process with the goal to help developing a personal role in times of conflicts and

crises (Sec. 3.4). Due to a growing understanding of the heterogeneity of old age, some authors moved away from a view of older adults as one generic target audience and started focusing on specific subgroups of the elderly. In this regard, Bubolz-Lutz (2000b) as well as Maderer and Skiba (2006) applied geragogical ideas towards oldest-old adults (geragogy of the fourth age) and frail elders (integrative geragogy) – two underserved groups from the geragogical perspective. Another sub-discipline is the so-called critical geragogy or critical educational gerontology. According to Findsen and Formosa (2011, p.105), this theoretical perspective developed after early theorists of geragogy infantilized older learners in their learning capabilities and educational demands. Therefore, the idea of a critical geragogy emerged with the goal to dismount the pessimistic understanding of older learners as dependent objects and to empower and emancipate the elderly students (see Glendenning/Battersby 1990, p.223). As one of the first advocates of this approach, Allman (1984, p.85) argued that education needs to enable older learners to be in control of their thinking process. Battersby and Glendenning (see Glendenning/Battersby 1990, pp.223ff.; Battersby/Glendenning 1992, p.115) also challenged the view of older adults as a homogenous group and questioned the assumption that any kind and type of education is generally beneficial for the mature individual. In this regard, they advocated that educators should critically reflect their actions as well as the appropriateness of the teaching strategies and content, by also incorporating the leaners voice.

4.2.2 Key Understanding and Activity Areas

The acknowledgment of personal autonomy and dignity in old age is the key understanding of geragogy, which is oriented on inclusiveness and acts on the understanding of a personal right of education in every life stage (see Bubolz-Lutz 2010, p.37). From the practical geragogical perspective, education assists the older individual in his development through, e.g., a better understanding of oneself and the surrounding environment. Therefore, geragogy wants to support older adults in their further development by providing educational programs that can help to, e.g., better understand and adjust to the personal environment in old age (see Kricheldorff, no year, slide 15). However, geragogy does not only want to support learners in the third and fourth age in their individual life situation and development but also focuses on the process of aging over the whole lifetime and the impact that previous learning experiences have on educational motivation in the second half of life. Older adults in different stages of life should be empowered to be responsible for their own learning experience in different learning contexts, including non-formal settings (see Bubolz-Lutz 2010, p.37). Some examples of non-formal geragogical contexts and providers are presented in Section 4.4. According to

Kricheldorff (no year, slide 30), geragogy distinguishes between three types of educational processes: (a) education as the process of acquiring and expanding knowledge through, e.g., attendance of courses or workshops; (b) education as the process of acquiring and retaining personal competence through, e.g., courses or seminars that focus on prevention and the preservation of competencies (e.g., memory training, nutrition, health training); and (c) education as a transformative and reflective process through, e.g., offerings that focus on the personal biography.

Geragogy consists of three activity fields that are also inter-related (see Kade 2009, pp.121ff.; Bubolz-Lutz 2010, p.35). Bubolz-Lutz (2000b, pp.330ff.) applied these areas not only to old age in general but also to the oldest-old age in particular: (a) educational opportunities for older/oldest-old adults: older (oldest-old) learners should be provided with possibilities for the discovery and development of existing and new competencies as well as with support and guidance in the management of life crises; (b) educational opportunities on the topic of older/oldest-old age: wants to support the individual in the transition into old (oldest-old) age; this support should be provided through topical discussions and education about age-related subjects, such as healthy lifestyles or how to compensate social loss experiences; and (c) educational opportunities for individuals working with older/oldest-old adults: professionals or individuals working or living with older (oldest-old) adults should be educated about the specifics of the later (latest) life stage and common age stereotypes. For example, they should learn how to accompany and support older (oldest-old) adults in times of adaptation and change. Therefore, recipients of geragogy are the older and oldest-old individuals themselves, but also persons who live, work, or study with the elderly (see Bubolz-Lutz 2010, p.37).

4.2.3 Didactical Principles and Instructional Strategies

As discussed in Section 4.1.6, no consensus exists whether old age requires a separate understanding of education. Such discourse also exists in regard to the didactical strategies and educational methods in older adult education (see Schneider 1993, p.146). Schneider (1993, p.147) questioned approaches that advocate for generic learning and teaching strategies in old age. In this regard, the author argued that the chronological age may not be a sufficient variable because different aspects, such as previous learning experiences or personality, can influence individual learning preferences, and hence the success of a specific educational method. She recommended that educators must respond to the heterogeneity of the elderly with a broad array of concepts and teaching strategies. Schneider's argument that the age of an individual may not

always be an adequate indicator for the determination of specific learning and teaching strategies appears especially relevant for the discussion of geragogy, as she positioned herself against the geragogical concept, which suggests that old age generally requires separate educational approaches.

The recognition of the diversity of learners in regard to their interests, life situations, learning preconditions, and life experiences as well as the corresponding flexible adaption of teaching methods to the target audience, finds expression in the concept of differential didactics[16] (see Schröder 2001, p.76). According to Bubolz-Lutz et al. (2010, pp.129ff.), the development of individual potentials and competencies is one of the two key didactical principles of geragogy. The authors emphasized that differences between learners should not be understood as a disturbance of educational interventions rather than a possibility to learn from each other.

The other leading didactical conception of geragogy is the constructivist-oriented concept of enabling didactics[17] (see Bubolz-Lutz et al. 2010, pp.132ff.), which is based on the understanding that the content of teaching is not necessarily what the individual learns and that knowledge cannot be created by the instructor. In this understanding, educational offerings can only provide the framework and resources that are needed to enable the individual to learn in a self-determined manner. The learners should be empowered to discover their resources as well as be encouraged to take responsibility for their learning outcome and knowledge acquisition. To facilitate this, the instructor needs to present the learning conditions in such a way that older learners can make their own decisions for what and how they learn.

Furthermore, Bubolz-Lutz et al. (2010, p.133) emphasized that the concept of geragogy also incorporates the understanding that knowledge growth occurs through the exchange with others. Furthermore, it includes findings from brain research that learning is enhanced when the content appears meaningful to the learner, an anxiety-free learning environment is given, and the learning subject is repeated. Beneficial for the success of learning is also an atmosphere in which trust, cheerfulness, and acceptance are given (see Bubolz-Lutz 2000b, p.342). Since changes in memory and learning speed occur with increasing age (Sec. 3.3), Bubolz-Lutz (2000, p.342) emphasized that these aspects are of especial importance in the geragogical work with oldest-old adults.

Bubolz-Lutz et al. (2010, pp.131f.) suggested that these didactical concepts could be

16 Ger.: *"Differenzielle Didaktik"* (Schröder 2001, p.76)

17 Ger.: *"Ermöglichungsdidaktik*" (Bubolz-Lutz et al. 2010, pp.132ff.)

realized in the geragogical practice by moving the educational opportunities into the immediate living environment of older adults as well by incorporating a wide variety of methodologies (e.g., dance, music, biographical narration) and subject areas that are tailored to the life situation of the elder learners. Findsen and Formosa (2011, pp.107f.) also advocated for such an individualized didactical approach to education in old age. They suggested that instructors could make the course materials relevant to the personal lives of older adults by not only giving examples that are meaningful but also by providing sufficient room for discussion about how the learning content relates to personal experiences. The authors proposed that in order to respect differences between learners and their individual living situations, educators need to create a respectful learning atmosphere in which all ideas and questions are welcome. Instructors should also empower the participants to take control of their learning experience by assisting with, e.g., setting a personal learning goal at the beginning of the course and evaluating the outcome afterward. The authors argued that returning to the classroom can be a challenge for some elders, especially for those who were not exposed to formal or non-formal learning contexts after secondary education, so that the classroom setting can cause anxiety, feelings of losing control, or not being able to keep up with others. Bubolz-Lutz (2000b, p.342) also highlighted the importance of a learner-centered approach and a variety of methodologies that are presented in an anxiety and stress-free environment for an educational work with oldest-old adults.

For the development of education with older and oldest-old adults, Bubolz-Lutz et al. (2010, pp.137ff.) suggested that instructors should follow eight leading didactical principles. All eight principles and the corresponding methods are discussed in more detail in the following. As the first didactical principle, the authors highlighted that instructors should link reflection and action, following Breloer's (2000) postulation that human beings can reflect on themselves and their reality in order to actively evaluate their lives as successful. Therefore, the authors proposed that instructors should incorporate sequences of reflection on the learners' experiences and provide possibilities for action through, e.g., project work. Bubolz-Lutz et al. (2010, p.139) widened the understanding of the term action for individuals in the fourth age to behavioral changes that are the consequences of reflection. In this regard, they suggest that even intentional kind words of a bedridden person to a nurse can indicate that a reflection of the personal behavior occurred. The authors pointed out that educators need to be sensitive to observe such behavior changes.

Bubolz-Lutz et al. (2010, p.139) highlighted the importance of stimulating an experience exchange for the educational work with older adults. According to them, experience knowledge

consists of knowledge that the individual acquired over the lifetime in, e.g., everyday life or the workforce, and that builds the basis not only for interpreting and mastering current action requirements but also for learning something new. As a methodological approach, Bubolz-Lutz et al. (2010, pp.140f.) recommended that instructors should assist the learner with discovering, reflecting, and reviewing personal experiences as well as inspire and moderate an exchange of experience knowledge between the participants so that a common understanding between each other can be reached.

Making the personal learning biography a learning topic itself is closely related to the previous didactical principle. The personal biography can impact the educational processes in either an explicit or implicit manner (e.g., as a learning barrier). Therefore, Bubolz-Lutz et al. (2010, p.141) suggested that educators should inspire learners to reflect on questions, such as how they learn, what they want to learn, and what they already know. Over the past four decades, a growth in biography-oriented educational approaches has taken place (see, e.g., Alheit 1995; Bron/West 2000; Goodson 2001; Lotz 2004). In this regard, Bubolz-Lutz et al. (2010, p.81) commented that biographical work has become an important concept of older adult education. The authors explained this growing importance with, e.g., the influence of differential gerontology, which understands aging as a biographical development process where individual life experiences made in specific social contexts can impact behaviors and perspectives in the aging process. The authors discussed that the discipline was able to show that old age is very diverse and that the biography has a higher influence on life perspectives and living circumstances than the chronological age. As a consequence of the growing importance of the individual biography in education, "biographical learning" (see, e.g., Alheit 1995; Alheit/Dausien 2002) emerged as a new learning field. Lotz (2004) understood biographical learning as a reflective review of specific problematic experiences that occurred in the past and that need to be reconsidered from the current perspective. Through such a review, (older) learners should be empowered to take control and shape their own life by realizing that everyone's life has a history that is changeable (see Kade 2009, p.69). Alheit and Dausien (2002, p.17) emphasized that with the help of biographical learning, individuals create meaning to their personal history and develop an identity, coherence, and a perspective that will guide future actions. Since the authors had the understanding that learning is always connected to the context of an individual biography, they argued that "without biography there can be no learning, without learning, no biography" (Alheit/Dausien 2002, p.15). Biographical work can either happen in an age-homogenous or intergenerational setting. By telling the personal biography in either a verbal or written form, looking back at cherished wishes, dreams, and

experiences help to understand the own life better. In return, listeners or readers receive insights into, e.g., contemporary historical circumstances (see Bubolz-Lutz 2000a, p.337). In addition to historical events, Kade (2009, pp.70ff.) suggested critical life events, such as retirement, widowhood, culture, or creative projects as possible fields of biographical review in old age. Photos and other memorabilia, including old documents, letters, or diaries can help to trigger these memories (see Behrens-Cobet 2000, p.300). According to Bubolz-Lutz (2000a, p.337), biographical work is especially suitable for educational work with oldest-old learners due to their pool of life experiences. Biographical work is not connected to a specific learning environment, which makes this approach also accessible for homebound and immobile elders.

Furthermore, Bubolz-Lutz et al. (2010, pp.142ff.) highlighted that educators should encourage self- and co-determination of the elderly in the learning process. Instructors could address this principle by deciding the learning content and methodology together with the older learners and by guiding them in their search for personal learning goals. The authors referred to Ryan and Deci's (1993) self-determination theory, which indicates that motivation is enhanced when learners are given autonomy over the learning process. Especially in oldest-old age, when the control over the own life situation is restricted, such autonomy is often not given (see Bubolz-Lutz et al. 2010, p.142). As a general difficulty of this didactical approach, Bubolz-Lutz et al. stated that individuals need to already possess self-learning competencies and that the concept fits primarily learners in the third age. For the fourth age, they suggested online learning from home. Findsen and Formosa (2011, pp.108ff.) highlighted that online learning has grown over the last decades and can serve as an important learning strategy not only for older adults in general, but especially for those elders who live alone, are homebound or reside in rural areas. As another instructional strategy to foster self-determination in educational settings, the authors also highlighted the opportunity of older learners to get involved in the classroom as peer instructors. Although the authors addressed that research results suggested that some challenges are associated with this teaching strategy, such as a lack of experience managing a heterogeneous group of peers, the findings indicate that peer instruction can be a positive and rewarding experience for the facilitators. Peer-instruction is a common teaching strategy at different institutions throughout the U.S., such as at the Lifelong Learning Institutes (LLIs), which are presented in Section 4.4.

As another leading didactical principle, Bubolz-Lutz et al. (2010, pp.148ff.) thought that instructors should enable social contacts by facilitating communication and providing networking possibilities. Furthermore, the authors saw the role of instructors in identifying and questioning personal values, which can impact learning behaviors. In order to address the

didactical principle of dealing with personal values, instructors should moderate discussions on these aspects.

According to Bubolz-Lutz et al. (2010, pp.152ff.), living conditions can significantly impact the reality of the elderly learners. Therefore, the authors stated that the personal living context should be incorporated in the educational work in two ways: while the individual living conditions could be made a subject of discussion and experience exchange, the educational arrangements could also be located in the immediate living environments. Through visits or field trips, learners should explore their environment from a different perspective, and consequently break out of established perception routines. New actions, such as improving the neighborhood district for older adults, could be a possible result.

Moreover, Bubolz-Lutz et al. (2010, pp.155) thought that learning also takes place through bodily and sensual experiences. Therefore, the authors suggested that instructors should create a stimulating learning environment that addresses all senses through, e.g., the incorporation of dance or music elements into the learning content. This holistic learning approach could be of special importance for individuals with cognitive impairments (see Bubolz-Lutz et al. 2010, pp.155) or frail learners in the fourth age (see Bubolz-Lutz 2000b, p.342).

The previous discussion emphasizes that geragogy should foster communication and an exchange of experiences between the participants as a possibility to learn from each other, enable self-reflection, and promote self- and co-determination by integrating the older learners into all aspects of the educational process. Therefore, educators in geragogical settings are not only instructors, but they are also facilitators, initiators, advisors, and moderators. In order to create a beneficial learning practice with older and oldest-old adults, Bubolz-Lutz et al. (2010, pp.156f.) commented that educators should be approachable, present, encouraging, and understanding. They should create transparency and communicate with the learners about the learning process and possible barriers, encourage the individual to seek own solutions to issues, create a safe space for learning, recognize small accomplishments, provide a variety of materials, and incorporate the learners' life experiences.

This section also highlights that every elderly, regardless of her life stage and the individual cognitive or physical condition, can participate in educational processes if education is understood as a holistic concept, which incorporates the whole body together with its senses and emotions. Various didactical strategies for individuals in the fourth age were presented. Kade (2009, p.138) emphasized that although the topic of education in the fourth age gains relevance, no didactical learning model exists for this life stage so far. According to her, such a model should incorporate not only the psychological and somatic specifics that are associated

with oldest-old age, but also the individual in his environment. As an attempt to address this lack, the author recommended didactical ideas for four learning areas that could be of potential interest to oldest-old learners. For example, in order to address the (a) learning area of everyday life, instructors should provide information and guidance on topics that are of relevance for daily life, such as housing possibilities in old age or nutrition. Through activities, like cooking together or developing a theater play, competencies could be enhanced, and the (b) learning area of productivity could be addressed. In the (c) learning area biography, reflection could be stimulated through biographical narration of, e.g., school experiences or games played in childhood. These memories could be triggered by, e.g., watching family photos or going on a "time travel". To foster the (d) learning area communication, instructors could take the participants on virtual trips to countries, organize field trips to learn about the history of a specific city district, or organize talk shows with invited guests.

4.3 Educational Participation and Interests of Older Adult Learners

Understanding the characteristics of participants in older adult education is of great importance to educational policymakers, administrators, and instructors. It does not only help to develop offerings that are oriented towards a specific target group, it can also inform marketing strategies aiming to increase course enrollments of older adults, which have been traditionally low (see Bynum/Seaman 1992, p.12). However, while much research has been devoted to the motivation and participation patterns of adults in working age, comprehensive and representative data on the participation patterns, educational behaviors, and interests of older adults in non-formal education exist only marginally (see Kim/Merriam 2004, p.442; Tippelt/Schmidt 2009, p.14; Findsen/Formosa 2011, p.117). For example, the international comparative Adult Education Survey (AES), which replaced the German *Berichtssystem Weiterbildung*[18] in 2006, collects every four to six years data on the participation of adults aged 18 to 64 in non-formal, formal, and informal education in around 30 countries[19], including member countries of the European Union (EU), EU candidate countries, and European Free Trade Areas. This age range has been adapted by other studies, resulting in a lack of data of older adults (see Tippelt/Schmidt 2009, p.14; Schmidt-Hertha 2014, p.47; Eurostat 2019). If

[18] Engl. (SvD): Reporting system continuing education

[19] In 2007, the AES was carried out in 29 countries, in 2011 in 31 countries, and in 2016 in 35 countries. (https://ec.europa.eu/eurostat/web/microdata/adult-education-survey)

empirical research exists in this regard, most studies have a cut-off age around the age of 65 to 75. One of the few studies that extended the focus group age is the aforementioned EdAge Study (Tippelt et al. 2009b), which included adults up to the age of 80.

The lack of data is even more pronounced in the group of oldest-old adults, which has not been discussed in the context of education for a long time (see Bubolz-Lutz 2000b, p.330). Since only a few studies (e.g., Neikrug et al. 1995; Lamdin/Fugate 1997; Hurworth 2009) focused on the educational behaviors of non-demented oldest-old adults, comprehensive and representative data sets are lacking. Education in oldest-old age was also partially addressed in the aforementioned BASE as well as in the Fourth Report of the Elderly (BMFSFJ, 2002). However, these discussions occurred in regard to the positive influence of the personal educational biography on aging processes only and not in the context of participation in education in the later life phase (see, e.g., Helmchen et al. 1996; BMFSFJ, 2002, pp.166ff.).

According to Findsen and Formosa (2011, p.121), this general lack of data on older and oldest-old adults in education "reflects a neglect of the importance of adult education/lifelong learning for people post-work (…)". However, considering the discussed positive aspects of learning and educational participation in later life on e.g., health, wellbeing, civic participation, social attitudes, and independence (see Amaducci et al. 1998, p.M487; Bynner et al. 2003, pp.348ff.; Feinstein/Hammond 2004, pp.208ff.), giving education in old age greater political and scientific relevance appears necessary. Especially in oldest-old age, where the risk for multimorbidity, dependency, and social isolation increases (Sec. 3.4), education seems crucial (see Bubolz-Lutz 2000b, p.330).

The following chapter discusses participation patterns and motivations of older adults in education, while also highlighting barriers that learners can face. However, generalizing the educational behaviors of older adults is difficult as they are influenced by a variety of factors, such as individual living situations, personal interests and values, experiences made through the life, socio-cultural factors, and individual learning biographies (see Barz/Tippelt 2004, pp.327ff.; Schmidt-Hertha 2014, p.62). Therefore, a strong inter-individual heterogeneity is especially pronounced among older learners (see Tippelt et al. 2009b, p.20).

4.3.1 Participation and Barriers

The participation rates of older adults in non-formal education constantly increase in Germany. For example, the AES showed that the participation rate of the surveyed population aged 60 to 64 in education in Germany has grown from 18 percent in 2007 to 38 percent in 2016. While the participation of this age group in personal enrichment courses remained with

about 14 percent relative stable between the years 2012 and 2016, the strongest increase occurred in work-related trainings that took place within companies (18% in 2012 to 24% in 2016; see BMBF 2017, p.38). Although the results from the AES pointed out that the participation of the 60 to 64-year-olds in personal enrichment classes remained relatively stable, Siebert (2015, p.65) highlighted that the age group 60 to 75 has shown a significant increase in the participation in personal enrichment classes over the years in Germany.

A steady increase in the participation of adults aged 55+ in education is also visible in the U.S. since the 1970s (see Manheimer 2007, pp.41f.). Manheimer (2007, pp.41f.) pointed to the results of the National Household Education Surveys, which indicated that the percentage of adults aged 66 to 74 who took at least one non-formal course during the last 12 months grew from 8 percent to 20 percent between 1991 and 1999. The largest growth in the participation of the elderly occurred in courses or workshops organized by community providers, such as libraries, senior centers, or churches.

Despite the discussed increases, older adults have been traditionally underrepresented in education in Germany and the U.S. in comparison with younger age groups (see Creighton/Hudson 2002, p.14; Duay/Bryan 2008, p.1071; Kade 2009, p.98). For example, the German AES showed that about one-third (38%) of the 60 to 64-year-olds participated in education in Germany in 2016. In comparison, more than half (55%) of the 35 to 49-year-olds, 49 percent of the 18 to 34-year-olds, and 46 percent of the 50 to 64 year-olds took courses that year (see BMBF 2017, pp.37ff.). The German EdAge Study found a similar decrease in the educational participation with increasing age while also including participants up to the age of 80 (see Tippelt et al. 2009a, pp.34f.). While 44 percent of the study partakers aged 45 to 54 and 26 percent of the 55 to 65-year-olds attended any type of non-formal education over the past 12 months, the participation decreased to 12 percent in the age group 65 to 80. For the U.S., the 2005 U.S. Adult Education Survey, which was administered as part of the National Household Education Surveys Program and not as part of the aforementioned AES[20], found a similar decrease. Here, 38 percent of the 60 to 64-year-olds, 26 percent of the 65 to 69-year-olds, and 22 percent of adults aged 70+ participated in any form of adult education over the last 12 months. In comparison, about half (49%) of the surveyed adults aged 45 to 49, 47 percent of

[20] National Center for Education Statistics (NCES) discontinued its Adult Education Survey after 2005 (https://nces.ed.gov/nhes/surveytopics_adult.asp). In 2016, NCES administered the new Adult Training and Education Survey, but did not collect data on the participation of older adults in continuing education any longer. (Personal communication with NCES, Feb 22, 2019)

the 50 to 54-year-olds, and 42 percent of the 50 to 59-year-olds participated that year. The decline was especially pronounced in career or job-related courses (38% in the age group 45-49 vs. 4% in the age group 70+), but the percentage remained relatively stable for the participation in personal interest courses (19% in the age group 45-49 and vs. 18% in the age group 70+; see NCES 2010). The importance of such course type differentiation was also pointed out by Schmidt-Hertha (2014, p.46), who highlighted that the low participation of older adults in education is a result of several effects. For example, he emphasized that a differentiation between courses that are taken for private or work-related reasons is essential for the interpretation of participation data. Furthermore, the work status has to be considered because with retirement not only the importance of professional development declines but also access to in-house training programs is no longer given. If such a distinction is taken into account, Schmidt-Hertha concluded that no significant differences between the age groups are visible in personal enrichment courses so that the lower participation rate of older adults can primarily be explained with a decreasing participation in work-related education.

According to Kruse and Wahl (2010, pp.275ff.), some general inequalities to access adult education exist. The authors discussed the results of the German *Berichtssystem Weiterbildung*[21] from 2003, which surveyed the participation of adults aged 19 to 64 in education over the last 12 months. The survey results revealed that men were more likely than women to participate in adult education. A higher participation likeliness was also visible among individuals with an advanced educational background, who were in good financial standing and held a full-time position with leadership responsibilities. Therefore, individuals with a low household income, low educational background, lower job status, and who were unemployed or part-time employed were less likely to participate. In addition, individuals who felt that their job requirements changed quickly were more likely to participate than those who felt that their job requirements changed slowly.

Similar demographic aspects are also apparent in older adult education. As Findsen and Formosa (2011, pp.125ff.) pointed out, participation in older age is influenced by a variety of factors, such as social class, gender, and race, or ethnicity. Social class is one of the key determinants for accessing education and financial resources at every age. Studies on the participation behaviors of older adults in education suggested that participants are typically middle-class elderly with advanced educational backgrounds (e.g., Lamdin/Fugate 1997, pp.69f.; Martin 2003, p.6; Withnall 2010, p.56). Kruse and Wahl (2010, p.275) saw the reason

[21] Engl. (SvD): Reporting system continuing education

for this in educational inequalities that accumulate throughout life. They emphasized that working professionals with higher educational backgrounds typically participate in adult education due to, e.g., more extensive financial resources or job statuses that allow participation in continuing education. In contrast, those who do not have continuous access to education participate less in old age (Sec. 4.1.3).

While this aspect is less pronounced in adult education, participants in older adult education are predominantly women (see Lamdin/Fugate 1997, p.67; Hansen et al. 2016, p.45). Wanka and Gallistl (2016, p.8) explained the higher female participation in older adult education with inequalities between the genders and different life expectations. According to the authors, elderly women have an increased isolation and poverty risk, caused by a higher life expectancy, which consequently leads to a higher risk for widowhood, multimorbidity and frailty, and less labor participation in younger adulthood, which can lead to lower financial resources in old age. As a result, women more often than men had to develop strategies to counteract such inequalities, like maintaining close contacts with friends and family members or participating in social get-togethers, including educational programs. However, it is important to point out that not all educational providers are accessible for low income elderly due to different pricing models (Sec. 4.4), and that high course or program fees can act as an educational barrier for some individuals regardless of their gender.

Although Findsen and Formosa (2011, p.127) also highlighted that primarily women participate in older adult education, the authors saw a decreasing potential for oldest-old women to participate in education with increasing age due to care responsibilities for the partner or other family members as well as widowhood, which can lead to, e.g., reduced financial assets. Therefore, they emphasized that the personal financial situation can be a barrier to education, which is in contrast to Wanka and Gallistl's explanation for a higher female participation. Research from, e.g., Lamdin and Fugate (1997, p.69) and Withnall (2010, p.59) strengthend Findsen and Formosa's observation as they found that older participants are primarily married or re-married individuals.

In addition to these characteristics, attendees in older adult education are primarily younger elderly (see, e.g., Hansen et al. 2016, p.45). This aspect was also emphasized by Lamdin and Fugate (1997, p.68) who found in their study with 3,600 older learners aged 55 to 95 in the U.S. that participants were typically between the age of 65 and 79 and that participation after the age of 80 saw a steep decline. The researchers partially explained this finding with declining health, but also take other factors, such as increasing inability or unwillingness to participate in education, outside the personal living environment into consideration. However, Lamdin and

Fugate (1997, p.68) also emphasized that "advanced old age does not necessarily mean cessation of learning activity."

A strong inequality in education is also apparent in terms of race or ethnicity, which finds expression that older adult learners are typically Caucasian (see Lamdin/Fugate 1997, p.70; Martin 2003, p.6). Jackson et al. (1993, p.5) explained this with unequal school and job opportunities between the different ethnicities in younger age, which consequently impact financial resources in old age. Nevertheless, Findsen and Formosa (2011, p.125) pointed out that the question of what and how older people from different ethnical backgrounds learn has not been well explored yet.

In addition to these general inequalities, certain barriers can discourage an individual from participation in education. Understanding these reasons provides opportunities for educational politics and administrators to develop new educational strategies, policies, and approaches to increase participation. Although the reasons why individuals do not participate in educational activities have been of interest since decades (see Merriam/Caffarella 1999, p.56), surveying barriers can be difficult as adults tend to give socially acceptable answers to barrier-related evaluations (see Cross 1981, p.102). In this regard, Darkenwald and Merriam (1982, p.136) provided the example that indicating cost or time as a barrier may be socially more acceptable than stating a lack of self-confidence as a learner. Nevertheless, different attempts have been made to understand and categorize the reasons for non-participation in (older) adult education (see Merriam/Caffarella 1999, p.56). For example, Johnstone and Rivera (1965, pp.214ff.) arranged 10 possible adult education barriers into the two categories: (a) "internal or dispositional barriers" and (b) "external or situational barriers". According to the authors, "internal barriers" are individual attitudes or beliefs that hinder a person from participating. Negative attitudes towards learning that emerged from previous negative school experiences or fears of not being able to keep up with classmates and the instructor can for example be mentioned (see Paul Joseph 2011, pp.39f.). According to Cross (1981, p.98), especially adults with a lower educational background often lack confidence in their learning abilities and also show an overall reduced interest to learn. In addition, the usage of certain terms in marketing materials of educational providers can act as an internal barrier. For example, as discussed in Section 3.1.2, Oswald (1991, pp.282ff.) indicated that older adults tend to not identify themselves as old, and thus might not feel addressed by program offerings. To overcome this barrier, some providers in the U.S. use terms, such as "mature learners" (e.g., OLLI at CSUEB 2018) or "lifelong learners" (Road Scholar 2018), in their marketing materials.

"External barriers" are obstacles that a person can experience at a particular time in life,

such as lack of time or money, transportation issues, life crisis, or changes in health (see Johnstone/Rivera 1965, pp.214f.; Cross 1981, p.98). The latter appears especially important for older adult education as changes in health and senses can (in)directly influence a person's learning ability or motivation for participation (see Merriam/Caffarella 1999, pp.97ff.). In general, Lamdin and Fugate (1997, p.72) found that older adult learners have a high subjective health level. About 88 percent of the participants in their study of older adult learners aged 55 to 95 in the U.S. rated their health as either excellent or good. While an overall positive health declaration is visible in all evaluated age brackets, the youngest age group (aged 55-59) had in comparison with the other older age groups the lowest subjective health rating. A lower subjective health rating of younger than older individuals was also visible in the study of Lehr et al. (1972, p.4398). Lamdin and Fugate (1997, p.72) explained the age difference in the subjective health rating with a possible higher sensitivity towards health changes in the younger age group, while older individuals may already be more used to a declining health. However, since these studies focused on older adults who were still able to participate in education, a bias towards overall good health of these participants is expected. Historical experiences, such as war or displacement, can also serve as an external barrier. Many older adults that were born before or during the World War II in Germany did not have a chance to pursue advanced schooling as the war impacted the opportunities for overall school attainment as well as to pursue vocational training or higher education due to, e.g., enlistment, closed or destroyed facilities or a lack of financial resources. Nevertheless, if higher education was pursued, it was mostly only possible for a small, elitist group (see Schmidt-Hertha 2014, pp.38f.). As also discussed in Section 4.1.3, formal learning experiences can impact the participation willingness in non-formal learning over the lifespan. Therefore, a lack of secondary or post-secondary educational experiences can consequently influence lifelong learning behaviors in the long term. Population statistics and research emphasized generation differences in educational attainment. For example, the *Mikrozensus 2016*[22] showed that significantly more older than younger adults attended lower levels of secondary schooling. While 60 percent of elders aged 65+ attended *Hauptschule*[23] or *Volksschule*[24]*,* 29 percent of the 50 to 55-year olds, and only 19 percent of the 30 to 35 year-olds graduated from these secondary school types. In comparison,

[22] Engl. (SvD): Microcensus 2016

[23] Lower secondary school type in Germany starting after four years of elementary school

[24] Lower secondary school type in Germany, which existed into the 1960s/1970s; comparable with *Hauptschule*

about three times as many adults aged 30 to 35 (45%) than adults aged 65+ (16%) held an advanced secondary degree (*Fachhochschulreife*[25] or *Hochschulreife*[26]) (see Statistisches Bundesamt 2017c). With regards to non-formal learning contexts, the EdAge Study indicated that about twice as many adults aged 65 to 80 (47%) than individuals aged 45 to 54 (24%) have never participated in non-formal education (see Tippelt et al. 2009a, pp.35ff.).

Also Withnall (2010, pp.43f.) found in her study with older adult learners in the UK that World War II and its aftermath served as a barrier to both formal and non-formal education for some of the study participants. However, some study partakers felt that these historical events positively impacted their lives by, e.g., the possibility to learn new skills or to meet people from different countries during deployment. In contrast to Germany, no wars took place on American ground in the last century. However, the country was deeply involved in several wars in other countries (e.g., World War II (1939-1945), Korean War (1950-1953), and Vietnam War (1955-1975)). While World War II negatively impacted the formal educational chances of the German population, Card and Lemieux (2002, pp.2&11f.) found that the Vietnam War led to a growth of enrollments of men at U.S. colleges between 1965 and 1975, followed by an abrupt decline. This is the result of a policy that was introduced during the Korean War, which delayed the conscription of men enrolled in colleges, and thus was a possibility to avoid the draft. Furthermore, the Servicemen's Readjustment Act of 1944 (also known as the G.I. Bill of Rights) provides veterans with a variety of benefits, such as free college tuition.

In addition to these internal and external barriers, Cross (1981, pp.98f.) suggested "institutional barriers" as a third category, which are created by the educational institutions themselves through, e.g., high course fees, inconvenient course schedules, and inaccessible locations, resulting in an exclusion of some individuals, such as low-income elders or learners in the fourth age. Section 4.4.3 highlights examples from the educational practice that try to overcome accessibility issues with the aim to make education accessible to learners in the fourth age. In their Austrian study on the educational interests and participation of older adults aged 50 to 75 in education, Kolland and Ahmadi (2010b, pp.46ff.) found that the size of the home city correlates with participation likeliness. The authors concluded that the larger the city an individual lived in, the higher the likeliness for participation in older adult education was. As such, participation in non-formal education is influenced by the absolute number of available

[25] Higher education entrance qualification in Germany that allows holders to study at a university of applied sciences (Ger. *Fachhochschule),* but not at a university

[26] Higher education entrance qualification in Germany that allows holders to study at a university

programs within the proximity of an individual. This aspect appears especially important for the discussion of educational providers (Sec. 4.4) as both the U.S. (36 people per km^2) and Germany (232 people per km2) have very different population densities (see United Nations 2017l; Statistisches Bundesamt 2019c; United States Census Bureau 2019). Hence, different geographical conditions that can impact institutional accessibility.

As a fourth category, Darkenwald and Merriam (1982, p.137) later added "informational barriers", which describe a lack of information and the institution's inability to communicate its offerings.

The previous discussion emphasizes that older adults in education are primarily female Caucasian younger elders of the middle class who are in good health and have a higher socio-economic and educational background. In order to increase the diversity of older adults in education, educational policies and providers need to implement strategies that help to better understand and address the motivations of underserved groups. The discussion also shows that learners of different age can face a variety of barriers that can prevent participation in education. As a possibility to overcome such barriers, Falasca (2011, pp.587f.) suggested that educational providers need to be aware of these barriers and their impacts on learning so that a positive, inclusive, engaging, and encouraging learning environment can be created.

4.3.2 Motivation

According to Ryan and Deci (2000, pp.52ff.), motivation is not a generic construct and the type of motivation to attend education varies between individuals. The authors distinguished between two forms of motivation: (a) "extrinsic or instrumental motivation", and (b) "intrinsic or expressive motivation". While extrinsic motivation is externally influenced and driven by a specific goal or reward, intrinsic motivation comes from within the individual and is driven by satisfaction, enjoyment, or interest in a specific task. The authors pointed out that the latter, natural motivation type was first discovered in animal behavior studies, which indicated that many organisms show spontaneous behaviors of curiosity and playfulness even without the prospect of a benefit or reward. As natural interests help to grow knowledge and skills, they argued that intrinsic motivation also serves an important function for social, physical, and cognitive development.

The reasons why adults participate in education engages educators and researchers since a long time (see Findsen/Formosa 2011, p.117). One of the first empirical studies that researched the motivational orientations of adult learners was developed by Houle (1961). Based on in-

depth interviews with 22 adults, he classified individuals into three categories: (a) "goal-oriented" learners who want to achieve a specific goal through participation in education, (b) "activity-oriented" learners who participate with the goal of social interaction and for the sake of activity, and (c) "learning-oriented" learners who seek a gain in knowledge (see Houle 1961, p.16). Later empirical research adapted Houle's typology and refined it further. In contrast to Houle's approach of characterizing groups of individuals, Boshier (1971) identified clusters of participation with the help of his Education Participation Scale (EPS), which was completed by 233 adult education participants from three different continuing education institutions in New Zealand. The EPS consisted of 48 items that detailed reasons for participation as well as a nine-point Likert scale that assessed the level of influence of each motivator. The motivational orientations assessed with this approach reflected the following reasons for participation: (a) social (e.g., social contacts, escape), (b) job-related, and (c) learning-oriented (e.g., cognitive interest) reasons (see Boshier 1971, pp.3ff.). Three years later, Morstain and Smart (1974, pp.85ff.) reproduced Boshier's approach in the U.S. by assessing the motivation of 611 study participants for enrolling in adult education courses at a community college. Although the researchers found that the participants were motivated by similar reasons, they differentiated the motivators even further: (a) "social welfare" (e.g., to prepare for a community service), (b) "external expectations" (e.g., pressure to participate from another individual), (c) "professional advancement", (d) "social relationships", (e) "cognitive interest" (e.g., for the sake of learning, to seek knowledge), and (f) "escape/stimulation" (e.g., to escape daily routines). Although these latter two studies suggested that motivation is more complex than initially assumed by Houle, the assessed factors supported Houle's findings.

For the most parts, these motivational factors have also been confirmed in empirical research on older adult education participation. After utilizing a modified version of the EPS in which job-related items were taken out, Boshier and Riddell (1978, pp.167ff.) indicated that older adult learners (mean age of their 84 study participants was 69.7 years) were especially motivated by "cognitive interest", followed by "social contacts", and "escape/stimulation". Other research confirmed that older adults are primarily motivated to participate in education because of a desire for cognitive and intellectual stimulation (see Furst/Steele 1986, pp.167ff.; Bynum/Seaman 1992, pp.16f.; Puccio 1995, p.263; Withnall 2010, p.64). For example, the four main motivations that emerged in Furst and Steele's (1986, pp.167ff.) study with 78 adults aged 62+ who participated at university courses on credit, noncredit, or auditing basis were (a) "intellectual stimulation and enjoyment", (b) "practical achievement", (c) "fulfillment", and (d) "stimulation and self-maintenance". Bynum and Seaman (1992, pp.16ff.) demonstrated that the

factors derived in the two previously mentioned studies can also be applied to participants in Learning in Retirement Institutes (Sec. 4.4.1). The four underlying motivational orientations that emerged from their study with 452 older learners aged 65 to 74 were (a) "intellectual curiosity" (e.g., satisfying an interest, keeping the mind active), (b) "perceived cognitive gaps" (e.g., learning a specific skill, completing unfinished education), (c) "social contacts" (e.g., finding new social groups), and (d) "self actualization" (e.g., getting insights into own problems, being a more effective citizen). In another study from Scotland, Findsen and McCullough (2008, pp.2ff.) tracked 86 older learners from seven continuing education institutions over two years. They found that the participants were primarily motivated by life-transition aspects, such as the death of the partner, followed by family and work-related reasons.

The discussed study results suggest that older adults primarily participate in education for intellectual interest, cognitive stimulation, and socializing reasons as well as to give meaning to life while work-related aspects are not of relevance any longer. However, the range of motivators emphasizes the aforementioned complexity and multidimensionality of motivation. In this regard, Findsen and Formosa (2011, p.121) pointed out that the reasons for participation are fluid and difficult to interpret as they are also influenced by the individual living situation and socio-cultural context. In addition, economic and societal changes can impact educational motivation. Since the society in countries like the U.S. and Germany requires more older adults to continue working past retirement age in order to guarantee financial security in the later life phase, Findsen (2005, pp.68f.) forecasted a growth in the importance of professional reasons as motivators for older adult learners in the future.

Cross (1981, pp.124ff.) tried to investigate the complexity of motivation and developed a chain-of-response model to predict the probability of participation in adult education. The model suggests that participation in educational activities result from a chain of responses that start with the individual's self-evaluation and previous attitudes towards education. In the next step, the importance of the goal of participation together with the likelihood of success and life transitions (e.g., crises) is taken into account. Once the individual developed a motivation for participation, learning opportunities (e.g., available courses) and barriers are considered. A combination of all of these factors indicates a probability for participation.

4.3.3 Educational Preferences

Research indicated that social interaction and the instructor are key components of a positive learning experience in old age. For example, Duay and Bryan (2008, pp.1073ff.) found in their qualitative study with participants from different educational institutions in the U.S. that older

adults especially appreciated the possibility for active engagement in the classroom and interaction with other classmates, e.g., through discussions or questions. Of great importance for the participants was also an instructor who is enthusiastic, empathetic, knowledgeable, and effective. Many study partakers thought the instructor is of greater importance for the learning experience than the actual course subject. The EdAge Study reinforced these findings and suggested that older adults especially appreciated didactical and personal qualities of the instructors as well as possibilities for intergenerational and social communication (see Tippelt et al. 2009a, pp.44f.). For example, 87 percent of the study participants aged 65 to 80 indicated that they expect from a course a content-focused instructor, followed by an understanding instructor (86%), an appropriate learning speed (82%), and possibilities for communication with younger people (79%). Although the study indicated that older learners preferred to learn with younger individuals, the findings also showed that the respondents did not appreciate inter-generational settings in course subjects with strong perceived performance differences between the generations, such as technology-related courses. The Infas Study (2001, p.102), which studied the educational participation of older adults in Germany, came to the same conclusion. Also Köster (2008, p.45) concluded that older adults typically prefer to learn in age-heterogeneous settings and that age-homogenous groups are desired in subject areas of new technology, aging, and exercise. According to Kade (2009, p.59), everyday topics, such as health, are also subject areas in which older adult learners prefer an age-homogenous group setting. However, Köster (2008, p.45) suggested that this preference depends on the age of the individual participants and pointed out that more oldest-old than younger-old adults prefer to learn in age-homogenous groups. Schmidt-Hertha (2014, p.77) highlighted that a desire for intergenerational learning settings is especially pronounced among elderly who have exposure to younger generations in their daily life, who have internalized positive images of old age, and who also have experience with education throughout their lives.

According to various research results, health and well-being courses are the most preferred subject areas of older adults. For example, Kolland (2005a, p.70) found in his study on the institutional aspects of education in old age from the viewpoint of the providers that older learners primarily preferred exercise and brain fitness programs. A research project on the participation patterns of older adults in non-university education in Germany, which was conducted between 1998 and 2000, came to a similar result and suggested that the highest demands of older learners were measured in the area of health and nutrition as well as in brain fitness (see Sommer et al. 2004, p.61). The Fifth Report of the Elderly (see BMFSFJ 2005, p.148) explained the interest of older adults in health-related courses with a greater awareness

of the individual health situation in old age and the wish to learn more about how to live with increasing impairments.

Lamdin and Fugate (1997, pp.76f.) found in their previously mentioned study with older adult learners in the U.S. that the participants primarily liked to learn through reading (75%), participation in classes or workshops (68%), and travel (56%). Only five percent preferred learning via the Internet. However, considering that the study is already more than twenty years old and that the technological knowledge of older adults has significantly increased, this result as well as the high preference for print materials is likely different from today's viewpoint. The study also asked for the preferred place of learning. In regard to community-based organizations, most elderly participated in educational offerings organized by libraries (41%), confessional institutions (29%), and social clubs (18%). In the group of institutions that address older adults exclusively, Elderhostel (now Road Scholar; 37%) and Learning in Retirement Institutes (36%) were especially popular. However, Lamdin and Fugate (1997, p.77) indicated that the institutional choice can be influenced by a variety of factors, such as age, preferred learning styles, or the educational and socio-economic background. For example, participants from a lower socio-economic background primarily chose community-based providers while Road Scholar and the Learning in Retirement Institutes attracted elders from a higher socio-economic background. A more detailed discussion of those institutions takes place in the next section.

4.4 Institutionalization of Education in the Third and Fourth Age in the United States and Germany

A variety of educational providers and programs are available to older adults in the U.S. and Germany. The spectrum of providers reaches from higher education institutions, confessional institutions, health providers, to community or non-profit organizations as well as self-organized initiatives. While some of them provide learning opportunities for adults of all age groups, others target older learners exclusively. In order to provide an understanding basis for the older adult educational landscape in the U.S. and Germany, some of the most well-known traditional older adult education programs in both countries are discussed in the following. According to Bubolz-Lutz et al. (2010, p.201), such traditional programs are characterized by a classroom learning setting to which the learner has to come and complete a program that follows a curriculum or plan. However, as decreasing mobility is a risk factor in

especially oldest-old age, these institution-based programs are only partially suitable for learners in the fourth age (see Bubolz-Lutz 2000b, p.342), which results in the fact that older adult education in the U.S. and Germany typically targets mobile elders. Nevertheless, some approaches have been made to expand educational opportunities to those who are not able to attend classes in person any longer. Since older adults typically do not participate in formal learning contexts (see Tippelt et al. 2009a, p.32; Schmidt-Hertha 2014, pp.20f.), the focus of the following discussion is on non-formal education providers only. Considering the three discussed activity fields of geragogy (Sec. 4.2.2), another focus is on learning opportunities for older adults. Learning opportunities in preparation for the old age and for individuals working with older or oldest-old adults (Sec. 4.2.2) are outside the scope of this thesis.

4.4.1 Providers of Older Adult Education in the United States

To categorize the different learning opportunities for older adults in the U.S., Eisen (1998, pp.43ff.) created a typology of the different educational programs and activities (Fig. 4.1). While the first layer separates credit from non-credit offerings, the next categorization level distinguishes between teacher and learner-directed courses. In addition, four motivation factors help to further refine the programs: (a) “Credentialing”: programs are taught by expert-instructors and lead to formal degrees or credentials (e.g., credit college courses); (b) “Convenience”: programs also offer formal credentials, but are more individualized and provide a greater convenience in terms of accessibility (e.g., online credit courses, job-related trainings); (c) “Socialization”: these instructor-led programs are especially frequented by older adults and do not lead towards a credential or degree; primarily self-enrichment courses (e.g., OASIS, Elderhostel); (d) “Personal Interests”: these programs are the least formal and can either be self- or teacher-directed (e.g., study groups, voluntary organizations, libraries). Although Eisen's typology helps to categorize the learning opportunities available to older adults in the U.S., some other important providers, such as the Osher Lifelong Learning Institutes, have emerged in the meantime. In addition, the author did not distinguish between programs that are exclusively for older adult learners and those that are open to adults of different age groups. As Manheimer (2007, p.471) pointed out, a debate on whether older adults should be segregated emerged in the U.S. in the 1970s. Although some argued for intergenerational learning settings and that individual interests should be the main factors, many older adults at that time seemed to prefer peer-learning programs so that many educational providers continued with age-segregated offerings until today. Table 4.1 presents a more current field typology suggestion,

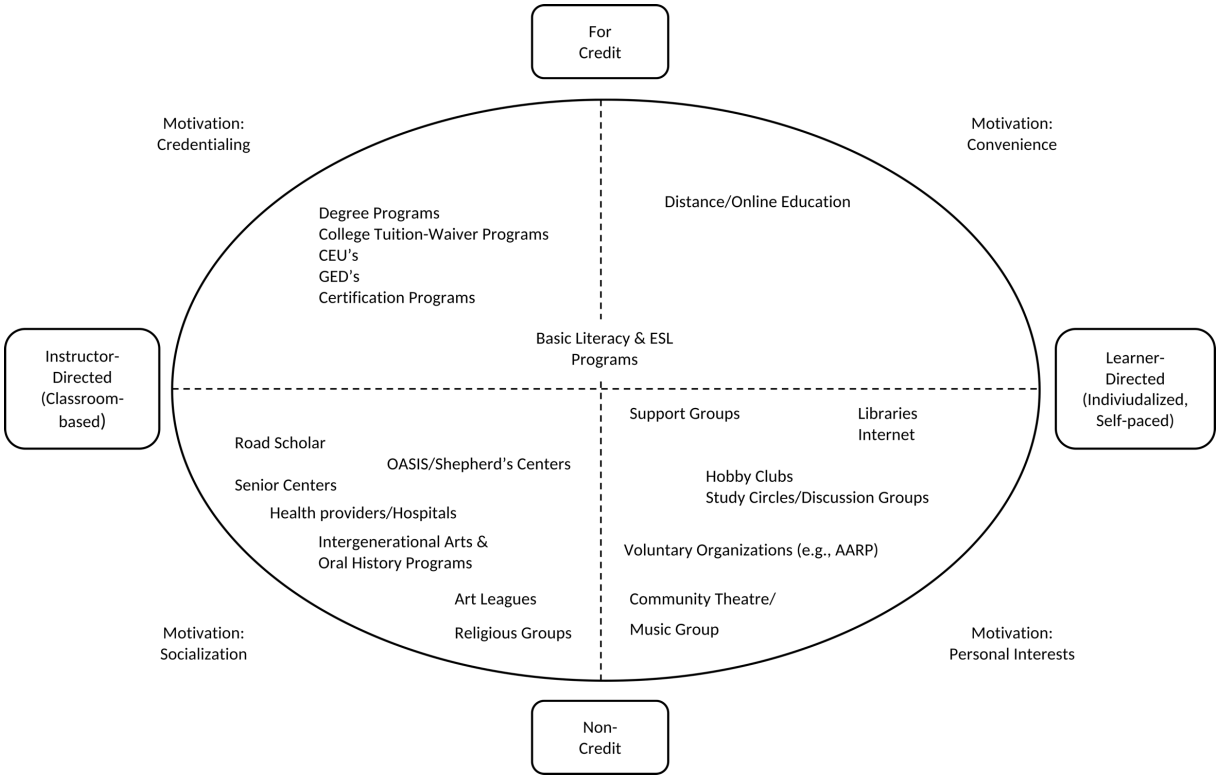

Figure 4.1: **Typology of older adult education programs in the U.S.** (adapted from Eisen 1998, p.43)

which follows Kade's (2009, p.59ff.) and Leipold's (2012, p.216) distinction between age-homogenous (for older adults only) and age-heterogeneous (for adults of all age) older adult education programs. The typology also incorporates Lamdin and Fugate's (1997, pp.88ff.) approach of distinguishing university and college programs from non-university and college-based providers. However, a strict separation by primary focus age and affiliation is not possible for all providers, as location and managerial differences can be apparent. In addition, some providers may typically target adult learners of various age groups, but also offer specific programs for older adults. Some of these listed providers are presented in the following. A complete discussion of the provider landscape is outside the scope of this work.

Higher Education

As already mentioned in Section 4.1.2, an increasing number of older adults return to college for either personal or professional reasons (see Creighton/Hudson 2002, p.5). For those elders who do not want to obtain a formal degree, many universities and colleges in the U.S. offer learning opportunities within three areas: (a) non-credit courses through continuing

Table 4.1: **Providers of education for older adults in the U.S.**

Primary Focus[27]	University/College (Affiliated)	Non-University/College (Affiliated)
Age-homogenous (programs for older adults only)	Road Scholar (formerly Elderhostel)	
	Lifelong Learning Institutes (incl. OLLIs)	OASIS Shepherd's Centers of America (SCA) Senior/Community centers (e.g., The Without Walls Network) Other Aging Services Providers
Age-heterogenous (depending on provider, age-homogenous programs within institution possible)	Regular higher education courses (for-credit or on guest-auditing basis) Continuing education programs (mainly non-credit)	Adult schools Churches/Devotional institutions (not SCA) Health providers/ Hospitals Libraries Museums/Theaters/Music schools Privately organized study groups Private providers Volunteer organizations

education programs, (b) regular credit courses that can be taken on a guest-auditing basis, and (c) education programs designed for older learners exclusively.

Continuing education programs designed for the general adult public are common at higher education institutions. The origin of these often-called Extension programs traces back to 1887 when the concept of public university lectures, which was originally from England, was introduced at a meeting of the American Library Association in New York and afterward adapted by the University of the State of New York. Other universities across the country followed the idea of extending university knowledge to the general public, but most programs vanished a decade later due to, e.g., financial problems and a lack of understanding of the capacities and interests of adult learners. After a hiatus, the concept was successfully re-established by the University of Wisconsin at the beginning of the 20th century. Other universities revived their abandoned Extension programs as a consequence (see Axford 1961, p.349). Today, the institutions offer a wide portfolio of non-credit and certificate courses that can range from professional development to personal enrichment. However, due to the heterogeneity of the higher education system in the U.S., differences between the various

[27] Distinction is based on the age range of the primary target group. However, specific courses or programs for older adults are also possible within institutions that target an age-heterogeneous audience. In addition, intergenerational programs can also be found among providers that focus on older adults only.

different continuing programs exist in terms of their naming, administration, and course offerings (see Röbken 2009, p.289ff.).

Guest-auditing programs are common at higher education institutions. As a model serves the Donovan Fellowship for Academic Scholars at the University of Kentucky, which started in 1964 and provided adults aged 65+ for the first time with the opportunity to take higher education classes on either a credit or guest-auditing basis free of charge (see Danner et al. 1993, p.217; Derickson 1999). Inspired by this idea, similar programs emerged throughout the country in the following years. Although the guest auditing programs differ from each other, they typically have some of the following characteristics in common: no formal educational degrees are required, the guest auditing status prohibits accumulation of credits, and access to the courses is mostly granted on a space availability basis (see, e.g., Puccio 1995, p.258; Fishman 2010, p.654). Although no degrees can be obtained, a benefit of these programs is that courses can be taken with greater flexibility and without the pressure of exams or homework assignments (see Eisen 1998, p.47). Due to a lack of a central organizing entity, no data on the number of existing programs and the number of enrollments exist.

One of the most well-known providers of older adult education in the U.S. are the Lifelong Learning Institutes (LLIs). The institutes, which offer programs for older adults exclusively, were founded in 1962 at the New School for Social Research, New York, by a group of retired educators under the name “Institute for Retired Professionals” (IRP; see e.g., Donicht-Fluck 2000, p.162; Bitterman 2013, p.80). The goal of the institute was to make higher education accessible to older learners and to create a peer-learning community. Unique was that the attendees contributed to IRP as both instructors and participants (see Weglein 2012, pp.9ff.). In the following decades, other universities adopted the concept and hundreds of new programs were started (see Bitterman 2013, p.80). One of the most significant developments in the history of the LLIs occurred in 1999 with the involvement of the Bernard Osher Foundation, which financially supports the growth of new LLIs, the so-called Osher Lifelong Learning Institutes (OLLIs; see Road Scholar 2015, p.14). Inspired by other successful LLIs, the first OLLI started in 2001 at the University of Southern Maine. Over the next years, more OLLIs opened at public universities. In addition, the institutes are also financially supported by their affiliated universities, other private donations, and course and membership fees (see Bitterman 2013, pp.79ff.). Currently, about 450 LLIs exist in North America, with 120 of these being OLLIs (see Road Scholar 2015, pp.18ff.; OLLI National Resource Center 2017). The total paid membership within all LLIs is about 270,000 participants (see Road Scholar 2015, p.20). Although the institutes are independently organized, they have specific characteristics in

common. The LLIs are typically sponsored by accredited higher education institutions, which provide class space as well as administrative and financial assistance (see Martin 2003, p.2). The institutes are open to adults aged 50+ (some LLIs have an age requirement of 55 years), hold a non-profit organizational status, require a membership, offer an affordable course pricing structure, and provide need-based scholarships (see Young 1992, p.28). Furthermore, the institutes typically offer college-level courses within the arts, humanities, social and natural sciences (see Bynum/Seaman 1992, p.13). Exams and homework are avoided to create a pressure-free learning environment. Interest groups, social activities, and community events complete the program spectrum (see, e.g., ILR at Albert Magnus College 2017; OLLI @Berkeley 2017). Characteristic for the LLIs is also that members are encouraged to become involved as volunteers. Besides peer teaching possibilities, volunteer roles can include committee or administrative work, curriculum planning, and event help (see Bynum/Seaman 1992, p.13; Young 1992, pp.28ff.; Donicht-Fluck 2000, p.162). However, the amount of volunteer opportunities depends on the institute's administrative structure, which can be either member- or staff-driven. While the member-driven institutes are entirely organized by volunteers, professional staff handles the administration in the staff-driven LLIs (see Manheimer et al. 1995, p.56).

Road Scholar

Another important provider of older adult education in the U.S. is Road Scholar, formerly known as Elderhostel. In 1975, Marty Knowlton and David Bianco founded Elderhostel as a short-term summer residence and educational travel program for adults aged 60+ (the age requirement was lowered to 50 after 1995) at five colleges and universities in New Hampshire (see O'Donnell/Berkeley 1980, p.98; Bitterman 2013, p.80). The founders were inspired by the European Youth Hostel movement and its possibility to meet other travelers in inexpensive lodgings. As an inspiration also served the Scandinavian "folk schools", in which older adults teach younger people in the arts, dance, and music. Inspirational was also the philosophy of the discussed LLIs that older age should be meaningful and constructive (see Bitterman 2013, p.80). The goal of the organization was to counter-act the idea of disengagement (Sec. 3.2.2) by providing older adults with engaging and stimulating travel experiences focusing on a variety of subjects (see Lamdin/Fugate 1997, pp.110f.; Bitterman 2013, p.80). Starting with a total of 220 attendees, Elderhostel quickly grew and expanded its programs beyond higher education institutions (see O'Donnell/Berkeley 1980, pp.97ff.; Manheimer et al. 1995, p.54). The organization was renamed to Road Scholar in 2010 and offers today more than 8,000

educational trips to over 150 countries. Since its founding, more than five million participants joined Road Scholar's educational travel programs (see Road Scholar 2016, p.6; 2018).

Road Scholar's offerings do not require any prerequisites or homework and are generally open to all older adults. However, since the educational travel programs typically involve some form of physical activity, such as hikes or walks, attendees need to be in good physical and mental health. To accommodate less active elders, accessible travel options, like cruises, are also part of the program. While the travel prices vary between the type of programs, length, destination, and accommodation, included in all of Road Scholar's programs are travel expenses and lodging, excursions, most meals, emergency assistance, presentations by experts, and, depending on the offering, seminars, or workshops. Financially disadvantaged elders and family caregivers can apply for financial assistance for the U.S. travel programs, which are financed through donor contributions (see Road Scholar 2018). Donations and participation fees also help to finance the organization, which is run by a voluntary board of directors and paid staff members (see Road Scholar 2012, p.8).

OASIS

An example of a program that is not affiliated with a higher education institution is OASIS, which offers educational, health, and volunteer programs for mature adults. The organization's name was originally an acronym for "Older Adult Services and Information Systems", but only the abbreviated version is used nowadays (see Manheimer et al. 1995, pp.68f.; Eisen 1998, p.48). The non-profit organization was founded in 1982 with the goal of providing adults aged 50+ with opportunities to stay healthy and active in their communities. Initial financial support came from the U.S. Administration on Aging, which funded the project for two years and helped to start OASIS in four U.S. cities. Another major supporter was the May Department Store Company, now Macy's, Inc., which provided meeting spaces within their stores. Over the years, OASIS expanded its partnerships and created new program sites throughout the country (see OASIS 2018). In 2015, the organization was active in 50 cities and partnered with over 700 community programs and institutions, including libraries, schools, senior living organizations, and health providers (see OASIS 2015, pp.1ff.). Foundation support, contributions and grants, and donations help to fund the organization (see OASIS 2014, p.4).

OASIS has a strong focus on lifelong learning and offers a variety of courses for older adults of all educational backgrounds. Subjects include arts and music, politics, history, literature, science, technology, and health and wellness. Aging related topics, such as obituary writing as well as field trips and travel experiences, are also part of the program. Classes are held at OASIS

centers or partner institutions and are taught by either external experts or volunteer peer-instructors. To make the programs accessible for low-income elders, the courses are either free or moderately priced (see OASIS 2018). In addition to lifelong learning, health education and volunteer engagement are also integral program aspects. Various evidence-based health programs, including fall prevention, chronic disease self-management, and exercise opportunities, aim to help participants to stay active and healthy. Elders who are interested in tutoring at-risk children or helping them to adapt healthy lifestyles can either volunteer in OASIS' "Intergenerational Tutoring Program" or in "CATCH Healthy Habits", which are offered in partnership with local schools and community organizations (see OASIS 2018).

Shepherd's Centers of America

The Shepherd's Centers of America (SCA) were founded in 1975 in Kansas City by the Methodist church pastor Elbert Cole as a faith-based lifelong learning and age-services provider. Today, SCA are a network of interfaith non-profit organizations that, similar to OASIS and the LLIs, have a strong focus on volunteer involvement and empowerment. The common goal of the centers is to empower adults aged 50+ to live an independent and creative life and to use their skills and knowledge for the community good. Started with six centers, the SCA network currently counts about 100 member institutions in 16 states across the country. A central office helps with the development of new centers and maintains a resource website of the member institutions (see Donicht-Fluck 2000, p.163; Peninsula Shepherd's Center 2017; Shepherd's Centers of America 2017). Like the LLIs, each center operates independently and reflects the need of its individual community. As a result, no consistency in the offerings and pricing structures exists (see Shepherd's Centers of America 2017). However, all of SCA's programs and services provide options for both active and frail elders and are carried out by peer volunteers (see Donicht-Fluck 2000, p.163). Available services include health programs, support, and hobby groups as well as home assistance services, such as in-home visitors, meal services, and transportation help. Some centers also present adult learning classes that can range from health education and technology to history, arts, and literature (see Shepherd's Centers of America 2017). The educational classes typically take place in churches or other faith organizations and are either free or reasonably priced (see Donicht-Fluck 2000, p.164). In 2016, a total of 100,000 elders participated in the network's lifelong learning programs and more than 54,000 older adults were supported through free informal caregiving services (see Shepherd's Centers of America 2016, p.4&9).

Senior Centers

One of the most widely used educational resources for older adults are the senior centers. The centers' history goes back to 1943 when a group of public sector workers who were concerned about the living situation and needs of the older population they worked with, started the William Hodson Center in the Bronx, New York City (see, e.g., Eisen 1998, p.50; Beisgen/Kraitchman 2002, p.5; Weil 2014, p.25). Today, about 11,400 centers, serving more than one million mature adults every day, exist throughout the U.S. (see National Council on Aging 2017b). The centers significantly differ from each other regarding their size, membership, and program offerings, which typically depend on the need of the individual community and available funding. However, all centers can be described as aging-in-place resources that share the mission to provide opportunities for healthy aging and to keep older adults engaged through, e.g., educational and health programs, meal and in-home visiting services, transportation assistance, counseling, and social programs. Since the participants are primarily at-risk older adults who have a lower socio-economic and educational background, the services are either free or are offered on a low-cost basis (see Jellinek et al. 2010, pp.4ff.; Weil 2014, p.34). Although the academic level of the educational programs that are offered at most senior centers is typically lower than at the aforementioned organizations, many centers try to offer courses in a variety of subjects. However, Paul Joseph (2011, pp.41f.) remarked that the senior centers still need to develop broader and more structured educational programs due to an increase of the older population, longer lifespans, and earlier retirement.

Funding is a concern for many of the American senior centers, which typically receive monetary support from, e.g., municipal and state governments, grants, donations, and participant contributions (see Jellinek et al. 2010, p.5; National Council on Aging 2017b). Not all senior centers have their own venues. Some institutions operate in small spaces that are shared with other community buildings, such as town halls or churches (see Paul Joseph 2011, p.11). Senior centers can be run by municipal governments, counties, or non-profit organizations, and are administered by a director and paid staff members. In addition, volunteers support the staff with various tasks, such as course teaching (see Ohio Department of Aging 2017).

Adult Schools

Well-known providers of adult education in the U.S. are the state-subsidized adult education schools, which typically have a strong emphasis on English literacy as well as on formal primary and secondary adult education. In addition to their programmatic focus on basic

education and English as a second language courses, adult schools are also providers of professional development and personal enrichment courses for adults of every age. Depending on the schools, classes can include technology and career skills, arts and humanities, languages as well as health and fitness. Some schools also offer specific classes and programs for older adults. For example, out of the 400 adult schools in California, about 300 offer older adult education classes to improve quality of life of the elderly and to promote the development of new skills and interests. Classes can either take place within the school facilities or at partner organizations, including senior centers and nursing facilities (see California Adult Schools 2018). In the program year 2011 to 2012, more than 1.8 million adults aged 16+ enrolled in adult schools throughout the U.S. The majority of students were between 25 and 44 years old. Adults aged 60+ accounted for about four percent of the total enrollments, with the largest number of older adults participating in English Literacy programs (see U.S. Department of Education 2015, p.2).

4.4.2 Providers of Older Adult Education in Germany

While older adults in the U.S. can choose from a wide variety of educational opportunities designed for either age-homogenous or age-heterogeneous group of learners, Donicht-Fluck (2002, pp.169f.) highlighted that a comparable institutional and programmatic variety does not exist in Germany, where older adult education is primarily provided by the municipal *Volkshochschulen*[28], confessional organizations, and higher education institutions (see Kade 2009, pp.59ff.). Nevertheless, community centers, communal organizations, libraries, health, and private providers sometimes also offer education for older adults in either an age-homogenous or age-heterogeneous manner. As another difference between both countries, Donicht-Fluck (2002, pp.169f.) pointed out that older adult education in the U.S. is characterized by the idea of empowerment, which is visible in a wide variety of involvement and participation opportunities for the learners. According to her, such an amount of involvement opportunities in different aspects of education does not exist in Germany.

Since strong differences between the providers in Germany exist regarding their program offerings, target audience, and administration, this section focuses on the three largest providers only. Table 4.2 provides an overview of providers of structured educational opportunities for elders in Germany. This field typology follows again Kade's (2009, pp.59ff.) and Leipold's (2012, p.216) distinction between age-homogenous and age-heterogeneous offerings as well as

[28] Engl. (SvD): Folk high schools (Community adult education centers)

Lamdin and Fugate's (1997, pp.88ff.) idea of distinguishing higher education programs from community providers.

Universities

Like in the U.S., higher education institutions in Germany are important providers of educational opportunities for older adults (see Kade 2009, p.91). Here, older adults can take courses in three different ways (see Dabo-Cruz 2000, p.189; Bubolz-Lutz et al. 2010, p.203; Tremmel et al. 2014, pp.205f.):

- Regular credit courses: older adults who fulfill the official university entrance qualifications can enroll in regular credit courses and pursue an official degree;
- Guest auditing programs: older adults can attend regular credit courses without earning credits; the program can be accompanied by special courses or events designed for older learners;
- *Seniorenstudium*[29]: structured courses that are tailored for older adults and that typically end with a certificate, which, e.g., qualifies for new careers or voluntary civic engagement.

Although the guest auditing programs in Germany currently see a small increase, the number of older adults participating in these programs has been relatively stable for more than two decades (see Tremmel et al. 2014, pp.207f.). While around 33,500 guest auditors aged 60+ visited regular credit courses at German universities during the winter semester 2012/13 (see Tremmel et al. 2014, p.208), the number increased to 37,000 older guest auditors in the winter semester 2017/18, with the majority (53%) being men. Albeit the guest auditing status is open to adults of all age groups, half of the participants were adults aged 60+. The average age of the guest auditors currently sees an increase. While participants were on average 51.7 years old during the winter semester 2016/17, the number increased by 0.4 years one year later. The strongest increase occurred in the age group 80+, followed by the age group 65 to 69 (see Statistisches Bundesamt 2018b). According to the Statistisches Bundesamt (2016a, p.75), the most popular course subjects of older guest auditors are history and philosophy.

The history of the *Seniorenstudium*[29] traces back to the mid-1970s when educational policies were reformed in Europe with the goal to open higher education to new target groups and to provide equal education opportunities to those who did not have access to higher education before. In 1979, representatives of some West German universities attended the 6th

[29] Engl. (SvD): Senior academic studies

Table 4.2: **Providers of education for older adults in Germany.**

Primary Focus[30]	**University/College (Affiliated)**		**Non-University/College (Affiliated)**
Age-homogenous (programs for older adults only)	*Seniorenstudium*[31]	Structured study programs or certification courses for older students	Senior/Community centers Computer clubs for older adults
Age-heterogenous (depending on provider, age-homogenous programs within institution possible)		Regular higher education courses (for-credit or on guest-auditing basis)	*Volkshochschulen*[32] *Heimvolkshochschulen*[33] Confessional institutions Libraries Museums/Theaters/Music schools Health providers/Hospitals Cooperatives/Registered cooperative societies (e.G.) Other non-profit or communal organizations (incl. Registered voluntary organizations (e.V.)) Other Aging Services Providers Learning in project contexts (e.g., *Erzählcafés*[34]) Privately organized study groups Private providers

international congress of the *Universitès du Troisième Age*[35] in Nancy, France, where the French concept of the University of the Third Age was presented. Inspired by this presentation, three West-German universities collaborated and developed strategies and programs on how to integrate older adults in higher education (see Veelken 2000b, pp.184f.). At a similar time, *Kollegs der Veteranen der Arbeit*[36] were developed in the Eastern German Democratic Republic (GDR), which provided elderly students with access to universities. After Germany's reunification, the programs in Eastern Germany were restructured and aligned with the ones in

30 Distinction is based on the age range of the primary target group. However, specific courses or programs for older adults are also possible within institutions that target an age-heterogeneous audience. In addition, intergenerational programs can also be found among providers that focus on older adults only.

31 Engl. (SvD): Senior academic studies

32 Engl. (SvD): Folk high schools (Community adult education centers)

33 Engl. (SvD): Residence folk high schools (residence community adult education centers)

34 Engl. (SvD): Storytelling café

35 Engl. (SvD): Universities of the third age

36 Engl. (SvD): Colleges for the veterans of the labor force

West Germany (see Sosna 2000, pp.195ff.). The different S*eniorenstudium*[37] programs for older adults at the universities can differ from each other in terms of their administrative structure, didactical focus, and funding bodies due to both different university profiles and the institution's possibility to structure their offerings relatively freely. However, the programs have a few characteristics in common, such as the goal that older adults should be engaged in scientific knowledge and scientific processes and that the elderly students can take the programs without any formal degree requirements. Although participants can receive a certificate of completion, no academic degrees can be obtained (see Dabo-Cruz 2000, p.188).

An example of a senior studies program is the *Universität des 3. Lebensalters*[38] (U3L) at the J.W.-Goethe University Frankfurt am Main. Founded as a registered association in 1982, the aim of this independent academic study program for adults aged 50 is to open academic learning and research to the elderly. In lectures, seminars, and study groups, learners have the chance to explore scientific research, to broaden their general education and study skills, and to discuss questions related to aging. Subject areas include medicine, natural sciences, business studies, gerontology, and history. Part of the program are also a structured certificate course, free public lectures, and the option to participate in social gerontology research. Elders who would like to go beyond U3L's focus on general education and attend lectures in a specific field can also request a guest auditing status from the university. Like the discussed guest auditing programs in the U.S., permission from the instructors has to be obtained. As no formal degrees can be obtained at U3L, no exams or homework are required. However, active classroom participation through, e.g., presentations or writing of papers, is encouraged. Most U3L instructors are active or retired faculty of the Goethe University. More than 3,500 students between the ages of 50 to 90 years participated in the program in 2014/15. Although the educational background of participants varies, about one-third has a university degree (see Goethe Universität Frankfurt am Main 2018).

Volkshochschulen[39]

With more than 900 institutions throughout the country (see Huntemann/Reichart 2016, p.3), the age-heterogeneous *Volkshochschulen*[39] are the largest provider of education for older adults in Germany (see Bubolz-Lutz et al. 2010, p.202). Similar to the American adult schools,

[37] Engl. (SvD): Senior academic studies

[38] Engl. (SvD): University of the third age

[39] Engl. (SvD): Folk high schools (Community adult education centers)

the non-profit *Volkshochschulen*[40] are mostly under municipal sponsorship and are open to adults of all age groups and educational backgrounds. However, special programs for children, adolescents, and older adults are also offered at some of the schools. In addition to municipal support, the institutions generate funding through, e.g., participation fees, public, federal, and European Union funds (see Huntemann/Reichart 2016, pp.3f.). The institutions offer a variety of courses and short-term educational events, including lecture series and educational travels, which are typically taught by freelance instructors. In 2015, the *Volkshochschulen*[40] offered countrywide about 591,600 courses in the subject areas of, e.g., languages, health, basic education, arts and creativity, professional development, and politics. The program area languages contributes to the largest number of courses and has seen the largest enrollment growth in recent years (see Huntemann/Reichart 2016, p.17).

Current enrollment statistics show that mature adults are the second-largest participant group at the *Volkshochschulen*[40]. Out of the 6.5 million total enrollments in 2015, adults aged 50+ accounted for 43 percent (2.8 million). Learners aged 50 to 64 generated the majority (1.8 million) of these enrollments. Although adults aged 65+ accounted for only one million of the enrollments, their share on the overall number of enrollments has experienced a constant increase over the last 10 years from 11 percent in 2005 to 15 percent in 2015 (see Huntemann/Reichart 2006, p.4; Huntemann/Reichart 2016, pp.4ff.). As Leipold (2012, p.207) commented, it is unclear if this growth occurred as a response to general demographic trends or due to changes in the program offerings that may have generated additional interest. Although more older adults participated at the *Volkshochschulen*[40] over the last decade, the discussed enrollment statistics show that the schools mainly attract younger elders and that older adults aged 65 are still underrepresented (see Kade 2009, p.59).

Older adults can either participate in regular classes or within courses that are designed for older adults exclusively. The discussed preference of older adults to participate in intergenerational course offerings (Sec. 4.3.3) is also visible in the combined course and enrollment statistics of the *Volkshochschulen*[40] in Germany. In 2015, only three percent of the total offered courses were designed for older students exclusively with the majority taking place within the two subject areas languages and health (see Huntemann/Reichart 2016, pp.4ff.).

[40] Engl. (SvD): Folk high schools (Community adult education centers)

Confessional Adult Education Institutions

Confessional adult education institutions, connected to the country's two largest Christian churches (Roman Catholic Church and Evangelical Church), are together with the aforementioned *Volkshochschulen*[41] one of the largest providers of older adult education in Germany. In 2000, the confessional institutions counted more than seven million enrollments of older adults (see Kade 2009, pp.83f.).

The confessional providers offer a wide variety of educational courses and support programs for families, younger and older adult learners that are taught by staff members from the individual institution or volunteer instructors. Although the course topics vary between the different institutions, they typically focus on family and life questions, religion, and culture. Additional subjects are, e.g., arts and creativity, politics, society, language, and professional development (see Kade 2009, pp.81ff.). Most of the course participants are women and older adults. In this regard, Kade (2009, p.81) referred to estimates, which suggested that 80 percent of the participants are over the age of 60. Like at the *Volkshochschulen*[41], older adults can either participate in the regular course program or within classes that are designed for older learners exclusively. However, the number of offered older adult education programs varies between the different institutions (see Katholische Bundesarbeitsgemeinschaft für Erwachsenenbildung 2003, p.18).

An example of a confessional adult education provider that offers a variety of programs for older adults is the *Münchner Bildungswerk*[42]*,* which is with more than 100,000 participants and 5,000 programs every year the largest provider of catholic adult education in Germany. Participation fees, donations, public funds, and support from the national catholic church help to finance the registered association, which is run by 40 staff members, a board of volunteers, and a volunteer education officer. The program offerings include guided tours, lectures, and courses. In the older adult education sector, participants can either choose from a variety of non-academic courses, such as biography or retirement classes, or participate in the *Münchener Seniorenakademie*[43]*,* an extracurricular academic study program in the humanities for adults aged 55+. After successful completion of the program, which runs over six to eight semesters, students receive a diploma. In the winter semester 2016/17, more than 600 older adult students participated in the senior academy. Active involvement of the students in both academic

[41] Engl. (SvD): Folk high schools (Community adult education centers)

[42] Engl. (SvD): Folk high school Munich

[43] Engl. (SvD): Senior academy Munich

programs is generally encouraged. Every semester, representatives of the various study groups meet with staff members to discuss course content, learning conditions, and the structure of the study program. In addition, older participants are invited to submit curriculum wishes for the study days (see Münchner Bildungswerk 2016, p.37; 2017). Although this possibility shows similarities to some of the discussed U.S. institutions, like the LLIs, the level of volunteer involvement does not go beyond general program improvement suggestions and discussion of content and learning environment.

4.4.3 Opportunities for Learners in the Fourth Age

Although Sections 3.5 and 4.1.7 emphasizes the physical, mental, and social well-being benefits of learning and education in older age, the discussion about inequalities in older adult education (Sec. 4.3.1) highlights that traditional educational institutions typically target mobile and active elders in the third age. The key emerging question in this regard is how education can also include adults in the fourth age who cannot come to the institutions any longer. To not exclude these learners from their right of education, Bubolz-Lutz (2000b, p.342) argued that educational institutions need to incorporate the individual living situation and to develop innovative approaches that are more flexible in time and space. The following section reviews selected approaches that respond to this demand by focusing on programs that are designed for non-demented older adults in the fourth age. In addition, a project is highlighted that actively included these learners in the design of tailored and accessible educational programs.

Face-to-face Programs in the Immediate Living Environment

Educational programs that take place within the immediate living environment, such as at home, within retirement, or continuing care communities, allow to address homebound learners. External educational providers or the living facilities themselves can be responsible for the program organization. An example of an outside provider that offers age-homogenous educational programs within a retirement community is the German *Münchner Volkshochschule*[44]. In courses that run for multiple weeks, both residents of the retirement home *MÜNCHENSTIFT*[45] and interested community members can study, e.g., languages, discuss current politics and literature, or learn about philosophy, arts, music, and nature. Class participation is free for residents (see Münchner Volkshochschule 2017b). Similar concepts are available in the U.S. (see, e.g., OLLI at CSUEB 2017). In general, educational programs that

[44] Engl. (SvD): Folk high school Munich

[45] Engl. (SvD): Munich diocese

take place within the immediate living environment, like in retirement communities, are not very common in both countries. If institutions offer activities and events for their residents, they often focus on physical wellbeing or social engagement options, such as fitness programs or coffee afternoons. Nevertheless, Bubolz-Lutz (2000b, p.344) pointed out that retirement facilities can also trigger educational incentives outside a traditional classroom setting by offering, e.g., art exhibitions or guest artist visits to provide opportunities for observation and engagement.

Learning partners who visit older adults at home or within senior living facilities are another possibility to address homebound learners in the fourth age. An example is the German project *L4-Lernpartnerschaft im 4. Lebensalter*[46], which started in 2003 in four cities in Germany. Designed by the *Landesstiftung Baden-Württemberg*[47] together with the *Bildungswerk der Erzdiözese Freiburg*[48], volunteers enrolled in this certificate program are formally trained as learning partners for older adults in the fourth age. After completion of a three to five-day training and a 30-hour internship, volunteers visit older adults in their living environment and foster learning opportunities through mutual discussions about topics that are self-chosen by the elderly (see Altenwerk 2018).

Transportation Assistance

Transportation assistance or shuttle services are another possibility to help mobility-impaired adults in the fourth age to stay involved. Even if the educational institutions are not able to offer transportation services themselves, some nonprofit organizations or associations, like the volunteer-driven Villages in the U.S. or the German *Arbeiter-Samariter-Bund e.V.*[49]*,* provide transportation help on a low cost or free-of-charge basis to older community members (see Arbeiter-Samariter-Bund 2017; Village to Village Network 2017). Also, self-organized car-pooling options in which mobile classmates pick-up less mobile fellow classmates could be considered.

Distance Learning Opportunities

In times of increasing digitalization, online education can be an important resource for immobile learners. Online courses are especially common at continuing education providers

[46] Engl. (SvD): Learning partnership in the 4th age

[47] Engl. (SvD): Foundation of the state Baden-Württemberg

[48] Engl. (SvD): Educational institute of the archdiocese Freiburg

[49] Engl. Worker's Samaritan Federation

and higher education institutions in the U.S.. Although they can generally be accessed by older adults, online courses typically require familiarity with technical devices. Therefore, some projects offer online education for older adults with low technology literacy levels. One of them is the Virtual Senior Center (VSC), which is organized by the New York City-based nonprofit senior services organization Selfhelp Community Services, Inc. The project's goals are to engage homebound older adults and prevent isolation by offering easily accessible online possibilities for education, networking, and communication. Every week, volunteer instructors from the community or the VSC membership teach classes that can range from natural sciences and technology to languages, history, poetry, wellness, and exercise. In addition, virtual museum tours and online games that can be played either alone or with other participants are part of the program. To foster interaction, classes are video-based and discussion-oriented. The software is designed for older users and requires little technological knowledge. Moreover, Selfhelp provides technical support either in person at home or over the phone and offers touch screen computers to those elderly who do not have a computing device. Encouraged by New York City's Department for the Aging and with initial funding from Microsoft, VSC started as a pilot project in 2010 with six participants. Today, the virtual center, which is funded by a private foundation and participant fees, counts more than 300 members. A flat fee of $60 per month provides access to all offered courses and programs (see Tobenkin 2016; Selfhelp 2017a; b). It is also noteworthy that VSC participants can actively contribute to research. In 2016, the Council for Jewish Elderly's (CJE) Leonard Schanfield Research Institute developed a research advisory board, called Bureau of Sages, consisting of stay-at-home VCA members and members of a nursing home with the goals to actively engage older adults in eldercare research, to decrease the barriers between researchers and participants, and to give older adults a voice in the improvement of care through patient-centered research. CJE staff and volunteers as well as clinicians and researchers were also part of the group. In frequent in-person and online group meetings, participants discussed their opinions about health care and nursing communities, provided insights into eldercare, and worked on research priorities that should improve the health and well-being of frail and homebound elders. This two-year project, which was funded by Patient-Centered Outcomes Research Institute, ran from 2016 to 2018 (see Bruce/Keen 2017; PCORI 2017).

Distance education that is presented over the phone or television is another possibility to address homebound elders. In recent years, a variety of senior help organizations and senior centers that are part of the Without Walls Network in the U.S. emerged in the U.S. intending to increase the accessibility of older adults to lifelong learning. One of them is the Chicago-based

organization Mather LifeWays. Every month, the organization offers a variety of free educational classes for older adults that are taught over the phone by community experts. Subjects can include arts and art appreciation, politics, history, and storytelling. In addition, health and wellness topics, such as guided chair yoga or meditation as well as discussion groups and live performances are part of the program. A benefit of this program is that no technical knowledge is needed and that older adults from all over the country, including those from rural areas, can access this free service (see Mather LifeWays 2017). However, hearing impaired elders may have issues accessing the courses.

OLLI @Berkeley's Fourth Age Salon

Another project that gave oldest-old adults a voice is the Fourth Age Salon at the Osher Lifelong Learning Institute, University of California at Berkeley (OLLI @Berkeley). The project ran between 2011 and 2013 and was developed by the author of this thesis and the institute director. The theoretical approach of this two-year-long project was based on the discussed geragogical core understandings and Petzold's (2011) appeal that older adults are the experts of their personal life situation and that educational institutions should actively incorporate the older learners' perspectives in their program planning efforts. In the initial project step, OLLI @Berkeley members aged 80+ were invited to meet in three 1.5 hour-long open discussion forums. Discussion topics included living situations in old age, motivation for learning, learning preferences, accessibility issues as well as ideas for how the institution could keep members involved when mobility and cognitive functions decline. About 10 members of both genders ranging between 80 and 89 years of age participated in the initial meetings. Since the meetings were well received and participants expressed a desire for continuing, the Fourth Age Salon continued and met every month. Occasionally, OLLI @Berkeley invited campus or community experts to the meetings, who addressed topics such as health, aging in place, accessibility, technology, wellbeing, and maintaining positive emotions in old age. As an example, hearing experts talked with the group about hearing loss and adequate hearing devices after the majority of the participants reported a loss of hearing. As a result, a hearing loop system was installed in the classroom. Faculty was also trained by hearing experts on the proper usage of microphones, their articulation and speech, and how to address hearing impaired members in the classroom. During the project time, OLLI @Berkeley improved the understanding of its oldest-old members, helped to build a community of peers, adjusted its offerings and classrooms based on the received feedback, and increased the institutional awareness of possible accessibility barriers to education.

As the previous discussion shows, educational opportunities for mobility-impaired and immobile adults in the fourth age exist to some extent in both the U.S. and Germany. However, the number of offerings is minimal. Nevertheless, the highlighted projects emphasize that with creativity and the willingness of educational providers to go beyond the traditional classroom, sophisticated educational programs can also be facilitated in this age stage.

4.5 Conclusion

This chapter emphasizes that learning is a lifelong and life-wide process, which can take place in a variety of contexts and settings. Through learning, an individual makes new experiences and acquires new skills, knowledge, and behaviors that help to adapt to different environments. However, the term learning is often synonymously and inconsistently used for education. In this regard, several authors (e.g., Long 1986, p.16; Findsen/Formosa 2011, pp.22 & 117) argued that learning is a broader concept while education describes, on the one hand, a more goal-oriented, narrow, and organized process, and, on the other hand, the outcome of a learning process.

Learning continues to be important in old age as research supported the positive aspects of learning and participation in education as a contribution to successful and healthy aging. Also, the general possibility to learn is generally given for non-demented individuals even in the latest life stage. However, physiological, cognitive, and social changes, which can accompany old age, can affect a person's ability and motivation to learn. Other factors that can influence the motivation to learn and to participate in education are, e.g., general attitudes towards learning, generation-specific experiences, and the personal (learning) biography. The latter appears to be especially relevant for learning in old age because learning in this age stage is, from a constructivistic perspective, always follow-up learning. The individual creates new knowledge based on previously made experiences and learned information, and thus learning in old age is a much more individualized and heterogenous process than in a younger age.

In general, no consensus exists whether old age requires a separate understanding of education and specific didactical and methodological strategies. Some authors (e.g., Kruse/Wahl 2010, pp.265f.) argued that goals, content, and methods of education in adulthood could be translated to education in old age so that older individuals could generally participate in regular adult education courses. Others (e.g., Kolland 2005b, p.114; Bubolz-Lutz et al. 2010, pp.129ff.) thought that older and especially oldest-old age requires separate educational

strategies due to the particularities of the later life stages, including retirement or changes in health or the social network. The concept of geragogy is oriented on the latter perspective. Geragogy describes the theory and practice of (a) education for older and oldest-old adults, (b) education about old age, and (c) education for those who are in contact with older and oldest-old adults. It is oriented on inclusiveness and acts on the understanding of the personal right of education in every age and life stage. Geragogy understands education as a holistic concept that incorporates the whole body with all its senses and emotions. According to the concept, learning takes place when self-reflections trigger action. Therefore, enabling self-reflection is one of the main goals of the educational work with older adults. In addition, older adult education should foster communication and an exchange of experiences as an opportunity to learn from each other. One of the geragogical concepts is the learner-centered framework of differential didactics, which recognizes the diversity of learners regarding their interests, life situations, learning preconditions, and life experiences, by flexible adapting the teaching methods to the specific target audience. Although geragogy is, therefore, in its core idea oriented on the heterogeneity of learners, the concept focuses on age-homogenous settings of older adults only. The concept of geragogy can be primarily found in the research and discourses on older adult education and learning in Germany. No comparable scientific discussion around these topics exists in the U.S., where (older) adult learning has been mainly studied empirically, but only to a small extent theoretically. As Wilson (2009, p.518) pointed out "(t)he numbers who consciously conceive of themselves as practitioners or scholars are far exceeded by those who simply do adult education without so naming themselves under some other institutional or professional guise."

In general, education and old age have not been associated with each other for a long time, which finds expression in a general underrepresentation of older and especially oldest-old adults in non-formal education, relatively young providers of educational opportunities for older adults, and a lack of empirical research. For example, some of the existing enrollment statistics showed a strong decline of participation in education after retirement. However, if the field of study is taken into consideration, it becomes obvious that the enrollment decrease primarily occurs in work-related training rather than in personal enrichment subjects. Therefore, an ongoing interest of older adults in non-work-related courses can generally be concluded. Enrollment statistics also indicated that most educational offerings focus on active elders who are in their 60s or beginning 70s, while frail or oldest-old adults are typically not represented. Nevertheless, a few projects that want to make education more accessible for these learners have already been developed in the U.S. and Germany. Although older and oldest-old adults

are generally underrepresented in education in comparison with younger age groups, older learners can nowadays choose from a wide variety of organized learning opportunities in both countries. The comparison over the educational providers highlights similarities, but also differences between the two countries. For example, the idea of empowerment is much more pronounced in older adult education settings in the U.S. than in Germany, which finds expression in a wide variety of volunteering opportunities for older learners in nearly every educational institution. However, international comparative studies that explore these differences and similarities in the context of learning in older and oldest-old age are missing.

The mentioned lack of representative data on the participation patterns of mature adults in education is especially pronounced for the group of learners in the oldest-old or fourth age. Nevertheless, existing study results suggested that oldest-old adults, who incorporated participation in education into their lives, are an exceptionally healthy, independent, and socially well-connected subgroup who do not meet negative stereotypes of the latest life stage. The empirical Silverlearning Study, which is presented in the next chapter, responds to this need for further research. One of the goals of the study was to contribute to a better understanding of the participation patterns of older and oldest-old adults in education in comparison between the U.S. and Germany and to investigate if such patterns are subject to change during the life phase of old age. Through this thesis in general and the following empirical study, the (older) adult education discourses and research, which are especially pronounced in Germany, should also be combined with the traditional empirical education research in this area of both the U.S. and Germany.

5 Silverlearning Study – An Empirical Study of Educational Activities and Preferences of Older and Oldest-old Adults in the United States and Germany

The previous chapters highlight that learning and participation in education in old age can contribute to successful and healthy aging and that older adult education can play an important role in current demographic and workforce developments. However, the discussion also shows that comprehensive national research on the participation of older and especially oldest-old adults in education as well as international comparative studies on the topic are lacking. Therefore, the empirical Silverlearning Study, which is presented in the following, was developed to provide further research on education in old and oldest-old age. This study investigated the educational behaviors, preferences, and motivations of learners aged 65+ in the U.S. and Germany and how these factors are subject to change during the life phase of old age.

5.1 Study Goal and Guiding Questions

As mentioned, the goal of the Silverlearning Study was to better understand current and recent participation patterns, motivational aspects, and learning preferences of older adult learners in organized education (non-formal or formal). For the oldest-old age, an increased relevance of physical and cognitive impairments (Sec. 3.4) was hypothesized. Therefore, a comparison between younger-old (65-80) and oldest-old (81+) age groups was a key focus of the study. The Silverlearning Study also aimed to address the question if old age in general and oldest-old age in particular requires a separate form and method of education. Since no consensus exists in this regard (Sec. 4.1.6), an additional goal was to provide more insights into the under-researched area of education of the oldest-olds. The discussed similarities and differences in the older adult education systems in the U.S. and Germany (Sec. 4.4) served as an additional motivation for a more in-depth investigation through the Silverlearning Study. In

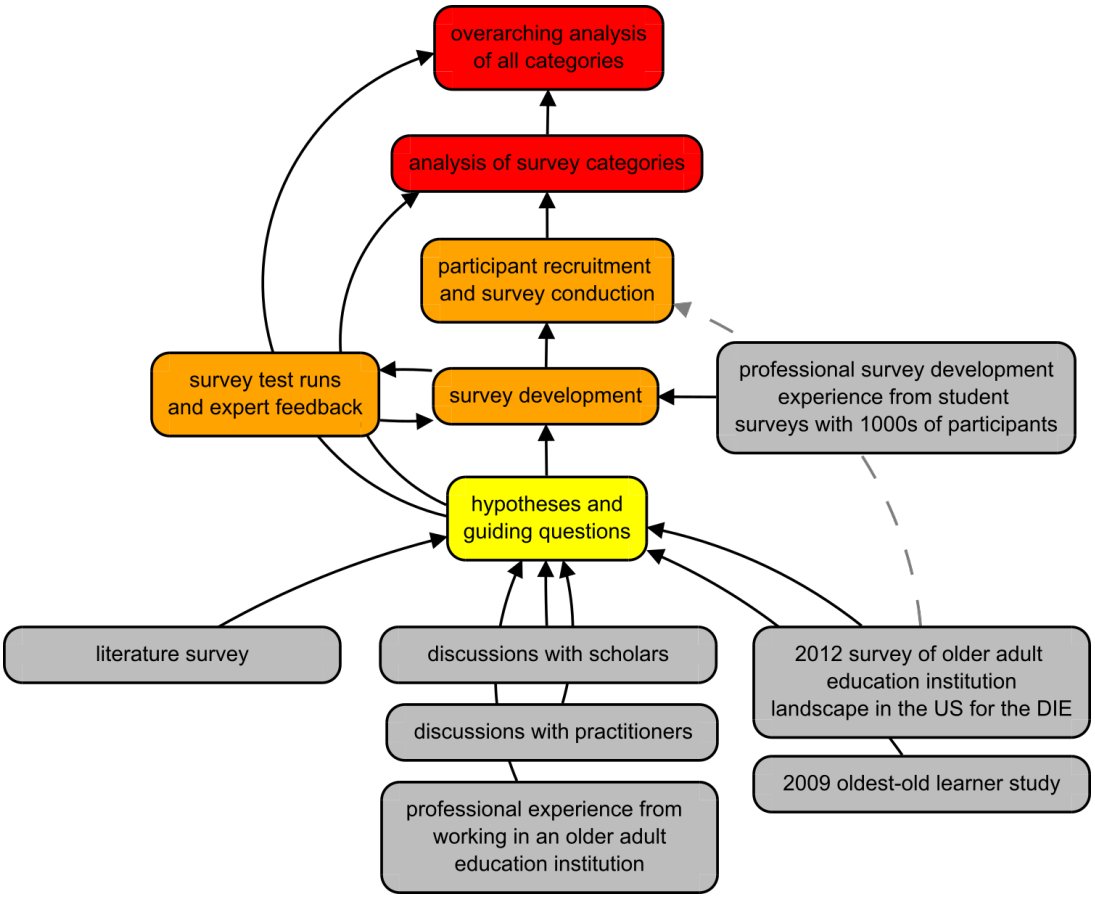

Figure 5.1: **Flowchart of the study development.**

this regard, the practical goal of the study was to provide a foundation for the exchange of best practices between older adult education providers in the U.S. and Germany as well as to inform the educational practice with evidence-driven suggestions for an education in older and oldest-old age in both countries.

The design of the Silverlearning Study was influenced by four pillars (Fig. 5.1):

(a) Literature research on the topic of aging and education in the third and fourth age, which was presented in the previous chapters;

(b) Professional experience and discussion with other scholars and practitioners in an international context. This pillar was defined by the author's professional working experience at the Osher Lifelong Learning Institute at the University of California at Berkeley (OLLI @Berkeley), which focuses on offering non-formal education for adults aged 55+. As part of her work at OLLI @Berkeley, the author of this thesis conducted membership surveys, co-developed the previously mentioned Fourth Age Salon project

(Sec. 4.4.3), and was a member of OLLI @Berkeley's Advisory Research and Evaluation Team, consisting of internationally well-known scientists from the field of, e.g., adult education and adult learning theory.

(c) Furthermore, the author is the acting Chair of the Lifetime Education and Renewal Network (LEARN) Council of the American Society on Aging and participated in panel discussions at conferences on the topic of lifelong learning in old age.

(d) Previous studies: In 2009, the author conducted an empirical study on the participation of adults aged 80+ in older adult education in Germany as part of her university diploma thesis research. Three years later, the author surveyed the educational landscape for older adults in the U.S. as part of a project carried out for the German Institute for Adult Education – Leibniz Centre for Lifelong Learning (DIE).

The combination of these inputs led to the definition of the aforementioned study goals and the focus of the Silverlearning Study, which were examined from four different angles: (a) participation patterns of older and oldest-old learners in education, (b) motivations for participation in education in older and oldest-old age, (c) educational preferences of older and oldest-old learners, and (d) influencing factors on educational participation and preferences in old age. Based on these considerations and the literature discussion of the previous chapters, guiding research questions emerged, which are presented in the following.

Participation patterns of older and oldest-old learners in education

As discussed in Section 4.3, the participation of older adults in education can show differences to younger adults. For example, enrollment statistics (e.g., BMBF; 2017, pp.37ff.; NCES 2010) indicated a participation decline with increasing age due to, e.g., decreasing need for work-related education after retirement. However, the existing enrollment data also suggested an ongoing interest in personal enrichment courses.

At every age, certain barriers, which can be of internal, external, or institutional nature, can prevent an individual from participating in education. However, since old age is associated with changes in physical and cognitive well-being (Secs. 3.3, 3.4), a growing influence of the personal health situation as a barrier can be assumed. Based on these discussion points and the overall study goal, the guiding questions that emerged in this topic area were:

- What are the participation patterns of older adults in education (non-formal, formal)?
- Does the participation frequency as well as participation patterns change during the life phase of old age?

Motivations for participation in education in older and oldest-old age

As the discussion in (Sec. 4.3.2) indicated, motivation is a highly individualized construct and the motivation to participate in education varies greatly between individuals. However, the motivation can change after retirement. While work-related reasons typically lose relevance, intellectual interest, cognitive stimulation, and socializing reasons gain importance in old age. Therefore, the emerging study questions in this area were:

- What motivates older adults to participate in education?
- Are elderly learners motivated to participate in education because of reasons that are specific to old age?
- Does the type of motivation to participate in education in old age influence educational activities, such as the number of courses taken?
- Does the motivation to participate in education change during the life phase of old age?

Educational preferences of older and oldest-old learners

Although educational preferences generally vary between individuals, Section 4.3 highlighted that educational preferences can change in old age. For example, the discussed research suggested that due to a declining need for work-related education, the instructor can be of greater importance for the learning experience than the actual course subject (see Duay/Bryan 2006, pp.1073ff.; Tippelt et al. 2009a, pp.44f.). Also, perceived performance differences in class can influence an older individual's preference for age-homogenous vs. age-heterogenous learning settings. Furthermore, the learning partner preference can vary during the course of old age. Based on these considerations, the guiding questions that emerged in this area were:

- What are the educational preferences of older adult learners?
- Do older adult learners show educational preferences that are specific to old age?
- Do educational preferences change during the life phase of old age?

Influencing factors on educational participation, motivation, and preferences in old age

As discussed in Section 4.3, educational interests and preferences as well as the motivation to participate in education in old age can be influenced by a variety of factors, including the personal learning and educational biography, living situation, social connectedness, health status as well as by social class or the socio-economic background. As already discussed in Section 3.4, changes in some of these areas can occur with increasing age, which also influenced

the aforementioned discourse whether old age requires a separate form and method of education (Sec. 4.1.6). Considering these points, the questions that emerged in this area were:

- Does the educational background influence educational activities, preferences, and motivation in older and oldest-old age?
- Does the personal living situation influence educational activities, preferences, and motivation in older and oldest-old age?
- Does the subjective health situation influence educational activities, preferences, and motivation in older and oldest-old age?

5.2 Study Development and Implementation

5.2.1 Development of Survey and Instrumentation

To investigate the guiding research questions, a quantitative study approach was chosen. This methodological decision provided the possibility to collect a large study sample in two countries during the same time. For data collection, self-completion questionnaires were selected. This approach followed the overarching idea to consider both theoretical as well as practical aspects and was also influenced by the author's work experience with large-scale quantitative educational assessments at the University of California at Berkeley and the University of Hawai‘i at Mānoa. Potential shortcomings and validity issues of a quantitative research method were considered when the decision for the self-completion questionnaires was made. For instance, Anding (2002, p.139) pointed out that one disadvantage of questionnaires is that closed-ended questions potentially cause incorrect data due to different understandings of questions and answer options between the researcher and study participants. Although a solely quantitative approach was chosen for the Silverlearning Study due to the aforementioned benefits, a combination of quantitative and qualitative study methods could be suggested for future studies.

To pretest and optimize the survey instrument, a test run with a total sample of 10 participants was conducted in both the U.S. and Germany and the feedback was incorporated accordingly. Face validity and content validity of the survey instrument, which were based on the study purpose and guiding questions criteria, was also established through a discussion with the well-known adult learning scholar Patricia K. Cross, who was part of the pretest sample. A translator reviewed the survey instrument to ensure that both the German and English questionnaires were correctly translated.

The final survey instrument was set-up as an online questionnaire. This provided the opportunity to reach a large study sample in a shorter amount of time than traditional paper-and-pencil surveys. In addition, cost factors were taken into consideration. Since national and international data collection through paper-and-pencil surveys would have required mailing, distributing, and administering the survey online was more cost-efficient. However, it was expected that especially tech-savvy older and oldest-old adults respond to an online survey. Also, an educational bias was expected, as research indicated that the usage of the Internet correlates with higher educational attainment in older adulthood (see Tesch-Roemer et al. 2016, p.3). To address these possible sample biases and the possibility that not all participants have access to the Internet or may not feel comfortable completing an online survey, a paper-and-pencil survey was also made available upon request.

To administer the online survey, the software SurveyMonkey[50] was chosen due to its user-friendliness and intuitive guidance through the survey response process. This aspect appeared important for an elderly audience that may not be familiar with answering questionnaires online. The tool also provided the possibility to set up the survey in multiple languages, which was necessary as the instrument was distributed to both an English-speaking and a German-speaking target audience. Furthermore, SurveyMonkey's skip-logic feature allowed to personalize the path of the visible survey questions based on the participant's previous response. Due to this feature, which was not available for the paper-and-pencil version, the number of visible questions could be minimized and the survey length reduced. As a further attempt to reduce the time to complete the survey and to make the tool more user-friendly, most questions were set up in a closed-ended question format so that respondents could choose from a set of pre-selected answer options. However, a few open-ended questions were also incorporated to allow for additional comments.

The final survey instrument consisted of a total of 40 questions that were divided into five-question sets, which is outlined below. In particular, 26 closed-ended multiple-choice questions (13 allowed only one answer, 13 allowed multiple answers), nine ratio scale questions, two interval scale questions, and three stand-alone open-ended questions were asked. 17 open-ended response options were incorporated into the different question types to receive additional comments. As discussed, the number of visible questions in the online survey varied based on the answer behavior of the study participants due to the built-in skip-logic feature.

[50] See https://www.surveymonkey.com/

Characteristics of the study participants

- Basic demographics: To familiarize respondents with the survey tool, demographic questions that focused on gender, age, and current state of residency were placed at the beginning of the survey. The U.S. survey also included a combined question on race and ethnicity, which followed the 1997 standards of the White House's Office of Management and Budget (see OMB 2015). Since the U.S. has a strong ethnic and racial diversity, those questions are common in American surveys and data collections, such as in the surveys administered by the United States Census Bureau (see United States Census Bureau 2015). However, questions about race and ethnicity are rather untypical in German surveys. To not confuse the Silverlearning Study participants in Germany with this question and to potentially risk an increased dropout rate, the ethnicity/race question was excluded from the German survey. Another item that was different between the two study samples was a "decline to state" option in the age question. Similar to the ethnicity/race question, such an answer option appeared uncommon in German surveys, and was therefore excluded for the same reason as above. To evaluate the participant's age, age brackets with a length of five years were used. The highest age bracket was defined as "101 years and older." To filter out respondents who were below the targeted age of 65+, an answer option "below 65 years" was included in the age question.

  As discussed in Section 3.1.2, the end of the occupational phase is widely associated with the later life phase in industrialized countries and typically takes place between the age of 60 to 65 in Germany and the U.S. Since individuals were likely to be retired at that point, the study focused on adults aged 65+ only. However, the possibility that some elderly still worked on either a full-time or part-time basis was accepted. Following Baltes and Smith's (2003, p.125) definition (Sec. 3.1.3), the age of 81 was used in the study to define the beginning of the oldest-old age. Keeping the discussion of the inter-individual differences in old age in mind (Sec. 3.1.1), the meaningfulness of this chronological age threshold is studied further.
- Educational background: Other empirical research indicated a correlation between formal educational attainment and participation in education in (older) adult life (e.g., Barz/Tippelt 2003, pp.333ff.; Tippelt et al. 2009b; Sec. 4.1.3). This connection was also explored in a series of questions that examined the educational background of study participants. However, the secondary and tertiary education systems in the U.S. and Germany show notable differences, and are thus not directly comparable. In the U.S., only one secondary high school track exists, which leads to optional tertiary education at, e.g., universities,

colleges, or community colleges. In contrast, Germany has a complex secondary educational system, which contains at least five different formal school types. Here, post-secondary education can be, on the one hand, either academic or, on the other hand, trade/ vocational oriented. Due to these differences, both study samples included standardized educational background questions that differed from each other. While the U.S. questionnaire contained only one question to evaluate the highest obtained degree in formal secondary or tertiary education, the German survey had two questions, which focused on the highest obtained degree in secondary education as well as on the highest achieved degree in both higher education and vocational education.

- Volunteering and employment status: Since volunteering and employment activities can provide new learning opportunities or require participation in professional development courses, this question set evaluated the current volunteering and employment status of the study participants. If respondents indicated that they were (self-)employed at the time the data collection took place, a skip-logic question asked for the corresponding number of working hours per week. To distinguish this question from unpaid volunteer work, the employment question explicitly asked for paid part-time and full-time positions.
- Health and independence: In addition to questions about current health impairments and challenges, respondents were asked to rate their current health on a five-point scale, which was self-developed and also followed the structure of other rating questions in the survey for consistency. Since these questions may be intimidating for some elderly, “decline to state” options were included in these questions. Although the previous discussion (Sec. 3.4.2) highlights that the self-rated well-being and health can differ from the actual health situation (see Baltes/Smith 2003, p.127), other research found consistencies between the subjectively and the objectively measured health status of an individual (see Wu et al. 2013). Since an objective evaluation of the participant’s health could not be performed in the Silverlearning Study, subjectively rated health appeared to be a sufficient variable to get insights into the study participants’ health status. Two additional questions examined if respondents needed external help for performing routine tasks and, if applicable, the areas in which help was needed. Furthermore, the current housing situation (since categories may overlap, multiple responses were possible) and the approximate population size of the respondent’s city or town of residency were evaluated. Since the U.S. is in terms of population density very diverse (Sec. 4.3.1), the latter question seemed to be especially important for the U.S. sample.

- Social connectedness and frequency of interactions: With the help of four questions, participants were asked for their relationship status, the number of (step)children and (step)grandchildren as well as the frequency of social get-togethers with immediate family, friends, or neighbors.
- Technology usage: Education increasingly moves away from the traditional face-to-face classroom to a more technology-based interactive way of learning. This growth is especially pronounced in the U.S., where educational institutions increasingly offer online learning opportunities (see, e.g., Lederman 2018). In addition to accessing education, the Internet has become an important medium to communicate and virtually socialize with others as well as to research information. Therefore, the level of technology usage of the older and oldest-old generation was investigated to understand how tech-savviness influences educational behaviors. In this regard, the participants' access to modern technological devices was evaluated as well as how often the respondents used the Internet for communication or to access and research information.

Participation patterns of older and oldest-old adults in education

- Current and recent participation/future participation plans: These questions focused on current and recent participation in educational activities. The previously mentioned 2009 study (Sec. 5.1) was limited by the fact that the survey respondents were asked about educational activities pursued after the age of 65, which covered for some participants a time span of two or three decades. Therefore, all participants in the Silverlearning Study, regardless of their answer to the question of current attendance in educational offerings, were asked for the number of educational activities (e.g., courses, seminars, lectures[51]) attended during the past 12 months, assuming that the memory of these activities is still fresh. In addition, future participation plans were also evaluated.
- Institutional and subject selection: If participants indicated that they took courses at the time they completed the survey, the institution of current attendance and the subjects taken were evaluated. Multiple responses were possible.
- Educational barriers: Those participants, who did not or no longer participate in education when the study took place, were asked for their reasons (multiple responses possible). In addition, if a participant was not planning to continue taking courses, a question evaluated

[51] For better readability, the discussion of the study results refers to "courses" only. However, included in this terminology are all types of organized educational offerings, which the participants may have attended.

the possible reasons. However, an in-depth evaluation of educational barriers was outside of the study focus and would require a different approach to the sampling.

Motivations for participation in education in older and oldest-old age

- Types of motivation: These questions explored why mature adults participate in education. All study participants who currently or recently (last 12 months) took courses, were asked for their reasons for participation (multiple responses possible). To distinguish non-formal from formal education motivations, all study partakers were also asked if they took courses intending to obtain a formal degree, certificate, or license.
- Impact of historical events on educational behavior: A set of four questions (the number of visible questions depended on the respondent's answer behavior) explored if study participants experienced historical events that impacted their formal education opportunities (such as K-12 or higher education) positively or negatively. These questions aimed to evaluate potential differences between both countries in the way how historical events, like wars, potentially impacted formal education opportunities and the motivation to pursue educational activities in later life. If the participant felt that historical events had either a positive or negative impact, respondents were asked in an open-ended question for further details on the type of historical event and how this event impacted their educational opportunities.

Educational preferences of older and oldest-old learners

- In addition to evaluating preferred learning methods and learning partners, a question on the ideal learning institution was asked to reveal factors that are important for elderly learners when choosing an educational provider. These multiple response questions were designed to better understand the preferences of older and oldest-old adults for specific age related learning environments. These insights can be used to develop recommendations for the ideal educational environment for older adults of different age groups.

Additional information

- The last survey question asked study partakers how they had heard about the Silverlearning Study. This question was helpful to be able to track the participation of the different contacted institutions and recruitment strategies. The different recruitment strategies of study participants are discussed in the next section.

The survey instrument was set up anonymously because it was assumed that study participants are more willing to provide honest answers to sensitive questions, such as health and independence. The time to complete the survey was expected to vary between the online and paper-and-pencil versions. For the online survey instrument, a completion time of 15 to 20 minutes was anticipated. The actual average online survey completion time was in Germany 16 minutes and in the U.S. 13 minutes.

5.2.2 Study Implementation and Recruitment of Study Participants

The recruitment of study participants occurred in both countries between February and August 2015. Study participants were primarily recruited through adult and older adult education providers in the U.S. and Germany. Various educational institutions that offered programs for either adult learners in general or older adults exclusively were contacted in both countries by email with the request to circulate the link to the Silverlearning Study among their members and within their classrooms. The email invitation included a description of the study, contact information, a link to the study website and the online survey, and a study flyer, which could be posted on, e.g., the institution's bulletin boards. Educational providers were also given the possibility to request paper-and-pencil surveys for those elderly who either preferred to complete the survey in a hand-written way or who did not have access to the Internet. Additional recruitment occurred through the Silverlearning Facebook page[52], social media pages that addressed older adults as well as through the Silverlearning blog[53], which contained a link to the study[54]. In addition, a study website was developed to inform educational providers and potential study participants about the scientific approach of the Silverlearning Study, its goal and purpose, the targeted study population, and the academic affiliation. Information about the study investigator, a privacy statement, and a link to the online survey were also part of the website. As Table 5.1 shows, a total of 391 educational institutions were contacted by email in both countries. In the U.S., 291 providers from 49 out of 50 U.S. states and the federal district of Washington, D.C. (U.S. territories excluded) were approached. Contacted providers included LLIs and OLLIs, senior centers, OASIS, adult schools, senior colleges, computer clubs, and SCA's (Sec. 4.4.1). In Germany, 100 institutions from all 16 states were contacted, including,

[52] See www.facebook.com/silverlearning

[53] See www.silverlearning.org (no longer online available)

[54] See http://www.silverlearning.org/umfrage/ (German survey) and http://www.silverlearning.org/survey/ (English survey) (both websites no longer online available)

Table 5.1: **Number of contacted (C) and participating (P) institutions by state, U.S. and Germany.**

U.S.

State	C	P	State	C	P	State	C	P	State	C	P
Alabama	8	0	Idaho	3	0	Missouri	7	0	Pennsylvania	14	1
Alaska	3	0	Illinois	10	0	Montana	2	0	Rhode Island	1	0
Arizona	5	0	Indiana	5	0	Nebraska	3	1	South Carolina	8	1
Arkansas	7	1	Iowa	5	0	Nevada	3	0	South Dakota	2	0
California	20	2	Kansas	6	1	New Hampshire	0	0	Tennessee	3	1
Colorado	5	0	Kentucky	4	0	New Jersey	4	0	Texas	7	1
Connecticut	6	1	Louisiana	2	0	New Mexico	4	0	Utah	4	0
Delaware	6	0	Maine	13	2	New York	11	3	Vermont	3	0
District of Columbia	1	0	Maryland	5	0	North Carolina	9	2	Virginia	11	0
Florida	11	4	Massachusetts	10	4	North Dakota	1	0	Washington	5	1
Georgia	7	1	Michigan	5	0	Ohio	7	0	West Virginia	4	0
Hawaii	3	1	Minnesota	4	0	Oklahoma	3	1	Wisconsin	7	0
			Mississippi	5	1	Oregon	5	0	Wyoming	4	0
									Total	**291**	**30**

Germany

State	C	P	State	C	P	State	C	P	State	C	P
Baden-Württemberg	14	2	Bremen	3	0	Mecklenburg-Vorpommern	3	1	Saxony	5	0
Bavaria	6	2	Hamburg	5	1	North Rhine-Westphalia	22	5	Saxony-Anhalt	4	0
Berlin	5	2	Hesse	6	3	Rhineland-Palatinate	4	2	Schleswig-Holstein	5	0
Brandenburg	5	1	Lower Saxony	5	0	Saarland	4	0	Thuringia	4	2
									Total	**100**	**21**

but not limited to *Volkshochschulen*[55], *Seniorenstudium*[56] and guest auditing programs, confessional educational institutions, non-profit or communal senior support organizations, and computer clubs (Sec. 4.4.2).

The reason why about three times as many institutions were contacted in the U.S. can be explained with the country's larger geographical size (Sec. 4.3.1) and a higher number of states that needed to be contacted in order to get broad geographical distribution. Another reason was that several educational providers in the U.S. had institutional policies that prevented them from participating in the survey. For example, some higher education (affiliated) institutions were obliged to reject studies from outside of the U.S. that were not approved by the Institutional

[55] Engl. (SvD): Folk high schools (Community adult education centers)

[56] Engl. (SvD): Senior academic studies

Review Board (IRB). Institution-internal IRBs in the U.S. approve research that involves human subjects to ensure that research is conducted following federal regulations and research policies[57]. No comparable approval process exists in Germany. Since the Silverlearning Study was conducted through a German university, no IRB approval could be obtained. As a consequence, U.S. institutions that required such approval could not be included in the study.

A total of 30 educational institutions in the U.S. and 21 in Germany responded to the invitation and shared the survey link with their participants, posted the study flyer to their bulletin boards, or announced the Silverlearning Study on their websites or social media pages. Table 5.1 shows the break-down of educational providers that were contacted and participated by state. The three states that were contacted the most in the U.S. were California, Pennsylvania, and Maine. In Germany, the most institutions were contacted in North Rhine-Westphalia, Baden-Württemberg, and Bavaria/Hesse.

The total number of study participants was 1,649, with 861 responses coming from the U.S. and 788 from Germany. Almost all (n=859) of the total U.S. participants completed the survey online. Only two U.S. respondents preferred the paper-and-pencil version. A higher number of paper-and-pencil surveys was requested in Germany, where 206 elderly completed the survey in a hand-written and 582 in an online way. In general, the online and paper-and-pencil self-completion surveys worked well for the older and oldest-old respondents. No methodological or technical issues were reported in this regard.

5.3 Target Group Filtering

Out of all participants, 24 study partakers in the U.S. and 61 in the German survey indicated that their chronological age was below 65 years. Therefore, these respondents did not match the target group criteria and were excluded from the analysis. In addition, only older adult learners who were currently or recently involved in an educational activity were of interest to this study because the goal was to understand the participation patterns of older and oldest-old learners in education (Sec. 5.1). Hence, answers of respondents who did not participate in education during the last 12 months were also excluded. Out of the respondents who were aged 65+, a total of 53 respondents in the U.S. and 111 in Germany did not fulfill this selection criterion. After

[57] See, e.g., Committee for Protection of Human Subjects at the University of California at Berkeley: http://cphs.berkeley.edu/ (11/14/2015)

excluding the discussed groups, a total of 808 responses from the U.S. and 677 responses from Germany passed these minimum selection criteria to be considered in the following analysis.

5.4 Methodological Approach of the Study Analysis

As a first step, every survey question was analyzed individually as well as by age, country, and gender. Section 5.5 focuses on general characteristics of the study participants, which lay the foundation to analyze the participation patterns of older adults in education (Sec. 5.6), the motivation for course participation (Sec. 5.7), and educational preferences (Sec. 5.8).

In the following analysis, the guiding questions are addressed with the help of a multivariate approach, in which subsamples for specific answer behaviors in multiple questions are compared. For Section 5.6, this also includes a logistic regression analysis. Furthermore, the analysis of the motivation for educational participation also made use of a technique to find specific characteristics of a subsample compared to the overall sample (Sec. 5.7). More details about the two latter statistical methods are provided in the corresponding sections.

In many parts of the following analysis, mean values were calculated, such as the mean number of courses taken, and are presented throughout the discussion. Also, percentage values, e.g., the percentage of respondents who answered a question in a particular way, are used throughout the analysis. For better readability, mean values and percentages are only mentioned in the text if no subsequent figure or table are provided. In many parts of the analysis, either two percentage values or two means from different subsamples were compared with Welch's *t*-test and the corresponding *p*-values were calculated. Two values are considered to be significantly different if the *p*-value is below 0.05 and very significantly different if the *p*-value is below 0.01. These calculations also take into account the different subsample sizes, which is especially important when comparing small subsamples. Depending on the particular aspect of the analysis and the selection cuts, subsample sizes can get very small, which limits the statistical significance and is mentioned in the discussion if applicable. Also, qualitative analyses of the open-ended questions were conducted, where appropriate. The received comments were coded and sorted by categories.

5.5 Characteristics of the Study Participants

This section provides an overview of the characteristics of the study participants regarding, e.g., their demographic background, health status, social connectedness, educational attainment, technology usage as well as occupational and volunteering activities. Some of these aspects potentially influence participation and motivation to attend education in old age, and therefore form the basis for the discussion in Sections 5.6 to 5.8.

5.5.1 Basic Demographics

One of the main characteristics of the study group was their chronological age, which ranged in both the U.S. and Germany between the age of 65 and about 100 (Fig. 5.2). Although the Silverlearning Study covered a wide age range, most study respondents in both countries were in the youngest age bracket 65 to 70 (U.S.: 33%, Germany: 45%). The average age of the U.S. sample was with 74.4 years two years older than the German sample (72.1 years, $p<0.01$). This difference was caused by a larger number of oldest-old study participants in the U.S. Here, about one-fifth (19%) of the respondents were in the age group 81+. In comparison, only seven percent of the German respondents were 81+-years-old.

With increasing age, the number of elderly who participated in the study decreased in both countries. As a result, only 13 respondents in the U.S. (2%) and five in Germany (1%) were 91+ years old. Due to this small number, a finer breakdown of the age of these participants was not reasonable and is displayed as 91+ in Figure 5.2. A coarser age distinction is shown in Table 5.2, which shows the sample sizes for the age brackets 65 to 80 and 81+. This age breakdown of the study samples is used in the following analysis. As the table shows, almost all of the partakers in the Silverlearning Study were between the age of 65 and 80. Only 19 percent of the U.S. respondents and 7 percent of the German respondents were in the oldest-old age bracket 81+.

As a result of the discussed target group filtering, all study participants were active lifelong learners, except of those respondents who participated in education during the last 12 months but did not or no longer take courses when the study took place. This group is briefly discussed in Section 5.6.5. The study participant's age structure is consistent with other research, which indicated that participants in older adult education are typically younger elderly and that participation sees a steep decline after the age of 80 (see, e.g., Hansen et al. 2016, p.45; Sec. 4.3). Mortality as well as physiological and cognitive changes that can occur with increasing age (Secs. 3.3, 3.4) potentially influence the decline in the participation of oldest- old adults.

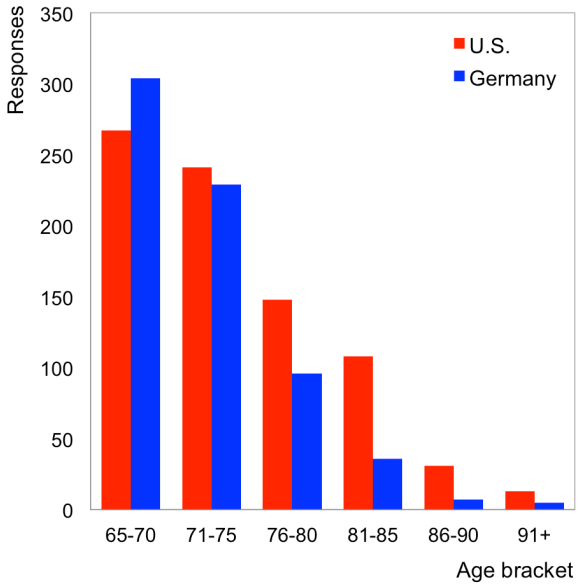

Figure 5.2: **Age distribution, U.S. and Germany**. (*Basis: n=808 (U.S.), n=677 (Germany), age 65+, >0 courses taken during the last 12 months)*

Table 5.2: **Distribution by age groups 65-80 and 81+, U.S. and Germany.**

Age group	Sample	N	%
65-80	U.S.	656	81.2
	Germany	629	92.9
81+	U.S.	152	18.8
	Germany	48	7.1

(Basis: age 65+, >0 courses taken during the last 12 months)

Although the Silverlearning Study did not investigate the reasons why older individuals discontinue participating in education, the subsequent study analysis explores different factors that influence educational participation as well as further participation plans.

Over both countries, more women (61%) than men (39%) participated in the study, which was primarily influenced by the U.S. sample where about two-thirds (67%) of the respondents self-identified as female. A more balanced distribution is visible in Germany. Here, 53 percent of the participants were women and 47 percent men[58]. However, Figure 5.3 indicates no gender difference in Germany within the error bars. Figure 5.3 also visualizes how the gender ratio in both samples of the Silverlearning Study developed as a function of age[59]. In the age bracket 65 to 80, the U.S. sample shows a high female participation ratio (71%). Starting from the age

[58] A total of 77 respondents (11% of the total sample) skipped the question in Germany. In the U.S., only 15 study participants (2% of the total sample) skipped the gender question.

[59] A ratio of 0.5 (or 50%) would correspond to an equal number of female and male study participants per age group. (About 11% of the total respondents in Germany and 2% of the total respondents in the U.S. skipped the gender question. Therefore, only those respondents who answered both the gender and the age question were compared).

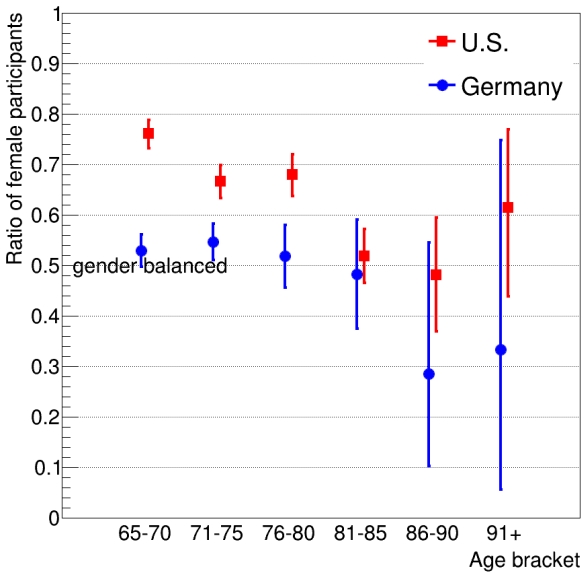

Figure 5.3: **Ratio of female study participants as a function of age for the U.S. and Germany**. (*Basis: n=792 (U.S.), n=600 (Germany), age 65+, >0 courses taken during the last 12 months, "decline to state" gender excluded, lines denote the 68.3% confidence intervals/1 standard deviation)*

of 81 onwards, the female participation ratio declined, resulting in an equal female and male study participation within the error bars. Although the effect was tentatively also present in Germany, no particularly strong female study participation for the age group 65 to 80 (53%) is visible. The samples were more compatible with each other in the oldest-old age groups 81+.

This leads to the following conclusion: Participation in the Silverlearning Study, and thus in education, generally decreased with increasing age of the study participants in both the U.S. and Germany. However, the gender distribution of the study sample changed with increasing age towards a higher male ratio compared to the younger age brackets. Overall, the age bracket of 76 to 80 appears to be a cutoff age where both female and male participation sharply dropped (Fig. 5.3). As the study focuses on participants who were currently or recently involved in some form of education, an assessment of the reasons and barriers towards education in this age group is not available by the means of the Silverlearning Study.

Although empirical research indicated that women are more likely than men to participate in older adult education (see, e.g., Hansen et al. 2016, p.45; Sec. 4.31), the previous finding is also consistent with observations from Findsen and Formosa (2011, p.127) who saw a decreasing potential of older women to participate in education with increasing age due to

caregiving responsibilities for the partner or other family members as well as widowhood, which can lead to reduced financial resources (Sec. 4.3.1). The results of the Silverlearning Study allow a similar conclusion, which is explored in the further analysis.

The combined question about the participant's race and ethnicity revealed that nearly all of the study partakers in the U.S. identified themselves as white (95%). The other elderly were of Latino or Hispanic origin (2%), American Indian or Alaska Native (1%), Black or African American (1%), Asian (1%), and Native Hawaiian or other Pacific Islander (1%). An additional one percent declined to state an answer and two percent provided other answers.

The correlation of the participants' race/ethnicity and age shows no significant difference between the age groups 65 to 80 and 81+. However, significantly ($p<0.01$) more participants aged 81+ (99%) than respondents aged 65 to 80 (94%) indicated to be white. Also the 2016 American Community Report highlighted that the population gets culturally less diverse with increasing age. The report showed that 77 percent of the total adults aged 65+ in the U.S. and 81 percent of the 85-year-olds identified themselves as white (see Roberts et al. 2018, p.4). Therefore, the U.S. sample of the Silverlearning Study shows an even larger racial homogeneity. This result together with the general demographic profile of the Silverlearning Study respondents in both the U.S. and Germany is consistent with the discussed literature on older adult education participants, which suggested that attendees are typically white (see Lamdin/Fugate 1997, pp.67ff.; Martin 2003, p.6; Sec. 4.3.1). Inequal formal schooling and job opportunities between the different ethnicities in younger age, which can lead to lower-paid jobs and fewer continuing education opportunities and, as a consequence, fewer financial resources in old age can be seen as possible reasons (see Jackson et al. 1993, p.5; Secs. 3.4.1, 4.3.1). While this correlation could not be assessed with the Silverlearning Study, the educational background of the respondents, which is further explored in Section 5.5.2., can potentially provide indications of their overall socio-economic background. In this regard, other empirical research suggested that individuals with an academic degree have larger median lifetime earnings than those without a college or university degree in the U.S. (see Tamborini et al. 2015, pp.1391ff.).

The Silverlearning Study had a broad national representation of older learners from various states in both participating countries. In the U.S., respondents came from 35 states, one federal

district, and one U.S. territory[60]. Not surprisingly, the participants' current state of residency correlates with the number of participating institutions by state. Since these states were among those with the highest number of participating institutions, the majority of U.S. respondents came from Florida, North Carolina, and New York. A comparable correlation between the participating institutions and the current state of residency is also visible in the German study sample. Here, almost half of the respondents came from Hesse, followed by North Rhine-Westphalia and Baden-Württemberg. These states were also among those with the largest institutional participation.

The majority of study participants (U.S.: 56%, Germany: 66%) lived in urbanized areas[61] with a population size of 50,000 inhabitants or more. However, a larger percentage of respondents in the U.S. (44%) than in Germany (34%) indicated to live in smaller cities with less than 50,000 inhabitants. Every tenth participant in both study samples (U.S.: 9%, Germany: 10%) resided in rural areas with less than 10,000 inhabitants. Also, the calculation of the average population of the respondents' municipality suggests that the U.S. elderly (194,000 inhabitants) lived in smaller cities than the German sample (277,500 inhabitants, $p<0.01$). This result is not surprising, as the U.S. a smaller population density than Germany (Sec. 4.3.1).

5.5.2 Educational Background

The Silverlearning Study consists of a sample of older adults that had a very high educational background. In the U.S., all of the respondents completed some type of formal education with the majority (90%) holding an academic degree at Associate's level or higher. Only one out of 10 participants did not complete higher education. Those respondents who completed a degree at university or college, most often held an advanced academic degree at Master's or doctorate level (58%). About 30 percent completed undergraduate studies (Associate's or Bachelor's degree) and 8 percent held a professional degree, such as in the area of medicine or law. Table 5.3 shows the highest completed formal degree of U.S. study participants.

[60] Since the focus of the study was on U.S. states only, no U.S. territories were contacted. However, and since personal contacts and Facebook pages were utilized, the U.S. territories are listed to ensure data accuracy and to gather a comprehensive understanding of the respondents' state of residency.

[61] See Census.gov: Urban and Regional Classifications https://www2.census.gov/geo/pdfs/reference/GARM/Ch12GARM.pdf (09/28/2016)

Table 5.3: **Highest formal school degree completed, U.S.**

Degree completed	All 65+	65-80	81+	Female	Male
No formal education completed	0.0	0.0	0.0	0.0	0.0
Through 8th grade	0.0	0.0	0.0	0.0	0.0
Some high school, but no diploma	0.3	0.3	0.0	0.2	0.4
High school/GED	1.1	0.7	2.7	1.0	1.2
Some college, but no degree	7.9	7.4	10.3	8.7	6.0
Trade/technical/vocational training	1.1	1.0	1.4	1.7	0.0
Associate's degree	3.0	3.3	2.7	3.2	2.0
Bachelor's degree	25.9	25.7	26.7	28.4	22.1
Master's degree	39.8	41.6	32.2	42.9	33.3
Doctoral degree	12.9	12.3	15.8	8.9	20.5
Professional degree (e.g., M.D., J.D.)	8.1	7.9	8.9	4.9	14.5
Total (N)	**757**	**611**	**146**	**492**	**249**

(in %, age 65+, >0 courses taken during the last 12 months, "other" responses (n=45) excluded, "decline to state" gender in the gender column excluded)

Except for one respondent, almost all of the German study partakers completed some type of formal secondary education, with the majority (71%) holding a degree that allowed them to study at either a university or at a university of applied sciences[62]. In this regard, the *Allgemeine oder fachgebundene Hochschulreife/Abitur*[63] was the most mentioned school form completed. About one-third (29%) of the total respondents finished school between the eighth and tenth grade (Tab. 5.4). An academic degree was also common in the German study sample. Here, 60 percent of the individuals completed some form of an academic degree after secondary school, with the majority holding an advanced/graduate degree, including university diplomas or Master's degrees from a university. One-third (35%) of the older adults attended some type of vocational training. Out of these, the majority completed a practice-oriented in-company vocational training[64] (42%). Sixteen respondents did not complete vocational or higher education (Tab. 5.5).

In both study samples, the educational attainment was higher among men than women. Although 10 percent more women than men in the U.S. held a Master's degree, significantly more men continued with their academic degree afterward. Therefore, about one-third (35%)

62 Ger.: *Fachhochschule* (University of applied sciences)

63 *Hochschulreife/Abitur*: matriculation examination that can be obtained in Germany after twelve or thirteen years of formal schooling at a *Gymnasium*; highest secondary degree; allows holders to study at a university

64 Ger.: *Beruflich-betriebliche Berufsausbildung/Lehre*

Table 5.4: **Highest level of secondary education (not vocational education) completed, Germany.**

Degree completed	All 65+	65-80	81+	Female	Male
No formal schooling completed	0.2	0.2	0.0	0.0	0.4
Haupt-/Volksschulabschluss[65]	8.1	7.7	15.0	9.1	6.2
Realschulabschluss (Mittlere Reife)[66]	17.8	17.3	25.0	19.8	13.9
Polytechnische Oberschule (8th/9th grade completed)[67]	0.8	0.8	0.0	1.0	0.4
Polytechnische Oberschule (10th grade completed)[67]	2.3	2.5	0.0	3.4	1.8
Fachhochschulreife, Fachoberschule[68]	13.0	13.6	2.5	10.7	16.8
Hochschulreife/Abitur[69]	57.9	57.9	57.5	56.0	60.6
Total (N)	**641**	**601**	**40**	**298**	**274**

(in %, age 65+, >0 courses taken during the last 12 months, "other" responses (n=27) excluded, "decline to state" gender in gender column excluded)

of the male and only 14 percent of the female U.S. participants held either a doctoral or professional degree (p<0.01; Tab. 5.3). The gender difference was even more pronounced in the German sample, where significantly more men than women held either a *Fachhochschulreife*[68] or *Abschluss einer Fachoberschule*[68] (men: 77%, women: 67%, p<0.01) as well as an advanced academic degree, including a doctoral degree, from either a university or a university of applied sciences (men: 70%, women: 50%, p<0.01). In contrast, the percentage of individuals who completed some type of vocational training was about twice as high for women (42%) than for men (25%). Tables 5.4 and 5.5 show the educational attainment by gender for the German sample. The finding that men had an overall higher educational background than women is consistent with the educational level of the total population aged 65+ in both the U.S. and Germany (see Ryan/Bauman 2016, p.2; Roberts et al. 2018, p.12; Statistisches Bundesamt 2018a, p.40; Sec. 2.6). Interrupted or discontinued educational paths

65 *Haupt-/Volksschulabschluss*: Leaving certificate awarded after nine years (*Hauptschule*) or eight years (*Volksschule*) of formal schooling; degree holders can pursue vocational training but cannot study at a university or a university of applied sciences; *Hauptschulen* still exist, but *Volksschulen* were discontinued in the 1970s

66 School degree that is typically awarded after 10 years of schooling; graduates are not eligible to attend university or college

67 Engl.: Polytechnic Secondary School (standard school system in the former GDR)

68 *Fachhochschulreife:* Higher education entrance qualification in Germany that allows holders to study at a university of applied sciences (Ger. *Fachhochschule),* but not at a university

69 *Hochschulreife/Abitur*: matriculation examination that can be obtained in Germany after twelve or thirteen years of formal schooling at a *Gymnasium*; highest secondary degree; allows holders to study at a university

Table 5.5: **Highest vocational/higher education degree completed, Germany**.

Degree completed	All 65+	65-80	81+	Female	Male
No vocational/higher educational degree completed	2.5	2.4	4.8	3.8	1.1
In-company vocational training	14.8	14.9	14.3	17.1	8.5
School-based vocational training	7.4	7.4	7.1	11.6	3.0
Vocational school in the GDR	3.2	3.4	0.0	5.5	0.7
Vocational, master or technical school or academy	9.6	9.0	19.0	7.9	13.0
Non-university teacher training school[70]	2.7	2.7	4.8	4.4	0.7
Bachelor's degree (University/University of applied sciences[71])	1.6	1.2	4.8	0.7	2.6
Advanced degree (University of applied sciences[71])	14.2	14.9	7.1	8.6	21.9
Advanced degree (University)	30.6	31.8	14.3	30.5	29.4
Doctoral degree	13.4	12.7	23.8	9.9	19.0
Total (N)	**634**	**592**	**42**	**292**	**269**

(in %, age 65+, >0 courses taken during the last 12 months, "other" responses (n=38) excluded, "decline to state" gender in gender column excluded)

of women due to pregnancy and maternity as well as difficulties combining family and career planning can be assumed as reasons. Influential might have also been traditional gender roles in the families that led to reduced educational opportunities for women. Evidence for this assumption was also observed in the Silverlearning Study and is discussed further in Section 5.7.2.

The educational level of the study samples was generally high in both the younger and oldest-old age groups. However, the age comparison shows that oldest-old adults in Germany had significantly lower educational backgrounds than younger elderly (Tabs. 5.4, 5.5) While 61 percent of the 65 to 80-year-olds held some type of academic degree, only 50 percent of the oldest-old adults completed higher education. Also fewer 81+-year-olds than younger elderly held a secondary school degree that allowed them to study at a university or at a university of applied sciences[71]. In contrast, about twice as many participants aged 81+ (15%) than respondents aged 65 to 80 (8%) completed school after eight or nine years (*Haupt-/Volksschulabschluss*[72]*).* Although fewer oldest-old adults held an advanced secondary degree

[70] Ger.: *Nicht-universitäre Lehrerbildungseinrichtung*

[71] Ger.: *Fachhochschule*

[72] *Haupt-/Volksschulabschluss*: Leaving certificate awarded after nine years (*Hauptschule*) or eight years (*Volksschule*) of formal schooling; degree holders can pursue vocational training but cannot study at a university or at a university of applied sciences; *Hauptschulen* still exist, but *Volksschulen* were discontinued in the 1970s.

as well as an academic degree in Germany, the percentage of individuals who completed a doctoral degree was even higher among the oldest-old (24%) than the younger elderly (13%) in this sample (Tab. 5.5). Such a result is also visible in the U.S., where 16 percent of adults aged 81+ and 12 percent of the 65 to 80-year-olds held a doctoral degree (Tab. 5.3). However, the aforementioned comparisons are ambiguous because of the low statistics of the 81+ sample so that the significance of these results could not be determined. In general, no significant differences are apparent between the two age groups in the U.S.

The previous discussion highlights that the Silverlearning Study consisted of a sample of mature adults that had a very high educational background. In the U.S., more than three times as many study participants than the country's overall 65+-year-old population completed a Bachelor's degree or higher (see Ryan/Bauman 2016, p.2). In Germany, the percentage of academics (Bachelor, Master, Diploma, Doctoral degree) was about six times higher in the study sample than the country's total population aged 65+ (see Statistisches Bundesamt 2018a, p.40). Since all of the study participants were active lifelong learners, this finding is consistent with the previous discussion (Secs. 4.1.3, 4.3.1) that individuals with higher formal educational attainment are more likely to participate in (older) adult education (see Theisen et al. 2009, p.56; Tippelt et al. 2009a, p.39). As discussed in Section 4.1.3, the reasons for this can be seen in, e.g., a positive view of learning due to positive school experiences as well as a better socio-economic and job status that was possible due to higher educational degrees, which allowed for more continuous participation in education throughout life (e.g., Kruse/Wahl 2010, pp.275ff.; Schmidt-Hertha 2014, pp.20f.). Although the Silverlearning Study explored the individual degrees, no evidence for such a conclusion can be drawn from the study data as career tracks and participation in education before the age of 65 were not examined.

The educational levels of the total older populations in both countries (Sec. 2.6) also suggest that academic degrees are more common among the U.S. than German elderly (see Ryan/Bauman 2016, p.2; Statistisches Bundesamt 2018a, p.40). This is also reflected in the Silverlearning Study. However, different post-secondary education systems in the two countries have to be considered for the interpretation. In Germany, high school graduates can either pursue an academic degree at a higher education institution or attend a full-time formal vocational training, which combines hands-on practice in companies with attendance of a vocational school. Such a training is typically pursued for about three years (see Federal Ministry of Education and Research 2019). A comparable comprehensive vocational system does not exist in the U.S., where high school students typically choose between two-year (community or junior college) or four-year higher education institutions (universities, colleges)

after high school graduation (see National Center for Education Statistics 2019). Influential on the difference in the educational level between the two countries are also historical reasons, such as World War II and its aftermath, which may have prevented some, especially oldest-old individuals in Germany, to pursue advanced education. For example, the National Socialist German Worker's Party in Nazi Germany limited higher education access to only 10 percent of a birth cohort so that the possibility to attend higher education was not only influenced by the individual socio-economic background, but also by educational politics (see Kade 2007, p.96). A more in-depth discussion of the influence of historic events on the formal education opportunities of the Silverlearning Study participants in both countries occurs in Section 5.7.2.

5.5.3 Volunteering and Employment Status

As mentioned in Section 3.4.4, volunteering and employment activities can provide new learning opportunities or require participation in education through, e.g., attendance of professional development courses. Therefore, the volunteering and professional activities of the surveyed elderly were of interest to the Silverlearning Study and are discussed in the following.

The majority of the study participants in both countries were active as volunteers when the data collection took place. A total of 81 percent of the participants in the U.S. and 59 percent in Germany indicated that they volunteered in at least one field. In contrast, only 3 percent of the U.S. study partakers and 20 percent of the German respondents never volunteered in their lives. Also, a slightly higher percentage of respondents in Germany than in the U.S. indicated that they were no longer active as volunteers. On average, study participants in the U.S. (2.26) volunteered in significantly ($p<0.01$) more areas than in Germany (1.33).

As Table 5.6 highlights, churches or devotional sites were the main field of volunteering for the U.S. elderly, followed by the social sector, and local or civic involvement. About two-thirds (67%) of all U.S. respondents who were active as volunteers engaged in at least one of these three areas (overlap possible). These fields were significantly ($p<0.01$) less popular in Germany. Here, only 41 percent of the German volunteers were active in these areas. In contrast, volunteers in Germany were especially active in the areas of sports or exercise, visual or performing arts, and music as well as within their social networks. The three least common volunteering fields in both countries were voluntary fire brigade/rescue service, law/rights, and professional representations/unions.

The educational background of the study participants did not have a significant influence on the volunteering status. However, whether and in what areas the individuals volunteered is influenced by age and gender (Tab. 5.6). In general, lower volunteering activity is visible in the

Table 5.6: **Current volunteering activities, U.S. and Germany.**

Volunteering Sector	Country	All 65+	65-80	81+	Female	Male
Church, devotional site	U.S.	34.3	35.2	30.5	36.3	31.6
	Germany	13.7	13.0	25.0	14.9	11.3
Social sector	U.S.	29.2	30.5	24.2	29.7	27.6
(e.g., charity, aid organizations)	Germany	14.2	14.5	9.4	15.3	12.1
Local civic involvement	U.S.	27.0	27.2	25.0	25.0	31.1
(e.g., neighborhood associations)	Germany	8.9	8.7	12.5	7.1	9.7
Visual arts, music, performing arts	U.S.	24.3	24.4	24.2	27.3	17.3
	Germany	18.5	18.6	15.6	21.2	15.8
Family, friends, neighbors	U.S.	24.2	27.8	9.4	29.7	12.8
(e.g., caregivers, babysitters)	Germany	17.9	18.3	12.5	27.1	7.7
Out-of-school youth work, (older) adult	U.S.	18.8	20.4	12.5	17.3	23.5
education	Germany	6.7	7.0	3.1	7.8	6.1
Politics, lobbies, representation of	U.S.	17.6	17.1	19.5	17.8	16.3
interests	Germany	7.6	7.7	6.3	4.3	10.5
Sports, exercise	U.S.	15.8	14.3	21.9	14.9	18.4
	Germany	21.8	21.8	21.9	21.2	21.1
Health sector	U.S.	14.9	16.0	10.2	16.7	11.2
	Germany	5.3	5.1	9.4	7.5	3.6
Environment, animal (protection)	U.S.	14.4	15.4	10.2	15.8	11.2
	Germany	4.8	4.9	3.1	3.5	6.1
Leisure, enjoyment	U.S.	13.0	12.4	15.6	12.8	13.8
	Germany	8.7	8.7	9.4	9.4	7.3
Preschool, K-12	U.S.	11.3	12.4	7.0	14.0	2.5
	Germany	5.2	5.5	0.0	8.6	1.6
Professional representation, union	U.S.	3.5	3.6	3.1	3.4	4.1
	Germany	1.8	1.7	3.1	1.6	1.6
Law, rights	U.S.	2.8	3.0	1.6	2.9	2.6
	Germany	1.2	1.3	0.0	1.2	1.2
Voluntary fire brigade, rescue service	U.S.	1.1	1.1	0.8	0.9	1.5
	Germany	0.5	0.6	0.0	0.0	1.2
I no longer volunteer	U.S.	17.5	13.0	32.0	14.9	21.9
	Germany	20.4	20.2	25.0	18.0	22.0
I never volunteered in my life	U.S.	2.8	2.9	2.3	1.8	5.1
	Germany	19.7	20.2	12.5	17.6	22.0
Total (N)	**U.S.**	**653**	**525**	**128**	**444**	**196**
	Germany	**563**	**531**	**32**	**255**	**247**

(in %, >0 courses taken during the last 12 months, "other" responses (U.S.: n=137, Germany: n=62), excluded, "decline to state" gender in gender column excluded, multiple responses possible)

oldest-old samples. While 84 percent of the 65 to 80-year-olds in the U.S. volunteered in at least one area, only two-thirds (67%) of the age group 81+ were active as volunteers. In Germany, a difference between 56 percent (65-80) and 46 percent (81+) is noticeable in this regard. In line with this lower volunteer activity in the oldest-old age group, a significantly ($p<0.01$) larger percentage of 81+-year-olds than respondents aged 65 to 80 in both countries indicated that they no longer volunteered. Also, more oldest-old than younger elderly in Germany never volunteered in their lives ($p<0.01$). No age differences are visible in this regard in the U.S. sample. Interestingly, a higher percentage of adults aged 81+ than 65 to 80-year-olds volunteered in the field of sports and exercise in both countries ($p<0.05$). In contrast, fewer oldest-old than younger elderly volunteered for their families, friends, and neighbors ($p<0.01$) and within the area of out-of-school youth work and (older) adult education ($p<0.05$). This result is not visible in Germany. Here, a higher percentage of 81+-year-olds than elderly aged 65 to 80 volunteered in religious organizations ($p<0.01$). No age difference is found in this regard in the U.S.

Volunteering was in general more common for women than men in both the U.S. (women: 87%, men: 81%, $p<0.05$) and Germany (women: 84%, men: 76%, $p<0.01$). Women in both countries volunteered especially within religious organizations, in the area of visual/performing arts as well as within their social networks. For example, about three times as many women than men in both the U.S. and Germany volunteered their time for families, friends or neighbors ($p<0.01$). In contrast, more than twice as many men than women were active in political settings in Germany ($p<0.01$). No significant gender difference was noticeable in this area in the U.S. sample.

A comparison with the volunteering statistics from the overall populations in the U.S. and Germany (Sec. 3.4.4) indicates that the study represented a subsample of older adults that pursued higher volunteering activities than the overall older population in both countries. For example, the previously discussed German *Freiwilligensurvey*[73] (Sec. 3.4.4) found that 35 percent of the surveyed population age 65+ volunteered in 2014 (see Simonson et al. 2016, pp.15f. & 93ff.). In the U.S., 24 percent of the older population 65+ volunteered in 2015 (see Bureau of Labor Statistics 2016a). As discussed in Section 4.3, various empirical research suggested that participation in education correlates with volunteerism (see Lamdin/Fugate 1997, pp.69f.; Schmidt/Sinner 2009, p.116). This also explains the high volunteering activity level of the Silverlearning Study participants.

[73] Engl. (SvD): Volunteer survey

The finding that more women than men were active as volunteers is also in line with results from Lamdin and Fugate's (1997, pp.69f.) study of older adult learners in the U.S. The researchers saw the reason for this gender difference in ingrained traditional gender roles in which men typically pursued a paid work while women stayed home with the children and volunteered in their leisure time. While this aspect was not evaluated in the Silverlearning Study, the discussed educational attainment of study participants (Sec. 5.5.2) also shows that men had a slightly higher formal educational background than women in both samples. In addition, the EdAge Study found that women more often have family and caregiving responsibilities that can serve as a barrier to volunteering. As a consequence, women are less often active in other volunteering fields than men (see Schmidt/Sinner 2009, p.116). The Silverlearning Study also indicates that more women than men volunteered their time for families, friends, and neighbors. Consistent between both the Silverlearning Study and the EdAge Study is also that women more often than men volunteered in social fields, while men preferred political volunteering activities (see Schmidt/Sinner 2009, p.118).

As already expected by the cut-off age 65 of the target group (Sec. 5.3), almost all of the respondents in both countries did not work at the time they completed the questionnaire. However, 9 percent of the German and about twice as many U.S. elderly (16%) were still employed or self-employed on either part or full-time basis. Although the percentage of respondents who did not work was higher in the oldest-old than in the younger age groups in both samples, some of the 81+-year-olds were still professionally active. In the U.S., 17 percent of the 65 to 80-year-olds and 11 percent of the participants aged 81+ held a paid full or part-time position at the time the data collection took place. In Germany, the percentage of respondents that pursued paid occupational activities remains with nine percent (65-80) and eight percent (81+) relatively stable between both age groups. No significant gender differences are noticeable in this regard in both samples.

Those study participants who held a paid part-time or full-time position were asked for the number of hours they worked per week. The results indicate that most of them (U.S.: 90%, Germany: 94%) were employed on a part-time basis. However, the majority (U.S.: 55%, Germany: 64%) of these individuals worked only 10 hours or less per week. Ten percent of the U.S. and six percent of the German respondents were still full-time employed with more than 30 hours per week. On average, the (self-)employed U.S. respondents worked with 13.4 hours per week not significantly more than the German study participants (11.6 hrs/week).

All of the oldest-old respondents who were still employed, worked on a part-time basis with 30 hours or less per week. In comparison with the age group 65 to 80, 81+-year-olds worked on average 7.8 hours per week less ($p<0.01$). In Germany, a difference of 6.9 hours per week is found ($p<0.01$).

A higher workload is visible among women than men in the U.S. Female (self-)employees worked with 14.4 hours per week on average 2.8 hours more than their male counterparts (11.6 hrs/week, $p<0.05$). The data does not show a gender difference in Germany in this regard.

The results of these questions suggest that while most of the respondents were retired, about one-fifth of the U.S. elderly and less than half as many respondents in Germany still worked for pay. This finding is consistent with the employment data from both countries. For example, an analysis of employment data of U.S. workers performed by the Pew Research Center also indicated that about 19 percent of the U.S. Americans aged 65+ worked on a part-time or full-time basis in 2016 (see Desilver 2019). In Germany, seven percent of the 65+-year-olds worked for pay in 2018, with the majority being in the age bracket 65 and 69 years (see Statistisches Bundesamt 2019b). While no significant gender differences are visible in the Silverlearning Study, the general employment data in both countries shows that most of the older workers were men (see Desilver 2019; Statistisches Bundesamt 2019b). Individual motivations, like the wish for further contribution to the workforce and professional fulfillment, can be seen as possible reasons why individuals continue working after the age of 65 (Secs. 2.6, 3.4.4). Also, financial reasons and economic insecurity in old age are possible important motivators. Those considerations have been confirmed by other research. According to a survey of the Transamerica Center for Retirement Studies in 2018, enjoyment of the work as well as monetary reasons are the two main reasons individuals continue working past the age of 65 (see Transamerica Center for Retirement Studies 2018, p.46). Although the socio-economic status of the Silverlearning Study participants was not evaluated, Section 5.5.4 discusses if finances are a concern for the elderly. The reasons why more than twice as many study partakers in the U.S. than in Germany worked are not entirely clear. However, the lack of a mandatory retirement age in most occupational fields in the U.S. (Sec. 3.1.2) can serve as a possible explanation.

5.5.4 Health and Independence

The Silverlearning Study participants reported overall good health and a high level of independence, which becomes evident in the following question set. Regarding the current housing situation, the survey data show that almost all of the elderly in both the U.S. (98%) and

Table 5.7: **Current housing situation, U.S. and Germany.**

Housing Type	Country	All 65+	65-80	81+	Female	Male
House (without care/assistance)	U.S.	76.0	77.9	67.8	75.8	76.8
	Germany	51.0	51.2	48.9	42.3	59.6
Apartment, Condominium (without care/ assistance)	U.S.	22.4	21.3	27.4	21.9	23.2
	Germany	48.2	48.1	48.9	56.7	40.4
Retirement community	U.S.	3.8	3.1	6.8	4.2	3.1
	Germany	0.9	0.8	0.2	1.6	0.4
Shared house/ apartment (with, e.g., friends/family)	U.S.	1.9	1.8	2.1	2.5	0.8
	Germany	0.4	0.5	0.0	0.6	0.4
Assisted-living community/ continuing care retirement community	U.S.	1.3	0.8	3.4	1.5	1.6
	Germany	0.1	0.0	0.2	0.0	0.4
Assisted living at home	U.S.	0.3	0.2	0.7	0.4	0.0
	Germany	0.4	0.5	0.0	0.6	0.4
Intergenerational housing project	U.S.	0.1	0.2	0.0	0.2	0.0
	Germany	1.2	1.3	0.0	1.6	0.4
Nursing home	U.S.	0.1	0.2	0.0	0.2	0.0
	Germany	0.1	0.2	0.0	0.3	0.0
Total (N)	**U.S.**	**789**	**643**	**146**	**520**	**254**
	Germany	**668**	**621**	**47**	**312**	**280**

(in %, age 65+, >0 courses taken during the last 12 months, "other" responses (U.S.: n=16, Germany: n=6), excluded, "decline to state" gender in gender column excluded, multiple responses possible)

Germany (99%) lived in either a (shared) house or apartment/condominium and did not require any care or assistance (Tab. 5.7). Therefore, only a small percentage of the 65+-year-olds in both countries lived either in a retirement community or a housing type that provided care or assistance (U.S.: 5%, Germany: 2%). Although the statistics were small, a larger percentage of respondents aged 81+ than respondents aged 65 to 80 lived in such housing types. For example, the percentage of U.S. participants who lived in an assisted-living or continuing care retirement community was four times as high in the oldest-old age group than in the age group 65 to 80. In addition, the percentage proportion of 81+-year-olds who lived in a retirement community in the U.S. was with seven percent more than twice as high as in the age group 65 to 80. Similar results are not found in the German sample (Tab. 5.7).

As the aforementioned discussion shows, most of the older and oldest-old respondents aged in-place in regular houses or apartments. This result is consistent with the overall older population in the U.S. and Germany. For example, the majority (97%) of the total U.S. population aged 65+ lived independently in non-institutional settings in 2016 (see Administration for Community Living/Administration on Aging 2018, p.5). The result that not

Table 5.8: **Self-rated health by age groups and combined rating categories.**

Age groups	U.S.				Germany			
	Very good/ Good	Average	Poor/ Very poor	Total (N)	Very good/ Good	Average	Poor/ Very poor	Total (N)
65-70	87.5	9.1	3.4	264	79.3	18.0	2.3	295
71-75	86.6	10.4	2.9	240	66.4	29.1	4.4	223
76-80	85.0	9.5	5.5	147	65.9	30.7	3.4	88
81-85	81.5	14.8	3.7	108	51.4	42.9	5.7	35
86-90	76.7	16.7	6.7	30	28.6	71.4	0.0	7
91+	83.3	16.7	0.0	12	40.0	60.0	0.0	5

(in %, age 65+, >0 courses taken during the last 12 months, "decline to state" health excluded)

only younger elderly, but also most of the oldest-old adults lived independently, was also pointed out by the Fourth Report of the Elderly. According to the report, about 85 percent of the oldest-old adults in Germany lived in their own homes or in the household of close relatives (see BMFSFJ 2002, p.121).

Asked for their current health status, a total of 85 percent of the study partakers in the U.S. and 69 percent in Germany thought that their health was either very good or good. Only four percent of the U.S. and three percent of the German respondents reported poor or very poor health. Overall, the U.S. participants rated their health significantly ($p<0.01$) better than the German sample. The calculation of the average health rating[74] emphasizes this finding. While participants in the U.S. study sample rated their health on average between very good and good (1.72), the German sample had an average rating of good (2.09, $p<0.01$). The German result was especially influenced by the age group 81+. While 71 percent of the 65 to 80-year-olds rated their health as either very good or good in this sample, the percentage significantly ($p<0.01$) dropped to 45 percent in the oldest-old age group. A lower subjective health rating of the oldest-old than younger elderly is also visible in the U.S., but without being statistically significant. Here, 86 percent of the 65 to 80-year-olds and 80 percent of the respondents aged 81+ rated their health as either very good or good. A calculation of the average health rating[74] for the combined age groups 65 to 80 and 81+ also indicates that oldest-old adults in both countries had a lower subjective health, but that the difference between the age groups was less pronounced in the U.S. (65-80: 1.69, 81+: 1.84, $p<0.05$) than in Germany (65-80: 2.06, 81+: 2.45, $p<0.01$). Although the study data indicate a lower subjective health rating in oldest-old

[74] 1=very good to 5=very poor

age especially in Germany, Table 5.8 shows that almost all age groups self-rated their health rating as good. Therefore, the Silverlearning Study is based on a sample of older and oldest-old adults who were satisfied with their health. The finding that older and oldest-old lifelong learners have a positive health perception was also pointed out by Lamdin and Fugate (1997, p.72). However, the researchers also found a decline in the subjective health rating score with increasing age (an exemption was the youngest age group 55-59). Also the German EdAge Study suggested that the health perception decreases with advancing age (see Theisen/Sinner 2009, p.95). Increasing health impairments and multimorbidity in advanced age (Sec. 3.4.1) potentially negatively affect the perception of personal health. However, the EdAge Study highlighted that although the satisfaction with the individual health can generally change throughout old age, a higher health satisfaction correlates with a higher formal degree (see Theisen/Sinner 2009, pp.95f.). In the Silverlearning Study, no significant difference in the health rating between academics and non-academics is found. Differences in the educational attainment of participants in both studies have to be taken into account here. While 17 percent of the EdAge Study respondents aged 45+ held an advanced secondary school degree (*Abitur*[75]) (see Schmidt et al. 2009, p.25), the percentage was more than three times as high in the German sample of the Silverlearning Study (Sec. 5.5.2). No correlation between the subjective health rating and the participants' gender is visible.

The overall good subjective health of the study participants also becomes obvious in the question of how the health status impacted the respondents' ability or willingness to make long-term commitments, such as attending multiple week-long classes. The results show that 73 percent of the respondents in the U.S. and almost half (46%) of the elderly in Germany thought that their current health did not have a strong impact on making long-term commitments. Only seven percent of the U.S. and nine percent of the German elderly thought that their health had a great impact in this regard. On average[76], the U.S. sample rated the impact level as not much (1.99) and the German sample between not much and neutral (2.58, $p<0.01$). Consistent with the previous subjective health status question, oldest-old respondents (2.8) in Germany reported on average a stronger impact than the age group 65 to 80 (2.6, $p<0.01$). No particular difference

[75] *Hochschulreife/Abitur*: higher education entrance qualification in Germany that allows holders to study at a university; matriculation examination that can be obtained in Germany after 12 or 13 years of formal schooling at a *Gymnasium*; highest secondary degree.

[76] 1=not at all to 5=greatly

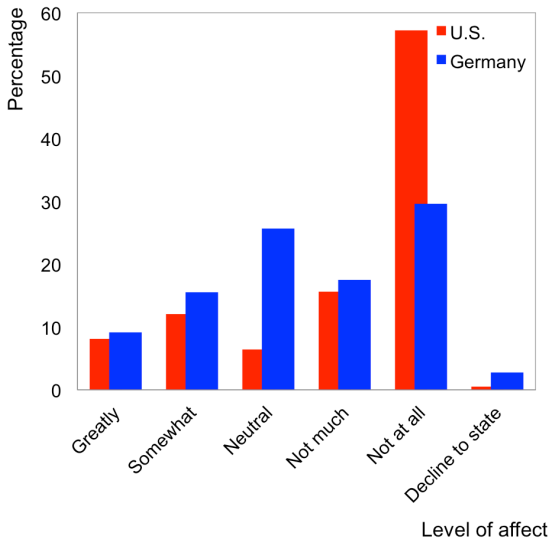

Figure 5.4: **Impact of subjective health rating on willingness to commit to long-term activities by age group 65-80, U.S. and Germany.**
(*Basis: n=652 (U.S.), n=619 (Germany), >0 courses taken during the last 12 months)*

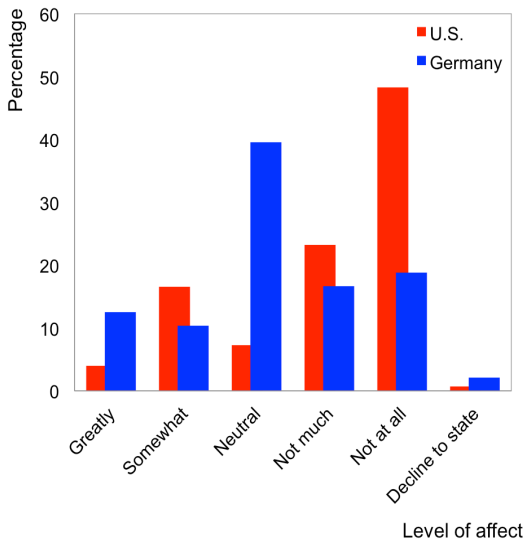

Figure 5.5: **Impact of subjective health rating on willingness to commit to long-term activities by age group 81+, U.S. and Germany.**
(*Basis: n=151 (U.S.), n=48 (Germany), >0 courses taken during the last 12 months)*

between the age groups is visible in the U.S., where both age groups felt somewhat (2.0) of an impact. Figures 5.4 and 5.5 visualize the effect of the subjective health rating on the participants' willingness to commit to long-term activities in comparison between the age groups 65 to 80 and 81+. While no differences between the genders are found in the U.S., the impact rating was higher among females (2.7) than males (2.5) in Germany ($p<0.05$).

The previous two questions reveal significant differences in the health perception between the two countries. However, the reasons why the German sample rated their health lower than the U.S. sample and also felt a stronger health impact on making long-term commitments are not clear. Cultural differences in the individualistic orientation between the two countries are possible reasons. Referring to various research findings, Westerhof and Barrett (2005, p.130) pointed out that elderly in the U.S. have a higher subjective well-being than those in Germany and explain this difference with stronger individualism in the U.S. According to the authors, this stronger tendency towards individualism in the U.S. is caused by, e.g., greater personal responsibility for social welfare and health care, earlier experiences of the U.S. with democracy, and fewer historical experiences with feudal and hierarchical society structures. As Westerhof and Barrett elaborated in their reference to other research results, individualism can lead to the exploration of personal goals, which can contribute to individual wellbeing, and self-enhancement. Although the authors discussed well-being as measured by positive and negative

affect as well as life satisfaction, those aspects may also influence the subjective evaluation of the personal health situation, as surveyed in the Silverlearning Study.

Despite the overall good subjective health of the participants in the Silverlearning Study, 6 out of 10 elderly in both samples (U.S.: 60%, Germany: 64%) indicated to face at least one health or socio-economic challenge. For those respondents who provided an answer to this question, impairments to the senses or mobility were the main health-related challenge areas. In the U.S., the majority of participants felt challenged in their hearing abilities (41%), followed by vision (24%) and mobility (22%). These three areas were also mentioned the most by the German study respondents. While the percentage was relatively similar for the German sample in the area of vision (26%) and mobility (21%), hearing was with 25 percent less of an issue. In general, hearing loss was significantly ($p<0.01$) more often reported by men than women in both countries. While 33 percent of the women in the U.S. and 18 percent in Germany were challenged in their hearing abilities, the percentage was about one-third higher among the male respondents (U.S.: 57%, Germany: 30%). In addition, some study participants experienced a low fitness level or lack of strength (U.S.: 19%, Germany: 8%) or struggled with chronic illnesses (U.S.: 10%, Germany: 19%). The ability to memorize or to maintain attention was the least often mentioned challenge area in both the U.S. (9%) and Germany (7%).

Oldest-old respondents were more likely to report health challenges than younger elderly. While about half (54%) of the total respondents aged 65 to 80 in the U.S. indicated at least one challenge area, three-fourths (75%) of the 81+-year-olds provided an answer to this question. In Germany, the percentage differs between 63 percent (65-80) and 85 percent (81+). As Figures 5.6 and 5.7 show, the percentage of respondents who felt challenged in the evaluated areas is for almost all aspects higher in the oldest-old than the younger age groups. The most significant increase occurred in the area of hearing. In comparison with the age group 65 to 80 (16%), the percentage of 81+-year-olds who reported hearing impairments nearly tripled in the German sample (46%, $p<0.01$). In the U.S., the percentage doubled with increasing age (65-80: 21%, 81+: 42%, $p<0.01$). A higher percentage of oldest-old adults in both countries also experienced mobility issues. While every fifth 65 to 80-year-old in the U.S. experienced mobility limitations, every third oldest-old person chose that answer option ($p<0.01$). This increase is even stronger pronounced in Germany. Here, the percentage more than doubled adults than participants aged 65 to 80 in both countries experienced memorizing and attention

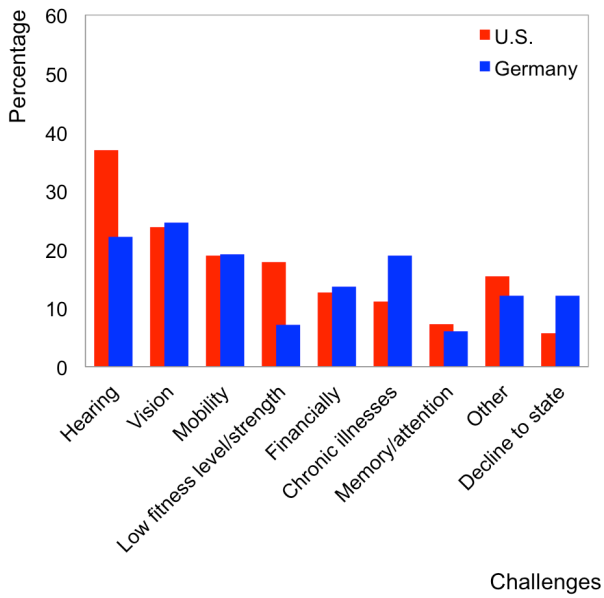

Figure 5.6: **Current challenges by age group 65-80, U.S. and Germany.**
(*Basis: n=370 (U.S.), n=448 (Germany), >0 courses taken during the last 12 months, multiple responses possible)*

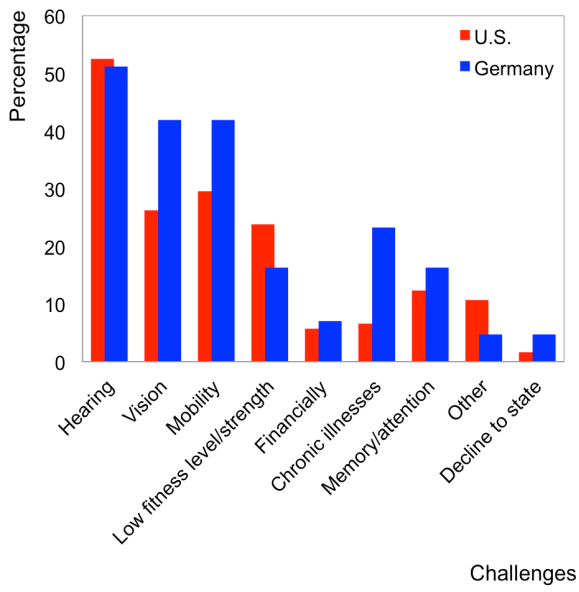

Figure 5.7: **Current challenges by age group 81+, U.S. and Germany.**
(*Basis: n=122 (U.S.), n=43 (Germany), >0 courses taken during the last 12 months, multiple responses possible)*

issues. However, the samples of oldest-old adults that felt this challenge is too small to evaluate if the result is significant.

In addition to health-related aspects, this survey question also evaluated if respondents experienced financial challenges. Given that only 11 percent of the U.S. and 13 percent of the German respondents felt challenged in this regard, the study participants appear to be in good financial standing. Since research suggested that higher educational attainment correlates with larger median lifetime earnings (see Tamborini et al. 2015, pp.1391ff.), such a conclusion can also be drawn from the finding that the Silverlearning Study participants had a high formal educational background (Sec. 5.5.2). Interestingly, while subjective health impairments increased with increasing age, financial challenges significantly lost relevance in both countries (U.S.: $p<0.01$, Germany: $p<0.05$; Figs. 5.6, 5.7). Also literature pointed out that the oldest-old age can be accompanied by great wealth. Höpflinger (2011, p.42) saw the reason for this in the fact that inheritable assets are often redistributed between households in older age, which leads to increased financial resources in the late life phase. However, a gender comparison of the financial challenge area reveals that women more often than men in both the U.S. (women: 13%, men: 8%, $p<0.01$) and Germany (women: 18%, men: 10%, $p<0.01$) sample of the

Silverlearning Study experienced financial issues. Section 4.3.1 already discussed that older women generally have an increased poverty risk due to, e.g., less labor participation in younger adulthood and a higher life expectancy, which can be accompanied by increased medical expenses and nursing fees due to increasing health impairments (see Höpflinger 2011, p.42) as well as by a higher risk for widowhood and lower financial resources in old age due to the death of the partner (see Wanka/Gallistl 2016, p.8). However, the Silverlearning Study does not provide evidence that the marital status had an impact on the experienced financial challenges.

Almost all of the respondents in both countries (U.S.: 97%, Germany: 96%) did not need help performing routine tasks. Those participants who needed external help, most often needed help with running errands (U.S.: 77%, Germany: 46%), transportation or driving (U.S.: 69%, Germany: 46%), and preparing meals (U.S.: 46%, Germany: 14%). The majority of these respondents lived in a regular house or apartment/condominium. Only about one-fourth (21%) of the U.S. elderly and 13 percent of the German study partakers who needed help performing routine tasks lived in a retirement community, assisted living or continuing care retirement community, or an assisted living at home housing type. However, as the sample for participants who needed help was very small, the statistical significance of this difference cannot be evaluated. Consistent with the decreasing subjective health in oldest-old age, a significantly ($p<0.01$) larger percentage of the German adults aged 81+ (17%) than 65 to 80-year-olds (2%) indicated that they need external help performing routine tasks. In the U.S., a percentage difference between two percent (65-80) and six percent (81+) is visible.

According to these findings, most of the respondents lived independently and did not require any external help. This result is different from other research. For example, Freedman and Spillman (2014, p.509) found in their analysis of the 2011 National Health and Aging Trends Survey that nearly half of the older adults aged 65+ in the U.S. needed help with performing daily routine tasks. Considering that less than five percent of the respondents in both samples of the Silverlearning Study needed help in this regard, it can be once again concluded that the study represented an exceptionally health and independent sample of older and oldest-old adults.

5.5.5 Social Interactions

Consistent with other research findings, which suggested that participants in older adult education are primarily married or re-married individuals (see Lamdin/Fugate 1997, p.69; Withnall 2010, p.59), also most of the Silverlearning Study respondents in both samples were married or lived with someone as a couple (Tab. 5.9). Especially the age group 65 to 80 was in a (married) relationship. However, the percentage of individuals who lived together with a partner is lower in the oldest-old age brackets. This result is especially pronounced in Germany, where the percentage almost halved between the age groups 65 to 80 and 81+. The percentage of widowed individuals is significantly ($p<0.01$) larger in the age group 81+ in both samples and almost tripled in comparison between the age groups 65 to 80 and 81+.

As Table 5.9 shows, gender differences in the relationship status are visible. While 8 out of 10 men in the U.S. and German were married, only every second woman indicated such a relationship status ($p<0.01$). In agreement with this finding, about four times as many women than men in Germany ($p<0.01$) and three times as many women than men in the U.S. ($p<0.01$) sample were widowed. In addition, significantly ($p<0.01$) more female than male respondents in both study samples were divorced or separated.

These results are consistent with the discussed overall marital status of older adults in the U.S. and Germany (Sec. 3.4.3). Although the majority of the total older populations aged 65+ is married in both countries, the percentage of widow(er)s increases with increasing age (see Statistisches Bundesamt 2016a, pp.62ff.; Social Security Administration 2019). Like in the Silverlearning Study, especially women are affected by widowhood. Men, on the other side, are more likely to be married even in oldest-old age (see Wagner et al. 1996, p.306; Statistisches Bundesamt 2016a, p.62).

Almost all of the participants in both study samples (U.S.: 88%, Germany: 83%) had children[77], with the majority having two children (U.S.: 36%, Germany: 41%). As the country comparison shows, the U.S. elderly had on average more children (2.3) than the German sample, where the average number of children was 1.7 ($p<0.01$). In addition, the number of children was significantly ($p<0.01$) higher in the oldest-old (U.S.: 2.9, Germany: 2.1) than in the age group 65 to 80 (U.S.: 2.2, Germany: 1.6). The previous discussion of shrinking fertility as one influential factor on the demographic developments in the U.S. and Germany (Sec. 2.2)

[77] Stepchildren included

Table 5.9: **Current relationship status, U.S. and Germany.**

Relationship status	Country	All 65+	65-80	81+	Female	Male
Married/Living with someone as a couple in a shared household	U.S.	57.7	58.8	53.0	46.0	82.1
	Germany	65.5	67.5	37.8	52.1	82.7
Widowed	U.S.	18.7	13.6	40.3	24.8	5.9
	Germany	15.5	13.8	37.8	21.4	7.2
Divorced/Separated	U.S.	16.3	18.7	6.0	20.5	6.7
	Germany	10.6	10.6	11.1	14.6	6.5
Single/Never married	U.S.	5.3	6.6	0.0	7.1	2.0
	Germany	6.2	6.0	8.9	10.4	0.7
In a relationship/married with separate households	U.S.	2.0	2.4	0.7	1.6	3.2
	Germany	2.2	2.1	4.4	1.6	2.9
Total (N)	**U.S.**	**787**	**638**	**149**	**520**	**253**
	Germany	**660**	**615**	**45**	**309**	**277**

(in %, age 65+, >0 courses taken during the last 12 months, "other" responses (U.S.: n=17, Germany: n=6) excluded, "decline to state" gender in gender column excluded)

suggests that, e.g., a lack of birth control methods and higher child mortality (due to, e.g., historical events, such as wars, lower medical standards) led to generational differences in the number of children, which is a possible explanation for this study finding. Similar results are also found in regard to the number of grandchildren[78]. While the German elderly had on average 1.9 grandchildren, the average number was 1.5 times as high in the U.S. (3.3, $p<0.01$). In general, 76 percent of the respondents in the U.S. and 63 percent in Germany had grandchildren.

Consistent with the previous question and the finding that more women than men in both countries were either never married/single or divorced, a significantly larger percentage of women than men in the U.S. (women: 15%, men: 7%, $p<0.01$) and Germany (women: 20%, men: 12%, $p<0.01$) did not have children. As a consequence, the number of individuals who did not have grandchildren was also higher among females (U.S.: 26%, Germany: 38%, $p<0.01$) than males (U.S.: 19%, Germany: 36%, $p<0.01$).

The study participants were socially active and well connected with their family members, neighbors, and friends[79] (Figs. 5.8, 5.9). The partner was the primary contact person of the elderly in all age groups and was, not surprisingly, seen in both samples on a daily basis. Friends

[78] Step-grandchildren included

[79] In each of the answer categories, respondents were asked to think of the persons that they see most often.

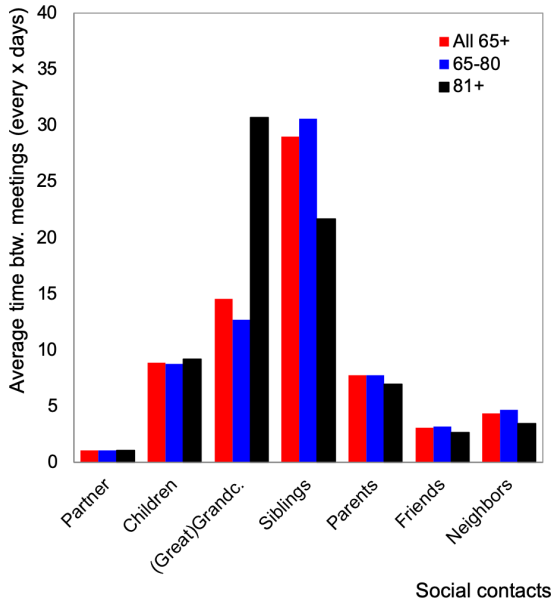

Figure 5.8: **Average time between meetings with social contacts by age groups, U.S.**
(*Basis: n differed by categories and age groups, >0 courses taken during the last 12 months)*

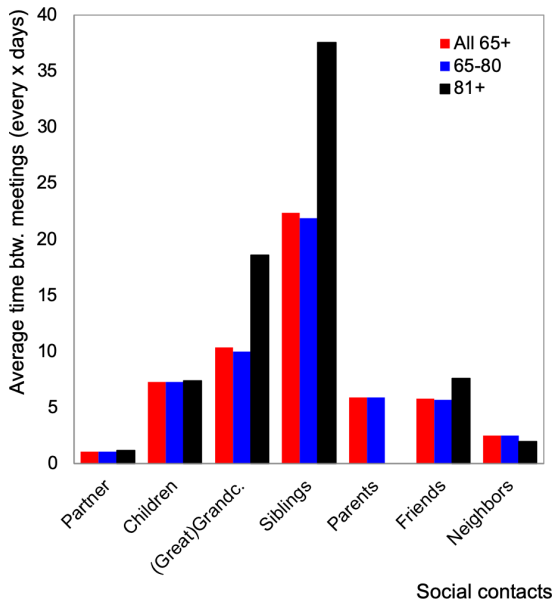

Figure 5.9: **Average time between meetings with social contacts by age groups, Germany.**
(*Basis: n differed by categories and age groups, >0 courses taken during the last 12 months)*

were also one of the most important social contacts for the respondents in both countries and were met every one to two days. In addition, the German and U.S. elderly met their neighbors about weekly. Both country samples show a broad time range for seeing their immediate family members from one to two times per year to nearly daily.

Women and men met their friends, (great-)grandchildren, and siblings with a similar frequency. However, a gender difference was noticeable in the frequency of seeing the partner. In line with the previously discussed finding that more female than male study partakers were widowed, a significantly ($p<0.01$) larger percentage of women than men in both the U.S. (women: 44%, men: 10%) and Germany (women: 28%, men: 3%) answered "never or not applicable" to this question. Also, significantly ($p<0.01$) more women (25%) than men (17%) indicated "not applicable" in the (great-)grandchildren category in the U.S. A slightly higher percentage is also visible in this regard in Germany, but without being significant. The reasons for this can be seen in the discussed finding that childlessness was more common among the female than male respondents.

The study results indicate that most of the study partakers were socially well-connected. Partner, friends, neighbors, and immediate family members were important social contacts for the older and oldest-old adults. However, oldest-old respondents had fewer social interactions

and were thus more prone to being alone (Figs. 5.8, 5.9). For example, the average frequency of how often study respondents met their (great-)grandchildren is slightly lower in the oldest-old age groups in both countries, but without being significant. For those oldest-old elderly, education can play an important role in preventing isolation and loneliness by providing social contacts. Section 3.4.3 already discussed that the size of social networks and frequency of contacts declines in oldest-old age due to the death of network members or, following the idea of the socio-emotional selectivity theory, a more active selection of important and valuable contacts. The previous discussion shows that a higher percentage of oldest-old than younger elderly in the Silverlearning Study were widowed, which likely caused changes in the social network because of the death of the partner. For example, if the partner was primarily responsible for maintaining frequent contacts with friends, the partner's death can also cause a decline in social activities for the surviving partner. Of potential influence has also been the Silverlearning Study finding that the subjective health declines with increasing age (Sec. 5.5.4). Neikrug et al. (1995, p.351) found in their study of oldest-old adult learners that the frequency of social contacts correlates with health and independence. For example, a higher frequency of seeing family members correlates with better self-rated health and a higher frequency of seeing friends with greater independence in instrumental daily activities. However, a similar analysis could not be performed in the Silverlearning Study due to the low statistics of elderly who indicated to be of poor health. The decline in seeing (great-) grandchildren can also be explained with changing caregiving responsibilities as grandparents. While younger elderly are more likely to provide care for their (young) grandchildren, the likelihood declines with increasing age (see Roberts et al. 2018, p.7).

5.5.6 Technology Usage

The Silverlearning Study consisted of a tech-savvy group of elderly who used both traditional multimedia as well as modern technology devices at least once a week (Fig. 5.10). Especially traditional electronic devices, such as televisions or radios, were frequently utilized by almost all of the respondents. Also computing devices, including laptops or desktop computers, found access into the homes of the study partakers and were frequently used by more than half of the participants. Hand-held computing devices, such as smartphones or tablet computers, were also important tools for some of the respondents, but significantly ($p<0.01$) more often for the U.S. than in German elderly. While 56 percent of the U.S. participants used

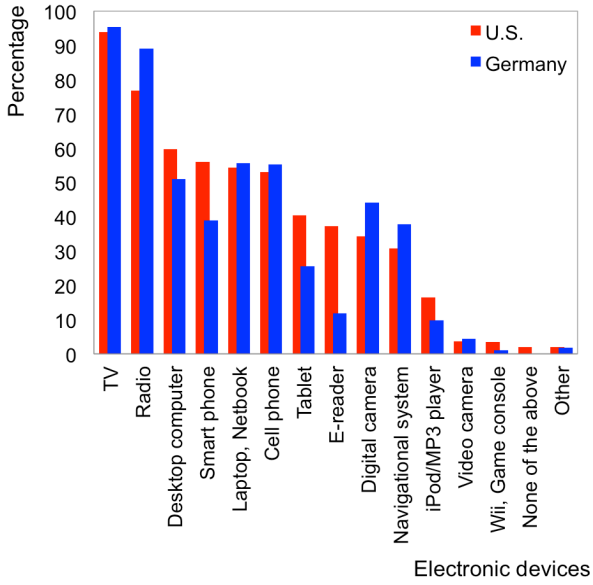

Figure 5.10: **Electronic devices used at least once a week, U.S. and Germany.**
(Basis: n=808 (U.S.), n=675 (Germany), age 65+, >0 courses taken during the last 12 months, multiple responses possible)

smartphones and 50 percent tablet computers regularly, those devices were utilized by only 39 percent and 26 percent, respectively, in Germany.

The usage of modern computer devices depended on the participants' age. Younger study partakers used computing devices, such as desktops or laptops, more frequently than oldest-old respondents in both the U.S. (65-80: 95%, 81+: 88%; p=0.01) and Germany (65-80: 90%, 81+: 73%, p<0.01). Nevertheless, 65 percent of the 81+-year-olds in the U.S. and 48 percent in Germany used a desktop computer frequently. An especially pronounced age difference is visible in regard to hand-held computer devices, such as smartphones and tablet computers, which were significantly (p<0.01) more often utilized by respondents aged 65 to 80 (U.S.: 71%, Germany: 50%) than by adults aged 81+ (U.S.: 48%; Germany: 31%). For example, only 30 percent of the oldest-old respondents in the U.S. and 19 percent in Germany were tablet users. Smartphone were used by 38 percent of the 81+-year-olds in the U.S. and by about one-fourth (23%) of the oldest-olds in Germany. The percentage was about twice as high in the age group 65 to 80 (U.S.: 62%, Germany: 40%).

While hand-held computer devices and smartphones had not yet made an entry into the lives of many of the oldest-old respondents, cellphones were frequently used devices by the 81+-

year-old study participants in both countries (U.S.: 66%, Germany: 77%). Closer proximity to regular telephones, which represent a more familiar communication medium, can be assumed here. Also, the practical use of a cellphone may be more evident than the one of a smartphone.

The participants' Internet usage frequency regarding researching information or communicating was also examined. In general, a large majority of both study samples used the web to access or research information as well as for communication, such as email, social media, or instant messaging, frequently. A total of 82 percent of the U.S. and 68 percent of the German elderly researched information online on a daily basis. The web was utilized for daily communication by 91 percent of the U.S., but only 47 percent of the German study partakers. A higher Internet usage of the U.S. than the German study partakers also finds expression in the finding that 26 percent of the total unfiltered respondents in Germany and only 0.2 percent of the U.S. elderly completed the paper-and-pencil version of the survey.

Consistent with the previous question, oldest-old respondents used the Internet less frequently for the discussed purposes than the younger age group 65 to 80. While 84 percent of the U.S. and 69 percent of the German respondents aged 65 to 80 researched or accessed the web for information daily, the percentage was 74 percent and 56 percent, respectively, in the age group 81+ ($p<0.01$ in both samples). An age difference is also apparent in the area of web communication in the German sample (65-80: 48%, 81+: 35%, $p<0.01$).

The previous discussion does not only indicate an age and country difference, but also emphasizes that the German sample used the Internet for communication less frequently than for research. This finding is consistent with the general Internet usage behavior of the total population 65+ in Germany, which highlights that older adults in the country more often access the web to access information than to communicate with others (see Statistisches Bundesamt 2016a, p.78). The data also show that older men are more frequent web users than women (see ibid.). Such a gender difference is also visible in the Silverlearning Study. While 79 percent of the men in Germany researched information online on a daily basis, the percentage was significantly ($p<0.01$) smaller in the group of female respondents (56%). About half (51%) of the men and 43 percent of the women in the German sample had daily communications via the Internet ($p<0.05$). Also in the U.S., more men (86%) than women (80%) researched information online on a daily basis ($p<0.05$). However, the opposite is visible in regard to Internet communication. Here, more women (93%) than men (87%) accessed the web for communication purposes every day ($p<0.01$).

Consistent with other studies (see, e.g., Kuwan et al. 2009, p.61; Roberts et al. 2018, p.13), the Silverlearning Study indicates that the tech-savviness regarding modern computing devices and the Internet is lower among older than younger elderly. In addition, an overall lower interest of oldest-old adults in modern technology devices finds expression in the study result that fewer 81+-year-olds than respondents aged 65 to 80 took computer courses during the last 12 months. A detailed discussion of course subjects taken during the past 12 months takes place in Section 5.6.1. Less exposure to those devices and a lack of learning opportunities potentially influenced this age difference. For example, computers and the Internet became an integral part of the work-life of many people from the late 1980s to the mid-1990s, a time where some of the oldest-old study participants were already closer to the end of their professional career (see BBC News 2013). In addition, the discussed finding that more oldest-old than younger elderly were widowed (Sec. 5.5.5) may have influenced this result. Less exposure to those devices through the partner and a lack of support if technical problems arise might be an explanation.

However, the results of this question set also show that the households of both older and oldest-old respondents were well equipped with traditional and modern technical devices and that many participants in both age groups used the Internet on a regular basis. This result is in line with data of the overall populations 65+ in the U.S. and Germany, which suggest that the majority of the elderly live in a household with access to a computer and the Internet (see Statistisches Bundesamt 2016a, p.78; Roberts et al. 2018, p.13).

5.5.7 Conclusion

Consistent with other empirical studies that explored the demographics of older adult learners (see, e.g., Lamdin/Fugate 1997, pp.67f.), most of the participants in the Silverlearning Study were in their 60s and 70s. In the U.S. sample, the majority of respondents were white women. However, the study results also show that the gender ratio in the survey participation became more balanced with increasing age of the elderly, and, in the German sample, changed towards a higher male distribution in the oldest-old age groups. This finding agrees with other literature, which explained the female decline in education with growing caregiving responsibilities of women for the spouse or friends as well as with widowhood, which can cause financial challenges (see Findsen/Formosa 2011, p.127). Although the Silverlearning Study data show that more female than male study partakers were affected by widowhood, no impact of the marital status on the financial wellbeing is visible.

Although some participants experienced financial challenges, the Silverlearning Study generally consists of a sample of older adults that appear to be in good financial standing and

that were also highly educated. However, differences in the educational attainment between the genders, age groups, and countries are apparent. For example, fewer women than men in both samples as well as fewer oldest-old adults than younger elderly in the German sample held an academic degree. Different post-secondary educational systems of the two countries as well as reduced or interrupted formal education opportunities of women or oldest-old adults due to certain historical events, such as wars, potentially influenced these results. A more in-depth discussion of the latter aspect occurs in Section 5.7.2.

The study participants were socially well connected, active as volunteers, and tech-savvy. They were satisfied with their health and independently performed daily routine tasks. These findings are not only visible in the group of younger elderly, but also in the group of oldest-old respondents. However, a lower subjective health rating and fewer social contacts are noticeable in the age group 81+. In addition, fewer volunteering activities were performed, more health challenges were mentioned, and making long-term commitments became more difficult in the eighth life decade. Nevertheless, although age-related changes are noticeable in some of the discussed survey questions, the majority of the oldest-old learners were still very active, satisfied with their health, and socially engaged – attributes that can generally be assigned to the third age (Sec. 3.1.3). Therefore, although these elderly aged 81+ fulfill the criteria of the fourth age from a chronological viewpoint (Sec. 3.1.3), the typical attributes of this life stage, such as frailty and illness, do not apply to them. Hence, a synonymous usage of the two terms oldest-old age and fourth age, as used by Baltes and Smith (2003), is not suitable for the study participants. In contrast, Laslett's (1991) approach to untie the fourth age from a specific chronological age seems to be more fitting (Sec. 3.1.3). It can be concluded that the study represented a sample of chronologically diverse and chronologically gifted older and oldest-old adult learners who were all in their third age, active agers, and who do not represent the general older population in both the U.S. and Germany regarding, e.g., subjective health and educational status. An additional conclusion is that the older adult education providers that responded to the participant request do not attract learners in the fourth age, but rather focus on active and healthy learners. Considering the growing number of adults aged 80+ in the U.S. and Germany (Sec. 2.5), educational institutions will need to rethink their programs to create a more inclusive older adult education in the future.

5.6 Older and Oldest-Old Adults in Education

This chapter investigates the participation patterns of older and oldest-old adult learners in education in the U.S. and Germany. In addition to the number of educational offerings taken over the last 12 months, subjects and learning preferences, institutional choices, further participation plans as well as factors that can influence the educational participation patterns in old age are discussed. The reasons why some participants no longer plan to take courses are also briefly addressed.

5.6.1 Participation Over the Last 12 Months

Due to the nature of the sample selection (Sec. 5.3), all respondents took at least one course during the last year. The data show that the Silverlearning participants represented a sample of very frequent lifelong learners, where more than 70 percent of the U.S. and 55 percent of the German respondents took more than three courses over the last year. Looking at the question results with greater detail, the majority of study partakers in both countries (U.S.: 30%, Germany: 45%) participated in one to three courses during the last 12 months. A total of 29 percent of the U.S. and 26 percent of the German respondents took four to six courses over the last year, and 15 percent of the U.S. and 8 percent of the German study participants attended seven to nine educational offerings. About one-fourth of the elderly in both samples (U.S.: 26%, Germany: 21%) took more than 10 courses. The average number of courses taken (U.S.: 7.3, Germany: 6.2) demonstrates high activities in education of the study participants in both countries, but also significantly ($p<0.01$) higher participation of the U.S. sample.

Interesting differences between the groups of respondents who took only up to three courses (1-3) and the ones who took more than three courses (4+) are visible. The following discussion highlights these differences as well as other factors that influenced the participants' frequency of participation in education.

Gender

Men took on average more courses than women. This result is especially pronounced in Germany, where men participated on average in 6.5 courses and women in 5.7 courses over the last 12 months ($p<0.01$). Slightly higher participation of men is also noticeable in the U.S. sample (men: 7.4, women: 7.2), but without being significant.

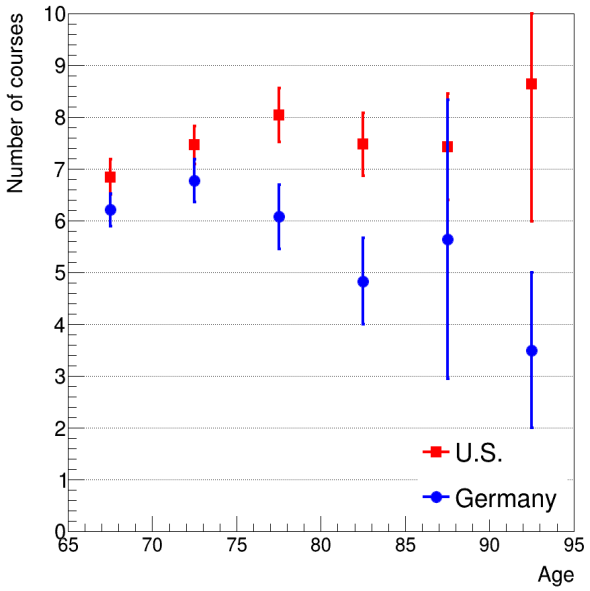

Figure 5.11: **Average number of courses taken during the last 12 months for different age groups, U.S. and Germany.**
(*Basis: n=808 (U.S.), n=677 (Germany), age 65+, >0 courses taken during the last 12 months; lines denote the 68.3% confidence intervals/1 standard deviation)*

Age

The number of courses taken either stagnated or declined in oldest-old age. Figure 5.11 shows a slight increase in the average number of courses taken with increasing age in the U.S. until the age bracket 75 to 80. Afterwards, participation stayed constant within the error bars. Overall, U.S. respondents aged 65 to 80 (7.2) took on average about the same number of courses than the oldest-old age group 81+ (7.5). In contrast, the German sample experienced a participation maximum in the age group 70 to 75 years, followed by a continuous drop. Respondents aged 81+ (4.7) took on average significantly ($p<0.01$) fewer courses than the 65 to 80-year-olds (6.3). In all age groups, the average participation was higher in the U.S. than in Germany. The logistic regression models, which are discussed later in this section, further investigate influencing factors on the number of courses taken during the last 12 months for the two age groups 65 to 80 and 81+.

Health and independence

In the overall study sample aged 65+, the participant's subjective health rating and the number of courses taken over the last 12 months did not correlate in both countries. Even for participants who rated their health as poor or very poor, no significant differences in the average

number of courses are noticeable. Also, the impact of health on making long-term commitments did not influence the course taking behavior. Addressing a similar aspect, the challenge areas of the study participants were correlated with the number of courses taken. Also here, nearly all of the evaluated challenge areas did not affect participation. The only significant ($p<0.01$) difference is visible for those German respondents who felt challenged by a low fitness level or strength. They attended on average two courses less than the overall sample.

Educational attainment

Influential on the course participation rate of the total sample aged 65+ was the participant's formal educational attainment. Although the Silverlearning Study sample consisted of a generally highly educated sample of older and oldest-old adults (Sec. 5.5.2), differences in the participation of those who had a lower and those who had a higher educational background are visible. For example, the group of U.S. respondents with a Master's degree was in the four or more course category (40%) nine percent larger than in the one to three course bracket (31%). A similar result is also found in Germany. Here, respondents with university or college degrees were significantly ($p<0.01$) more often represented in the four or more course category (63%) than in the one to three course bracket (47%).

Social interactions

The respondents' social interactions as well as the frequencies of getting together with their social network members impacted the number of courses taken. Respondents participated more often in education if they had frequent social interactions with friends or neighbors. Furthermore, married elderly in the German sample (6.4) had a higher participation in education than widowed respondents (5.5, $p<0.01$). While this difference was not as pronounced in the female sample, this result was mostly driven by the widowed men (3.7) who participated significantly ($p<0.01$) less in education than their married counterparts (6.9). However, the data do not show a difference between married and unmarried (not widowed) male participants. In contrast, unmarried (not widowed) women in Germany (7.6) participated more often than married women (5.5, $p<0.01$). No significant differences in the participation of men and women with different marital statuses are visible in the U.S. A comparison of the different marital status groups between the countries reveals that German widow(er)s (5.5) took on average two courses less than the U.S. counterpart (7.6). This was again driven by the widowed men in Germany who participated on average in six courses less than U.S. male widow(ers). This effect is also visible for women, but less pronounced. Here, the average difference was only two courses.

This leads to the conclusion that older adult education generally attracts an audience that is socially well connected and fulfills especially for older single-living women an important social function (Sec. 5.5.5). However, if older adult education targets an audience that is already social and socially well connected or if education helps to generate these social networks cannot be answered with the Silverlearning Study data.

Work status

A difference in the average participation is visible between the group of U.S. respondents who worked and who did not work at the time they completed the questionnaire. Non-working participants took on average significantly ($p<0.01$) more courses (7.5) than those who worked on either part-time or full-time basis (6.3). The number of working hours per week did not make a difference in this regard. The study data do not show significant differences in the average number of taken courses between the groups in Germany.

Although the work status impacted the number of courses taken, volunteering did not have an influence. Therefore, the number of courses taken did not significantly differ between individuals who volunteered and who did not volunteer at the time they completed the survey.

Technological knowledge

Tech-savvy older learners in Germany participated more often in education than those who did not use the Internet frequently. Here, respondents who participated in four or more courses used the web more often for research (+11%) or communication (+8%) on a daily basis than the group of study participants who took one to three courses. A similar result is not found in the U.S. where the Internet usage frequency was generally higher (Sec. 5.5.6).

Size of city

The size of the city also influenced course participation. In Germany, participants who took one to three courses during the last 12 months lived in slightly smaller cities (average population size: 268,500) than those who took four or more courses (average population size: 284,600, $p<0.01$). The opposite result is visible in the U.S., where respondents from larger cities took fewer courses (1-3: 222,600 inhabitants, 4+: 182,000 inhabitants, $p<0.01$). This result may have been influenced by the participating institutions and their geographic location (Sec. 5.2.2).

The previous analyses suggest that the number of courses taken was influenced by a variety of factors, such as gender, educational attainment, occupational status, and social networks. To move the discussion one step further, the following logistic regression (see, e.g., Menard 2002;

Urban/Mayerl 2008) discusses factors that led to taking a small number of courses (1-3) vs. a larger number of courses (4+) during the past 12 months in comparison between the two age groups 65 to 80 and 81+[80]. Different logistic regressions for the German and U.S. samples were conducted.

In the first model, the already discussed variables gender, subjective health, felt impact of health on making long-term commitments, help needed for routine tasks, current work in a paid position, and plans for taking courses in the future were investigated. Table 5.10 shows the standardized β values for the different variables and the corresponding McFadden Pseudo R^2 (MFR2) per subsample. A value of MFR2 of larger than 0.2 is considered an excellent fit that is significantly better than the null hypothesis (see McFadden 1979). Therefore, the analysis focuses on the data sets that were fitted with a MFR2 of larger than 0.2. In this definition, the U.S. sample 81+ and the German sample aged 65 to 80 indicate particularly good fit models, while the other two subsamples did not deviate too much from the null hypothesis with a standardized β value of zero.

Although the previously discussed multivariate analysis of the total samples aged 65+ suggest that the subjective health does not affect the number of courses taken, the regression analysis of the self-rated health status shows an interesting statistically significant effect for the 81+ subsample in the U.S. (no comparable effects are visible for the age group 65-80). Oldest-old study participants who reported a lower subjective health status and also felt that their health had a stronger impact on making long-term commitments tended to take more courses than 81+-year-olds with better subjective health. However, it has to be kept in mind that the number of oldest-old study partakers in the U.S. sample who reported poor health was small so that the generalizability is limited. Although this result initially appears surprising, it suggests that declining health does not necessarily serve as a barrier to education, but can also create a motivation to participate as a strategy to counteract health decline through, e.g., social interactions and brain stimulation. A look at the individual motivation (Sec. 5.7) confirms this

[80] The MFR2 is a measure of how well the logistic regression model describes the data after the likelihood function was maximized. Other definitions of R^2 are discussed in the literature, but no consensus about the best R^2 to test the logistic regression has been reached. Different definitions have different appeals (see Mittlbock, M./Schemper, M. (1996): Explained Variation in Logistic Regression. *Statistics in Medicine*, 15: 1987-1997). MFR2 was chosen because it is proportional to the reduction in error variance. A value of 0 in the logistic regression corresponds to 1-3 courses taken and a value of 1 to 4+ courses taken during the last 12 months.

Table 5.10 **Standardized beta values for two different logistic regression models investigating influencing factors on numbers of courses taken during the last 12 months.** [81]

Survey Question	Model 1				Model 2			
	U.S.		Germany		U.S.		Germany	
	65-80	81+	65-80	81+	65-80	81+	65-80	81+
Gender (female=1, male=2)	0.10	-0.01	0.14	-0.38*	-0.01	0.04	0.05	0.16
Size of town					-0.16	-0.90**	-0.04	-1.08**
Subjective health rating (1=very good, 5=very poor)	0.03	0.42**	0.05	-0.34				
Impact of health on commitments (1=very weak, 5=very strong)	0.09	0.28*	0.09	-0.85**				
Help for routine tasks (yes=1, no=2)	0.26**	-0.05	0.67**	-0.63**				
Number of children					0.06	-0.51	-0.22	-0.41
Number of grandchildren					-0.02	0.45	0.08	-0.89
Paid position (yes=1, no=2)	0.33	-0.18	-0.37**	2.40**				
Internet research (frequency [1/day])					0.06	-0.92**	0.27	0.98**
Internet communication (frequency [1/day])					0.07	1.58**	0.14	-0.20
Negative history (yes=1, no=2)					-0.04	-1.06**	0.04	-0.24
Courses in the future (yes=1, no=2)	-1.05**	-0.09	-0.72**	-1.64**				
McFadden Pseudo R^2	**0.12**	**0.21**	**0.44**	**0.15**	**0.01**	**0.29**	**0.10**	**0.44**

(*Basis: U.S.: 65-80: 1-3 courses N=189, 4+ courses N=434, 81+: 1-3 courses N=43, 4+ courses N=91; Germany: 65-80: 1-3 courses N=207, 4+ courses N=272, 81+: 1-3 courses N=19, 4+ courses N=15; Significance: * $p<0.05$, ** $p<0.01$*)

assumption. Out of the six oldest-old U.S. respondents who reported being at poor or very poor health, 67 percent were motivated to participate in education to stimulate their brain or memory, compared to 50 percent of the 105 oldest-old participants who felt that their health was good or very good.

Also, the motivation to take health-related courses was impacted by the personal health observation. While 37 percent of the 81+-year-olds who felt that they were greatly or somewhat impacted by their health to commit to long-term activities took health-related courses, the percentage was only 23 percent in the group of oldest-olds who reported no or a low impact.

Another interesting addition to the previous discussion from the logistic regressions pertains to the work status. While no statistical difference in the average number of courses between

[81] A value of 0 in the logistic regression corresponds to 1-3 courses taken and a value of 1-4+ courses taken during the last 12 months.

non-working and working participants aged 65+ is visible in Germany, the logistic regression shows that German respondents aged 65 to 80 who did not work had a stronger preference for only taking one to three courses than those who worked. This difference can be explained by non-gaussian asymmetric distributions and shows limitations of using average values for comparisons.

The results for a second model, which focuses on social involvement and negative influence of historical experiences on formal education opportunities, are also visualized in Table 5.10. The MFR2s for the U.S. and German samples 81+ indicate good fit models, while the other two subsamples only show a small deviation from the null hypothesis. Highly significant results for the 81+ samples are found in the U.S. and Germany for the size of the town the individuals lived in. In both countries, oldest-old participants who resided in smaller towns tended to take more courses (4+).

An interesting difference between the respondents aged 81+ in the U.S. and Germany is visible in regard to Internet research. While those oldest-old U.S. respondents who researched or accessed information online on a frequent basis took fewer courses (1-3), the German participants were engaged in more course activities (4+) during the past 12 months. However, U.S. respondents aged 81+ who used the Internet frequently for communication took more courses, while the standardized β in Germany is not significantly different from zero.

Another significant finding in the U.S. is that oldest-old participants who felt that historical events negatively affected their formal education, tended to take more often four or more courses than those individuals who did not think that historical events had a negative impact in this regard.

The previous discussion highlights that if older adults participate in education, they are often very active and committed learners. This finding is consistent with other empirical research, which suggested that if older adults attend educational offering they are frequent course takers (see Lamdin/Fugate 1997, pp.80f.). However, participation in older adult education is influenced by a variety of factors, including gender, age, formal educational attainment, work status, marital status, frequency of meeting social contacts as well as tech-savviness. For example, the study data suggests that the formal education status obtained at a younger age influences educational activities in older and oldest-old age. In this regard, individuals with an (advanced) higher education degree participated more often in courses over the last 12 months than those with lower educational attainment. This finding is consistent with other research, which found that individuals with a higher educational attainment show higher participation in

education than those with lower formal degrees (see Barz/Tippelt 2003, pp.333ff.; Theisen et al. 2009, p.56). Although those influencing factors could not be evaluated with the Silverlearning Study questions, the reason for this correlation can be explained with, e.g., a greater willingness to learn in later life due to positive experiences made in prior schooling (see Schmidt-Hertha 2014, pp.20f.; Sec. 4.1.3).

Participation in older adult education differs between the genders, with men showing on average a stronger participation frequency than women. Considering the aforementioned correlation between formal education and participation in non-formal learning, this finding may be partially explained with the study result that men more often than women held an academic degree in both countries (Sec. 5.5.2). However, women may also have been less active because of other commitments and responsibilities. For example, more female than male study partakers were engaged as volunteers, especially within their own families (e.g., as caregivers, babysitters, Sec. 5.5.3). Female study partakers in the U.S. who volunteered their time for their friends or families took on average about one course less than the overall female sample ($p<0.05$). This result is not visible in Germany. In addition, the participants' relationship status, which generally shows that married or re-married individuals participated more frequently than widowed elderly (Sec. 5.5.5), can have an influence. Since women were more often widowed than men, the latter potentially also influenced the lower course activity of female respondents. Therefore, it can be concluded that although older adult education can fulfill an important social function, it generally attracts an audience that is socially well-connected and thus less prone to isolation. Also, respondents who met their friends and neighbors often had a high participation activity.

Moreover, the study data indicate that not only younger elderly, but also oldest-old adults were very frequent learners. Nevertheless, the course taking behaviors of older learners changed over the course of old age. While the participation activity measured in the number of courses taken over the last 12 months increased close to the eighth life decade, it stagnated (U.S.) or declined (Germany) afterwards. The study does not reveal the reasons for the decline.

5.6.2 Institutions

Study respondents who took courses at the time they answered the questionnaire were asked for the educational institutions of current attendance. The results of this question (Figs. 5.12, 5.13) show that the institutions of current attendance were strongly related to the type of institutions that respondent to the study invitation (Sec. 5.2.2). Therefore, university or college (affiliated) institutions were the most attended providers of education in both samples.

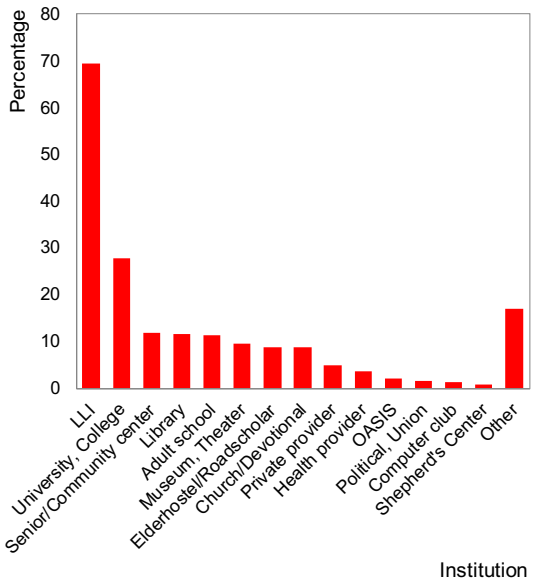

Figure 5.12: **Institutions attended, U.S.**
(*Basis: n=705, age 65+, >0 courses taken during the last 12 months, multiple responses possible)*

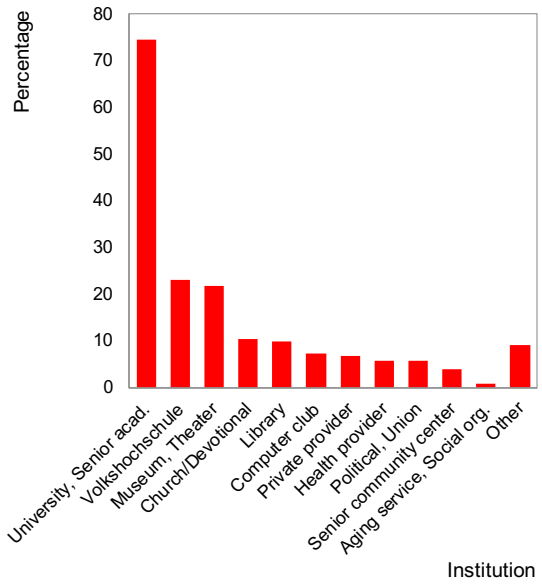

Figure 5.13: **Institutions attended, Germany.**
(*Basis: n=637, age 65+, >0 courses taken during the last 12 months, multiple responses possible)*

In the U.S. sample, about two-thirds of the respondents took courses at some type of LLI, including OLLIs, and about one-third at a university or college, like at guest auditing programs. However, as Section 4.4.1 discuss, LLIs are typically affiliated with higher education institutions so that their courses are often held on the campus of the host institution. It seems to be a reasonable assumption that not all study respondents were familiar with this organizational distinction, and therefore might have chosen university or college as their answer instead of LLI or vice versa. In addition to higher education institutions, every tenth U.S. respondent participated in educational offerings at senior or community centers, libraries, adult schools, museums or theaters, Road Scholar, and at churches or other devotional or spiritual institutions. Educational providers that were attended the least by this sample were private ones, health organizations, including YMCA and YWCA, OASIS, political organizations or unions, computer clubs as well as SCA's.

In the German sample, a similar correlation between the responses to this question and institutional participation is visible. In line with the fact that *Seniorenstudium*[82] programs and

[82] Engl. (SvD): Senior academic studies

Table 5.11: **Participants' average age by educational provider, U.S. and Germany.**

Organization	U.S.			Germany		
	Mean	Standard deviation	N	Mean	Standard deviation	N
OASIS	71.9	5.5	15		N/A	
Political organization, Union	72.1	5.8	11	70.4	3.0	35
Private provider	72.1	4.9	35	71.7	5.3	43
Museum, Theater	73.2	5.8	67	71.7	5.1	139
Shepherd's Center of America	73.4	7.3	6		N/A	
University, College, Senior academy	73.5	5.6	197	71.2	4.4	475
Computer club	73.5	5.9	10	73.8	5.7	46
Library	73.6	6.5	82	70.9	4.1	63
Churches, Devotional site	74.0	5.4	62	72.0	5.0	66
LLI	74.1	6.4	489		N/A	
Adult school/*Volkshochschule*[83]	74.3	6.8	80	71.9	5.3	147
Senior, Community center	74.5	6.2	83	73.1	4.1	25
Health provider, YMCA	74.9	7.4	25	72.7	4.5	36
Elderhostel/RoadScholar	75.1	6.4	6		N/A	
Aging services, Social organization		N/A		75.5	5.6	6

Volkshochschulen[83] showed the greatest willingness to share the Silverlearning Study among their participants, most respondents indicated these institutions as their current educational provider. Three-fourth of the German elderly took educational programs offered at higher education institutions or senior academies and about one-fourth attended courses at *Volkshochschulen*[83] as well as at museums or theaters. One out of 10 respondents chose libraries. Least attended by the German sample were computer clubs, private or health providers, political organizations or unions, senior or community centers as well as other aging services providers or social organizations.

While no significant age differences in the institutional choice are visible in the U.S., differences in this regard are apparent in the German sample. For example, a significantly larger percentage of 65 to 80-year-olds than respondents aged 81+ took courses at higher education institutions or senior academies (65-80: 77%, 81+: 37%, $p<0.01$) as well at libraries (65-80: 10%, 81+: 5%, $p<0.05$). In contrast, senior computer clubs were significantly ($p<0.05$) more often chosen by the oldest-old adults (65-80: 6%, 81+: 19%). This result is interesting as the question set on technology usage (Sec. 5.5.6) shows that the oldest-old respondents were less tech-savvy and also used the Internet for research and communication less frequent. Therefore, a greater need and desire to learn these devices presumably exist. Table 5.11 highlights the

[83] Engl. (SvD): Folk high schools (Community adult education centers)

average age of the participants per institution. In line with the previous discussions, participants at aging services providers and computer clubs in Germany had the highest average age, while universities or senior academies, and libraries attracted a younger audience with an average age of about 70. The German *Volkshochschulen*[84] were with about 72 years in the middle of the institutions' average ages. In the U.S., Road Scholar and health providers had a high participant age average and OASIS as well as political organizations/unions the youngest. For nearly all institutions, the U.S. sample shows a wider age distribution (standard deviation) than the German counterpart where the participant structure at the various institutions appeared more age-homogeneous.

While this difference is less pronounced in the U.S., the gender comparison in Germany shows that a significantly ($p<0.01$) higher percentage of men (81%) than women (68%) chose higher education institutions (including senior academies). In contrast, more female than male respondents in Germany preferred non-academic community organizations, such as *Volkshochschulen*[84] (women: 31%, men: 15%, $p<0.01$), museum or theaters (women: 26%, men: 15%, $p<0.01$), health providers (women: 8%, men: 3%, $p<0.01$), and devotional institutions (women: 14%, men: 6%, $p<0.01$). A higher female than male participation in some of these non-academic institutions is also visible in the U.S. Significantly more women than men chose devotional institutions (women: 11%, men: 4%, $p<0.01$) as well as museums or theaters (women: 12%, men: 5%, $p<0.01$). Furthermore, libraries (female: 15%, male: 5%, $p<0.01$) and Road Scholar (female: 11%, male: 5%, $p<0.01$) were especially popular among women in the U.S. sample. When considering the discussed research finding that the formal attainment in younger age correlates with non-formal education in later life (see Theisen et al. 2009, p.56; Tippelt et al. 2009a, p.39), the participants' educational background may have influenced this gender difference in the institutional choice. Consistent with the previous finding that fewer women in Germany completed an academic degree (Sec. 5.5.2), fewer women in the German sample took courses at higher education institutions. Also, perceived institutional barriers towards universities are likely.

In addition to age and gender differences, the number of courses taken over the last 12 months varied between the different educational providers. In the U.S., the highest course participation is visible among those elderly who took courses at OASIS (12-15 courses). Also, participants at SCA's (10-12) and political organizations or unions (~9 courses) were frequent

[84] Engl. (SvD): Folk high schools (Community adult education centers)

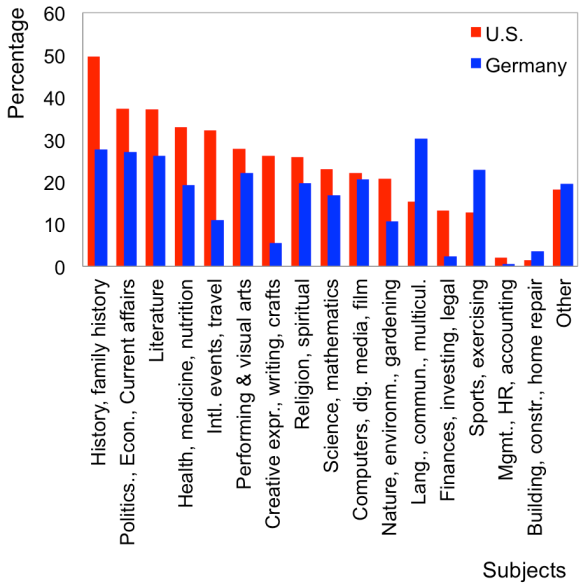

Figure 5.14: **Course subjects, U.S. and Germany.**
(*Basis: n=705 (U.S.), n=636 (Germany), age 65+, >0 courses taken during the last 12 months, multiple responses possible)*

course takers. In comparison with OASIS, participants at LLIs took with four to six courses significantly ($p<0.01$) fewer courses. However, respondents who took only one to three courses over the last 12 months were less likely to attend LLIs than those individuals who took four or more courses (1-3: 53%, 4+: 75%, $p<0.01$). Participants at adult schools participated the least in educational offerings (~6 courses) and were also predominately in the lower-attendance bracket of one to three courses.

In the German sample, respondents who took courses at political organizations or unions had the highest participation (more than 10 courses). Older adults who attended universities or senior academies (~7 courses, $p<0.05$) and *Volkshochschulen*[85] (~5 courses, $p<0.05$) took significantly fewer courses. In this regard, respondents who participated in one to three courses enrolled significantly ($p<0.05$) more often at *Volkshochschulen*[85] (+23%) than those in the four or more course category.

[85] Engl. (SvD): Folk high schools (Community adult education centers)

5.6.3 Subject Selection

Study respondents were also asked for the course subjects taken at the time they completed the questionnaire. As Figure 5.14 shows, the five most popular subjects in the U.S. were (family) history, politics, literature, health as well as international events and travel. In contrast, languages, finances and legal issues, sports, management, and construction or home repair topics were the least taken course subjects of this sample. The German participants especially liked languages, (family) history, politics, literature, and sports courses, while nature, creative expression, construction or home repair, finances and legal issues, and management were least favored. Therefore, the results show that the elderly learners in both samples preferred courses in the area of humanities and social sciences, while occupational, financial, and legal topics were not of interest. The work status did not influence whether respondents attended managerial courses. Also, the Silverlearning Study participants in both the U.S. and Germany frequently took health and exercise courses. In both samples, more than one-third of the respondents (U.S.: 40%, Germany: 36%) who answered this question participated in either exercise or health-related courses.

The results of this question are consistent with other empirical research. For example, Lamdin and Fugate (1997, p.74) pointed out that history, politics, literature, and travel courses were frequently taken course subjects of older adult learners in the U.S. However, the researchers suggested that their study participants most often took arts-related courses, such as music, dance, and crafts. Interestingly, those subjects were less popular in the Silverlearning Study. Also other research emphasized that health, exercise, and well-being courses are among the most often taken subjects by older adult learners (e.g., Sommer et al. 2004, p.61; Kolland 2005a, p.70). Literature sees the reasons in a greater awareness of the individual health situation with increasing age and a desire to stay informed about how to live with growing health impairments (see BMFSFJ 2005, p.148; Sec. 3.4.1). Considering that the Silverlearning Study consisted of a sample of active older adults who had a positive health perception (Sec. 5.5.4), a motivation to maintain good health through these courses instead of reacting to declining health is also likely. The German EdAge Study suggested that women show higher participation in health and exercise courses than men (see Theisen/Sinner 2009, p.96). A similar result is also found in the Silverlearning Study, where a significantly ($p<0.05$) higher percentage of female than male respondents in both countries took sports or exercise courses (Tab. 5.12). Gender differences are also visible in other subject areas. For example, women in both samples took more often literature, creative expression, performing or visual arts, languages, and

Table 5.12: **Subject areas by gender, U.S. and Germany.**

Subjects	U.S.		Germany	
	Female	Male	Female	Male
History, family history	46.6	55.9	19.2	36.6
Literature	42.7	25.2	33.7	17.0
Politics, economy, current affairs	35.9	39.6	19.9	34.3
Health, medicine, nutrition	34.4	30.6	21.6	17.4
Performing arts, visual arts	31.4	21.2	26.6	17.7
Creative expression, writing, crafts	29.3	20.3	8.1	2.3
International events, travel	29.3	37.8	10.8	12.1
Religion, spiritual	28.4	21.2	17.5	20.8
Nature, environment, gardening	23.3	15.8	12.8	8.3
Computers, digital media, film	23.1	21.2	20.9	20.8
Languages, communication, intercultural learning	17.1	12.2	35.4	23.4
Science, mathematics	16.2	36.0	10.4	22.3
Sports, exercise	15.2	8.1	28.0	17.0
Finances, investing, legal issues	10.3	19.4	0.3	4.2
Management, human resources, accounting	1.5	3.2	0.0	1.1
Building, construction, home repair	1.5	1.4	3.4	4.5
Total (N)	**468**	**222**	**297**	**265**

(in %, age 65+, >0 courses taken during the last 12 months, "other" responses (U.S.: n=128, Germany: n=124) excluded, "decline to state" gender in gender column excluded, multiple responses possible)

nature or environment courses than men. In contrast, men especially preferred history, politics, travel or international events, sciences as well as finance courses. Looking at the results in more detail, one of the strongest differences between both genders occurred in the two subject areas literature and history. While 43 percent of the women in the U.S. and 34 percent in Germany took literature courses, only about half that many men in both countries chose this answer option ($p<0.01$). In contrast, 56 percent of the U.S. men and 37 percent of the German male respondents participated in history or family history courses. This subject area was taken by 47 percent of the women in the U.S. and 19 percent in Germany ($p<0.01$).

Furthermore, age differences in the subject choice are evident (Figs. 5.15, 5.16). For example, significantly more 65 to 80-year-olds than participants aged 81+ in the U.S took sports or exercise ($p<0.01$) as well as computer-related courses ($p<0.01$). A finer look at this comparison as a function of age for these courses reveals that these changes in participation behavior happened between the age brackets 76 to 80 and 81 to 85. Interestingly, the opposite result is visible in Germany, where a higher percentage of oldest-old than younger elderly attended computer as well as sports classes. This result is consistent with the finding that more

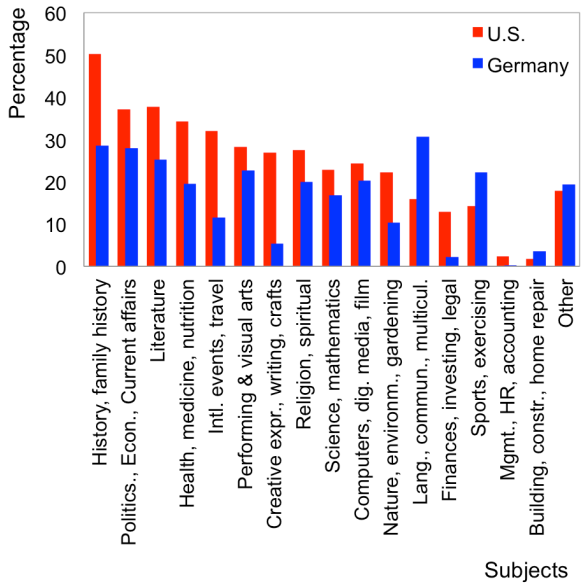

Figure 5.15: **Subject areas by age group 65-80, U.S. and Germany.**
(*Basis: n=572 (U.S.), n=594 (Germany), age 65-80, >0 courses taken during the last 12 months, multiple responses possible)*

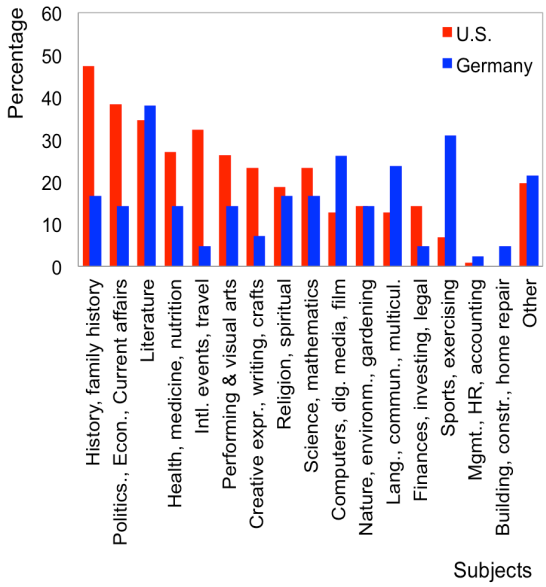

Figure 5.16: **Subject areas by age group 81+, U.S. and Germany.**
(*Basis: n=133 (U.S.), n=42 (Germany), age 81+, >0 courses taken during the last 12 months, multiple responses possible)*

respondents aged 81+ than 65 to 80-year-olds in Germany took courses at computer clubs. In addition, a tentatively larger percentage of oldest-old than younger respondents in the German sample participated in literature courses ($p<0.05$). However, significantly ($p<0.01$) fewer oldest-old than younger respondents took political courses in this sample, with the change taking place between the age brackets 76 to 80 and 81 to 85.

The individual subject choice correlates with the institutions attended and the overall educational behaviors. German elderly who participated in sciences (9.5) and finance courses (9.9) took a high number of courses during the last 12 months and especially preferred university (related) institutions as their educational provider (94%). These respondents also enrolled in politics (44%) or history courses (34%). In contrast, individuals who took language courses had the lowest course activity. The difference in the number of courses taken by finance and language course participants was about two ($p<0.01$). Furthermore, the overlap between respondents who took finance and language courses was very small. Out of 192 respondents in the German sample who participated in language courses, only one respondent took a finance course.

Language learners in Germany are an interesting subgroup of older learners in comparison to other course subjects. These participants took significantly ($p<0.01$) fewer other classes. A

total of 28 percent enrolled in language courses exclusively. However, if these elderly took other courses, they mostly participated in exercise/sports (28%) or computer courses (22%). Language course participants especially preferred *Volkshochschulen*[86] as their educational provider (44% more compared to finance course attendees, $p<0.01$). As already discussed in Section 4.4.2, the 2016 *Volkshochschul-Statistik*[87] indicated that the language sector is the strongest program area within the institutions, and are, in addition to health courses, especially frequented by older adult learners (see Huntemann/Reichart 2016, pp.4ff. & 17). Overall, it seems that the German language learners in the Silverlearning Study were primarily focused on learning languages and less interested in taking other subjects. This finding may be explained by the fact that language courses often run over several weeks, and thus require a high study commitment, which does not allow for participation in other education courses. In addition, these courses often provide the possibility to take different levels as follow-up courses for continued and focused language learning. In general, respondents who took language, creative, and computer courses significantly ($p<0.01$) less often chose universities (62%) compared to the overall German sample (75%).

Although different participation patterns based on preferred subjects are visible, the educational background could not be identified as a discriminator if participants preferred certain subject areas.

Different participation patterns are also obvious for some subject areas in the U.S. sample. For instance, survey partakers who enrolled in political courses took a higher number of courses than participants in any other subject category, e.g., 1.5 courses more on average than arts or creativity course participants ($p<0.01$). Like in Germany, participants in science courses took on average more courses over the last 12 months (10.2) than those who learned languages (8.9, $p<0.05$). In nearly all subject areas, respondents took classes at LLIs or universities. However, LLIs did not have as many participants in the fields of religion (68%) or science (69%).

5.6.4 Further Participation Plans

Almost all study participants aged 65+ in both the U.S. (96%) and Germany (93%) planned to continue participating in education during the next 12 months. However, the percentage of respondents who expressed future participation plans is lower in the oldest-old (88%) than in the age group 65 to 80 (94%, $p<0.05$). In addition, more oldest-old (10%) than 65 to 80-year-

[86] Engl. (SvD): Folk high schools (Community adult education centers)

[87] Engl. (SvD): Statistics of the folk high schools

olds (4%) were unsure if they will take courses in the next year ($p<0.05$). This result appears in line with the discussed decrease in the participation frequency after the age of 75 (Sec. 5.6.1) in Germany.

The subjective health status did not have an influence on future plans. From the limited number of respondents aged 65+ who reported (very) poor health, more than 90 percent in both countries planned to continue taking courses. This is an interesting finding and illustrates a strong commitment of these participants towards education, even in the oldest-old age. It is important to emphasize again that, although fewer respondents aged 81+ expected to continue, about 9 out of 10 oldest-old adults still had further participation plans.

In addition to age differences, the results from the German sample show that more men (95%) than women (91%) planned to attend educational offerings over the next year in the German sample ($p<0.05$). No significant age and gender differences are found in the U.S.

A correlation of the further participation plans with the number of courses taken within the last 12 months shows that the previous activity is a measure for the commitment to take more classes in the future. Respondents who took one to three courses during the last year were less sure if they will continue than those who took four or more courses. Such a result is visible in both Germany (-7%) and the U.S. (-9%; both $p<0.01$). The reasons why some participants no longer wanted to continue taking courses is addressed in the next section.

5.6.5 Educational Barriers

This section explores reasons why some individuals did not or did no longer take courses as well as why they no longer considered taking courses in the future. Although a detailed discussion of this aspect is outside of the scope of this study, a general discussion of barriers towards learning in old age was already presented in Section 4.3.1.

Almost all of the study participants in both countries (U.S.: 88%, Germany: 95%) participated in some type of educational offering at the time they completed the survey and also wished to pursue their educational activities in the future (Sec. 5.6.4). However, 100 elderly in the U.S. and 32 in Germany did not or no longer take courses at the time they completed the questionnaire. The fact that the questionnaire reached some respondents, especially in the U.S., during the summer break influenced this result (Sec. 5.9), and was mentioned often in the open-ended "Other" section of this question. Nevertheless, also other reasons prevented these elderly from participation. As Figure 5.17 shows, "institutional barriers" (Cross 1981, pp.98f.), such as inconvenient course times and unappealing offerings, as well as "external barriers"

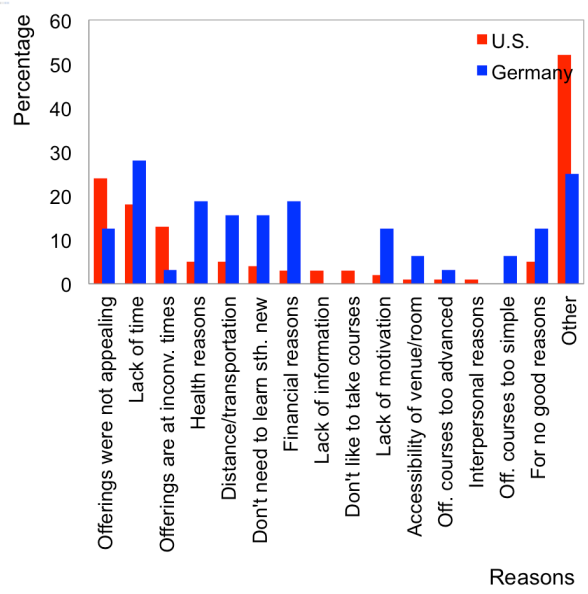

Figure 5.17: **Reasons for non-participation in education, U.S. and Germany.**
(*Basis: n=100 (U.S.), n=32 (Germany), age 65+, >0 courses taken during the last 12 months, multiple responses possible)*

(Johnstone/Rivera 1965, pp.214ff.), including a lack of time, financial issues, and health reasons were most often mentioned. None of the participants in both samples did not or did no longer participate because they either felt too old to participate in education or because they did not see the benefits of learning in older age. In addition to classes not being in session, other cited reasons in the open-ended "other" category were for example travel plans, time constraints (e.g., caregiving responsibilities, work or volunteering obligations), relocation, and accessibility issues (e.g., too long distances, lack of hearing).

A total of five U.S. and eleven participants from Germany provided reasons why they no longer planned to pursue educational activities in the future. For instance, inconvenient course times, health and financial reasons, no further needs, lack of time, or moving plans were mentioned.

5.6.6 Conclusion

One of the guiding questions (Sec. 5.1) of the Silverlearning Study asked about the general participation patterns of older adults in education. In this regard, the previously discussed study data show that if older adults participated in education, they were often very dedicated and

committed learners who took courses with a high frequency. This finding suggests that mature adult learners typically do not take courses for a certain purpose on a one-time basis, but rather make participation in education a frequent leisure activity and an integral part of their future activity plans. This stands in strong contrast to learning in younger adulthood, where education is more often taken on an ad-hoc basis to fulfill certain job-related objectives.

In general, participation in older adult education is influenced by a wide range of parameters with complex dependencies. The data analysis identified educational level, gender, age, work and marital status, social participation as well as tech-savviness as significant influencers on educational participation in at least one of the study samples. For example, the Silverlearning Study results indicate a correlation between formal education obtained in younger age and educational participation in old age, with individuals with advanced degrees participating more often in older adult education than those with lower educational attainment (Sec. 5.5.2). This finding is consistent with other research (see Barz/Tippelt 2003, pp.333ff.; Theisen et al. 2009, p.56). Furthermore, the Silverlearning Study suggests that the course taking behavior differs between the genders and that men show a higher participation than women. Greater family commitments of women (Sec. 5.5.5) as well as higher levels of widowhood among female compared to male participants (Sec. 5.5.5 shows that married or re-married individuals participated more frequently than widowed elderly) potentially influenced this result. Also, keeping the aforementioned correlation between formal and non-formal education in mind, the slightly lower educational attainment of female respondents (Sec. 5.5.2) might serve as an explanation.

Not only younger elderly, but also oldest-old study partakers were very devoted lifelong learners who frequently participated in education and also had plans to continue their educational endeavors in the future. Nevertheless, the study indicates that the course taking behaviors of older learners change with increasing age (Sec. 5.6.1). While the frequency of taking courses increased after the age of 65, it eventually stagnated (U.S.) or even declined (Germany) closer to the eighth life decade. These results lead to the conclusion that, once again, a simultaneous usage of the terms oldest-old and fourth age, defined as the stage of decline and withdrawal, is not justified. As the study shows, 81+-year-olds can still be very active course takers. However, the beginning of the oldest-old age seems to be a turning point for educational participation. While the oldest-old study partakers still appeared to be in their third age, they reduced their activity level due to reasons that cannot be assessed with the Silverlearning Study.

Interestingly, the logistic regression analysis found that those respondents aged 81+ in the U.S. who rated their health status lower and also felt that their health had a stronger impact on

making long-term commitments tended to take more courses than oldest-old participants with better health. Although the statistics are small, this result is especially important for the discussion of older adult education. It suggests that even if the personal health declines, a need for continued educational opportunities is still given. The finding also emphasizes that declining health does not necessarily create a barrier to education in old age, but can create a motivation to participate as a strategy to counteract health decline through, e.g., social interactions and brain stimulation. However, in general, no correlation between the participant's self-rated health and the number of courses taken over the last 12 months is found in both countries for the overall samples aged 65+.

The previous chapter did not only investigate how often older and oldest-old adults participate in education, but also where and what they learn. In this regard, the study shows that higher education (affiliated) institutions were the most important educational provider for older adults in the U.S. and Germany due to their variety of age-homogeneous and age-heterogeneous program offerings (Sec. 4.4). Respondents especially preferred to take personal enrichment courses, such as (family) history or politics, while professional development and occupational-related subjects were no longer of interest to the primarily retired older adults. Various empirical research indicated that exercise or health-related courses are preferred subjects among older adult learners (e.g., Sommer et al. 2004, p.61; Kolland 2005, p.70). The Silverlearning Study comes to a similar conclusion. Since no correlation between the subjective health rating and the course subject selection exist, these may have been taken as a strategy to maintain a positive health status as opposed to being a reaction to declining health. In general, the study results do not provide an indication for course subjects that can be identified as specific to old age.

Like the participation frequency, also the institutional and course subject choices of older adult learners are influenced by different factors and are very complex. These findings emphasize again the discussed heterogeneity of old age and that a one-size-fits-all approach in older adult education is not adequate.

5.7 Motivations for Participation in Education in Older and Oldest-old Age

This section investigates the respondents' motivation to participate in non-formal and formal education, including if the learners' motivation is subject to change during the life phase of old age. In addition, the section tries to answer the question if correlations between educational motivation and participation in educational activities exist and if historical events had a negative or positive impact on formal education and the motivation to pursue education in later life.

5.7.1 Reasons for Participation

Almost all of the respondents in the U.S. (98%) and Germany (95%) did not participate in education within the last 12 months to obtain a degree, certificate, or license. However, 17 respondents in the U.S. and 35 in Germany took courses with such motivation in mind and provided further information on the type of education. While most of them participated in some type of certification, certificate of completion, or license (renewal) course, five of these respondents in the U.S. six in Germany pursued a formal degree. All of these respondents were in the age group 65 to 80.

The result of this question is consistent with the discussion in Section 4.1.2., which highlighted that older adult education is primarily of non-formal nature (see Manheimer 2007, p.407) and that most lifelong learners aged 65+ engage in non-formal educational activities (see Lamdin/Fugate 1997, p.80). Low interest of older adults in professional development courses was also expressed in the discussed course subject question (Sec. 5.6.3). Nevertheless, an increase in the percentage of older adults who continue to participate in professional development courses or who return to college to obtain a formal degree can be expected in the future due to the discussed growing need for the elderly to continue working past the current retirement age and a growing interest in late-life careers (Secs. 2.6, 3.4.4).

The study respondents in both countries participated in education for many reasons. However, they were mainly motivated by "intrinsic" (Ryan/Deci 2000, pp.52ff.) reasons, such as for the joy of learning, a general interest in a subject, and a desire to experience personal enrichment through learning. "Extrinsic" (Ryan/Deci 2000, pp.52ff.) motivators, including job or volunteering-related reasons, were less important factors.

Table 5.13: **Reasons for participation in education, U.S. and Germany.**

Reason	Country	All 65+	65-80	81+	Female	Male
Interest in the subject(s)	U.S.	94.4	96.0	88.4	94.7	96.2
	Germany	81.3	82.5	65.9	79.4	82.9
For the joy of learning	U.S.	93.6	94.6	89.1	93.8	91.8
	Germany	54.8	57.0	24.4	57.1	51.6
Learning something new	U.S.	87.9	90.4	77.5	90.2	83.7
	Germany	28.8	28.6	31.7	26.8	32.1
Personal enrichment	U.S.	78.7	81.4	67.4	81.8	73.6
	Germany	91.2	91.9	80.5	91.3	90.5
Brain/memory stimulation	U.S.	62.9	65.2	53.5	65.1	60.0
	Germany	48.9	48.9	48.8	50.5	47.2
Meeting new people	U.S.	53.4	54.1	50.4	61.6	36.5
	Germany	32.7	33.3	24.4	41.1	22.2
Make up for something I did not learn when I was younger	U.S.	29.8	30.4	27.1	31.3	26.0
	Germany	35.7	36.5	24.4	37.6	32.9
Health improvement	U.S.	18.2	19.7	11.6	21.6	12.0
	Germany	11.6	11.2	17.1	13.6	9.1
For travel (e.g., languages)	U.S.	9.5	10.7	4.7	10.7	7.2
	Germany	20.8	21.4	12.2	25.8	17.0
Improving/learning skills for my volunteer work	U.S.	6.8	7.4	4.7	7.8	5.3
	Germany	10.3	10.7	4.9	9.1	10.3
For no good reasons	U.S.	3.6	3.7	3.1	4.0	2.9
	Germany	1.0	1.0	0.0	1.0	0.8
Preparing for a new volunteer work	U.S.	3.1	3.3	2.3	3.6	2.4
	Germany	2.0	1.8	4.9	2.8	0.4
Improving/learning skills for my job	U.S.	2.7	2.8	2.3	2.7	2.9
	Germany	2.3	2.5	0.0	2.8	2.0
Preparing for a new career	U.S.	1.2	1.5	0.0	1.1	1.4
	Germany	0.8	0.9	0.0	0.7	0.8
Total (N)	**U.S.**	**672**	**543**	**129**	**450**	**208**
	Germany	**611**	**570**	**41**	**287**	**252**

(in %, age 65+, >0 courses, lectures, etc. taken during the last 12 months, "other" responses (U.S.: n=33, Germany: n=25) excluded, "decline to state" gender in gender column excluded, multiple answers possible)

Looking at the results in greater detail (Tab. 5.13), interesting differences and similarities between both countries are apparent. The main motivators for almost all of the U.S. participants were an interest in the subject and the pure joy of learning. Other important reasons for the U.S. elderly were to learn something new and to experience personal enrichment. Although the joy of learning was also an important participation reason for the older learners in Germany, this aspect was of much lower importance for this sample. The primary motivators for the German elderly were personal enrichment reasons and an interest in the subject. Only 29 percent of the

participants in Germany were motivated to learn something new. In comparison, the percentage was about three times as high in the U.S. (88%).

Other important reasons for the learners in both samples were to stimulate their brain or memory and to meet new people. However, these motivators were less often mentioned by the participants in Germany. In contrast, more German than American elderly participated in education for travel reasons and to make up for something they did not learn when they were younger. The latter point is further discussed in Section 5.7.2. Although many study participants were active as volunteers (Sec. 5.5.3), volunteering-related reasons were among the least mentioned motivators for the elderly in both samples. For example, only 7 percent of the study partakers in the U.S. and 10 percent in Germany had the goal to improve or learn skills for a volunteer job. Also, occupation-related aspects were not of high relevance to the study groups, which is in line with the fact that the majority of the study participants in both countries were already retired (Sec. 5.5.3). This result is also consistent with the participant's low interest in work-related course topics (Sec. 5.6.3). Nevertheless, eight respondents in the U.S. and five in Germany (all of them were in the age group 65-80) took courses with the motivation to prepare for a new career. This result highlighted that although these elderly made up a small percentage, starting a new career after the age of 65 is possible. The importance of such "encore careers" (Freedman 2008) as a strategy to counterbalance the increasing shortage of younger people in the labor force and to maintain retirement systems in the future was already discussed in Sections 2.6 and 3.4.4.

Overall, the study respondents had a good understanding of why they participate in education, which becomes evident in the finding that only four percent of the U.S. and only one percent of the German participants attended courses without a specific reason. As discussed in Section 4.3.2, also other empirical research showed that curiosity in the subject, enjoyment, intellectual and cognitive stimulation as well as socializing reasons are important reasons for older adults to engage in education (see Boshier/Riddell 1978, pp.167ff.; Furst/Steele 1986, pp.167ff.; Bynum/Seaman 1992, pp.16f.; Puccio 1995, p.263; Withnall 2010, p.64). However, the Silverlearning Study results generally indicate that the motivations of older adults to participate in education were very diverse and that the respondents attended courses for many different reasons. This aspect was also highlighted by Ryan and Deci (2000, pp.52ff.), who emphasized that the type of motivation to attend education varies between individuals (Sec. 4.3.2).

Although the discussed motivators remain the most important motivational factors when correlated with the participant's age, a lower importance is visible in almost all motivational

areas in the age group 81+ in both samples (Tab. 5.13). Such a result is especially pronounced in Germany. For example, while about half of the 65 to 80-year-olds in Germany attended courses for the joy of learning, the percentage more than halved in the age group 81+ ($p<0.01$). Interest in the subject also lost significant ($p<0.05$) importance. In contrast, health-related aspects gained relevance so that a higher percentage of oldest-old than younger respondents in the German sample felt motivated to attend education as a possibility to improve health[88]. The motivator brain and memory stimulation remained with about 50 percent for both age groups stable. In the U.S., a significantly lower percentage of 81+-year-olds than elderly aged 65 to participated because of health improvement ($p<0.01$) and brain or memory stimulation ($p<0.05$). In general, oldest-old adults in both samples were motivated by on average fewer reasons than the age group 65 to 80. While the 65 to 80-year-olds in the U.S. felt motivated by on average 5.4 reasons, the 81+-year-olds indicated 4.7 motivators. A difference between 4.2 (65-80) to 3.2 (81+) motivators is visible in Germany.

Although female and male respondents took courses for similar reasons (Tab. 5.13), the social aspect of meeting new people was in both the U.S. and Germany significantly (both $p<0.01$) more important for female than for male participants. Since women were more often affected by widowhood (Sec. 5.5.5), an important social function can be attributed to older adult education. This aspect has already been pointed out in Section 5.6.1. In addition, significantly more women than men in the U.S. felt motivated to take courses because of personal enrichment (women: 79%, men: 69%, $p<0.01$), to learn something new (women: 87%, men: 78%, $p<0.01$), and to improve their health (women: 21%, men: 11%, $p<0.01$). In Germany, a significantly higher percentage of female than male respondents in Germany was motivated by travel-related reasons (women: 25%, men: 16%, $p<0.01$).

Classification of learners by motivation

As mentioned before, the motivation to participate in education varies between individuals. However, the following discussion investigates if similarities between individuals who chose a specific motivator exist. For this purpose, the analysis identified answer behaviors for a specific motivation that deviated from the overall answer behavior in a significant way. Only significant aspects ($p<0.01$) of a subgroup in comparison to the overall sample are being discussed.

[88] The statistics of the oldest-old sample were too small to make a statement about the significance.

Motivator: Health improvement

- Germany: Learners who wanted to improve their health by taking courses, reported much more often chronic diseases as current challenges. They preferred to take courses at health providers and liked to take courses in the areas of health and nutrition, nature and environment, and fitness. This sample selected educational institutions based on course length and location (Sec. 5.8.3).
- U.S.: This predominantly female subsample preferred learning through experiential techniques and traveling, and liked to attend social events at the educational institution (Sec. 5.8.3). These learners volunteered more often in the health sector for which they wanted to learn the corresponding skills through participation in health, medicine, and nutrition courses. Greater interest and motivation to maintain good health through education and volunteering may have also been influenced by the finding that these elderly saw their children and grandchildren more often every week, and thus on a frequent basis. This subgroup also felt motivated to participate in education to stimulate their brain or memory, for travel, and to make up for something they did not learn when they were younger.

Motivator: Meeting new people

- Germany*:* The group of respondents who indicated to be motivated by meeting new people, preferred to learn in small groups through discussions and in an experiential manner (Sec. 5.8.1). This sample was especially female-dominated and typically without a partner and living parents. Other strongly pronounced motivations to participate in education are for the joy of learning and preparation for travel. These respondents mainly participated in cultural institutions, such as museums or theaters.
- U.S.: This sample preferred learning through traveling and through providers who offered courses for older adults exclusively. Members of this subgroup especially preferred to have the opportunity for social gatherings at the educational institution (Sec. 5.8.3). Like in Germany, this group consisted of more women than men who lived without a partner.

Motivator: Learning something (completely) new

- Germany: Learners in this sample liked to learn through literature and online research. In general, these elderly can be described as very technology savvy because they used the Internet for communication or research frequently. In line with this result, they chose educational institutions because of their reputation and availability of modern technologies (Sec. 5.8.3). This group had very few grandchildren. They also felt motivated to learn for

the joy of it and participated more often than the overall sample in language, communication, and multicultural courses.

- U.S.: In contrast, the U.S. sample did not expose any specific characteristics in comparison to the overall sample.

Motivator: Improving/learning skills for volunteer work

- Germany: This subgroup preferred learning in small and age-heterogenous groups as well as through experiential techniques (Secs. 5.8.1, 5.8.2). The learners were active as volunteers in the social field, such as in churches and other social organizations. Having the opportunity to socialize in courses was also very important for them because they preferred the opportunity for social get-togethers at their educational providers. Friends and neighbors were many times met on a daily basis. This subgroup participated in education at churches and cultural institutions and especially preferred health, international events or travel, and computer course topics. Individuals in this subgroup were frequent laptop users.
- U.S.: Although the preference for age-heterogenous educational courses was less pronounced than in the German sample, such a preference is also visible in this subgroup. They also preferred learning through experiential techniques and literature research (Sec. 5.8.1). Although these elderly often did not have a partner, they met friends and neighbors frequently. They took courses at churches or other spiritual institutions and chose subject areas, such as religion and computer skills. Another pronounced educational motivator for this subgroup was health improvement.

Motivator: For the joy of it

- Germany: These older adults liked to learn in age-heterogenous groups (Sec. 5.8.2) and enjoyed meeting new people through participation in education. Another key motivation for this subgroup was to learn something completely new.
- U.S.: In contrast, the U.S. sample did not expose any specific characteristics in comparison to the overall sample.

Motivator: Travel

- Germany: This subgroup preferred to learn in small groups as well as through homework. As expected, they also liked to learn through traveling (Sec. 5.8.1). For these respondents, making new friends was also an important motivator to participate in education. Preferred course topics of this subgroup were international events or travel, languages, and sports. However, they less attended scientific or political course subjects. Adult schools and

churches were often chosen as educational providers. Although they took courses at spiritual organizations, these individuals volunteered less often at churches or political organizations than the overall sample, and tentatively lived in smaller cities.

- U.S.: In contrast, the U.S. sample did not expose any specific characteristics in comparison to the overall sample.

Motivator: Make up for something I did not learn when I was younger

- Germany*:* Respondents who took courses with the motivation to make up for something they did not learn when they in younger age, were slightly older and primarily of female gender. These elderly had a robust social network and met their children and neighbors regularly. This group had a lower level of formal educational attainment and experienced more often a negative impact of historical events on their formal education opportunities (Sec. 5.7.2). However, this did not find expression in the institutional choice as they especially liked to take courses at higher education institutions.
- U.S.: This group tentatively took more courses over the last 12 months and preferred classes on international events, travel, and literature.

A deeper discussion of some of the educational preferences mentioned in this section occurs in the following sections.

5.7.2 Impact of Historical Events on Educational Behavior

As discussed in Section 4.3.1., "external barriers" (see Johnstone/Rivera 1965, pp.214ff.) such as historical events can serve as an important barrier to education. Study participants in both countries were asked if they felt that historical events, such as wars or displacement, impacted their formal education opportunities in, e.g., K-12 or higher education, negatively. The majority of respondents in both the U.S. (88%) and Germany (70%) thought that historical events did not harm their formal education opportunities. However, 12 percent of the elderly in the U.S. and about three times as many respondents in Germany (30%) experienced a negative impact ($p<0.01$). Especially the age group 81+ was affected in this regard. While 28 percent of the German respondents aged 65 to 80 expressed a feeling that their formal educational opportunities were negatively affected by historical events, the percentage was more than twice as high in the oldest-old age group (62%, $p<0.01$). A significant ($p<0.01$) age difference is also visible in the U.S., where 10 percent of the adults aged 65 to 80 and 19 percent of the 81+-year-olds in the U.S. experienced a negative impact.

A higher percentage of females (33%) than males (25%) in the German sample felt a negative impact of historical events on their formal education opportunities ($p<0.01$). The opposite was the case in the U.S., where about twice as many men (19%) than women (9%) indicated a negative impact ($p<0.01$).

A total of 177 respondents in Germany and 81 in the U.S. provided written answers to the question of which historical event(s) impacted their formal education opportunities negatively and how this found expression. In Germany, the given responses were thematically consistent and mostly variations of the following historical event(s): World War II and its aftermath (which resulted in, e.g., limited educational opportunities/unfulfilled opportunities to attend higher education or pursue vocational training due to, e.g., poverty, death of family members, military service/draft, displacement) as well the German Democratic Republic (GDR; which resulted in, e.g., limited educational opportunities due to an escape from the GDR, financial issues of the families). Also, inequalities in the educational chances between the genders due to, e.g., parents' believes that women should not pursue higher education or vocational training, were frequently mentioned. In the U.S., most answers pertained to educational disturbances caused by wars, such as World War II, the Korean War, and the Vietnam War. Negative impacts through, e.g., poverty, military service/draft, teacher absences, canceled classes through war protests, were mentioned.

The results of this question are consistent with the discussed study results from Withnall (2010, pp.43f.), which found that World War II and its aftermath served as a barrier to both formal and non-formal education for some of the study participants. However, Withnall's study also suggested that historical events had a positive impact in this regard for some of the elderly (Sec. 4.3.1). A similar result is visible in the Silverlearning Study, which also examined if study participants felt that historical events impacted their formal education opportunities positively. While the previous discussion indicates that more German than U.S. respondents experienced a negative impact, the opposite result gets obvious in this question. About three times as many respondents in the U.S. (30%) than in Germany (12%) felt positively affected in their formal education opportunities ($p<0.01$). Especially oldest-old (65-80: 26%, 81+: 44%, $p<0.01$) and male respondents (men: 42%, women: 23%, $p<0.01$) in the U.S. felt a positive impact. No significant age or gender differences are found in the German sample.

A total of 85 respondents in Germany and about three times as many study partakers ($n=231$) in the U.S. elaborated on the question of which historical event(s) impacted their formal education opportunities positively and how this found expression. In Germany, the given responses are primarily variations of the following historical event(s): post World War II era

and the educational expansion (e.g., opportunity to pursue secondary education in adulthood), GDR (e.g., policies for families and women, which provided financial support for low-income single mothers and equal job opportunities between the genders; high level of education in schools, higher education, and vocational training), and Germany's reunification in 1989/1990 (e.g., new learning opportunities through travels outside of Eastern Germany). In addition, the opening of the universities to older adult learners as well as the general exemption of tuition fees and the *Lehrmittelfreiheit*[89] in formal education in Germany were frequently mentioned. In the U.S., most answers pertained to the establishment of the Servicemen's Readjustment Act of 1944/G.I. Bill of Rights (e.g., provided financial support for education), military service/draft to war regions (e.g., broadened horizons, taught certain skills and discipline, provided travel opportunities, career decisions based on war or military experiences), the civil rights movement of 1954 to 1968 (e.g., provided new educational opportunities for African Americans), the feminist movement in the 1960s (e.g., increased educational opportunities for women) as well as milestones in science and space exploration, which, e.g., nurtured an interest in sciences.

The group of participants who indicated that historical events either negatively or positively impacted their formal education opportunities is an interesting subgroup for understanding the motivation to participate in education. Although the general motivators to participate in education are similar between respondents who felt a negative effect and the overall German sample, participants who experienced a negative impact felt significantly ($p<0.01$) more often motivated to make up for something that they did not learn when they were younger (47%) than those who did not experience a negative impact on their formal education opportunities (34%). However, this additional motivation did not lead to taking more courses during the past 12 months. The characteristics of these elderly were already discussed in the previous classification of learners by motivation type (Sec. 5.7.1). Although the participants who made up for something more often indicated that they experienced a negative impact than the overall sample, they also significantly ($p<0.01$) more often experienced a positive impact of historical events on formal education opportunities (23% vs. 11%). A similar result is also visible in the U.S., where participants who experienced a negative impact more often took courses to make up for something when they were younger than the group of respondents who did not report a negative effect (38% vs. 27%). Although the effect is also significant ($p<0.01$) here, the difference between those two groups is less pronounced in the U.S. than in Germany. Like in the German

[89] The *Lehrmittelfreihei*t (1848) regulated that educational materials and books should be made affordable for every student in Germany.

sample, U.S. respondents who wanted to make up for something and experienced a negative impact, also took on average a high number of courses, but not significantly higher in comparison to some other motivational factors. While the elderly who thought that their formal education was negatively impacted by historical events and wanted to make up for something in the German sample primarily consisted of women, the opposite result is visible in the U.S., where the group of participants who wanted to make up for something consisted of significantly ($p<0.01$) fewer women than the overall sample (55% vs. 67%). No significant age difference is found. A drastic difference to the German results is visible concerning the experienced positive impacts of historical events. While 14 percent of the respondents who took classes to make up for something in Germany indicated that historical events positively influenced their formal education opportunities, the percentage was more than two times as high in the U.S. sample (34%). As discussed, U.S. study respondents generally reported much more often than the German elderly a positive impact by historical events.

An interpretation of these results is not straightforward because the experience of a historical event is a very subjective matter. However, the previous discussion suggests that tentatively more women of the older subsample in Germany took classes to make up for something. Women were often not given the same formal educational opportunities as men due to, e.g., unequal access opportunities to higher education after World War II or traditional expectations that girls should focus on the household instead of pursuing education or a career, which may have influenced this motivation. Such a disadvantage was also expressed in the written comments to the question of which historical events negatively impacted their formal education opportunities. This result appears consistent with the overall lower formal educational background of women than men in Germany (Sec. 5.5.2). A similar argument can be made for U.S. men who served during the Korea and Vietnam wars, which potentially acted as educational barriers in younger age. It is also interesting to note that the study partakers who took courses to make up for something because of negative or positive historical impacts on their formal education opportunities do not show other specific differences in their educational behavior.

5.7.3 Conclusion

The previous section highlights that the majority of the study participants engaged in non-formal education. While “extrinsic” (Ryan/Deci 2000, pp.52ff.) work-related motivators were no longer of relevance for this group, “intrinsic” (Ryan/Deci 2000, pp.52ff.) reasons, such as learning for the sake of pure enjoyment, curiosity, socializing, or cognitive stimulation, were

important reasons to take courses. These motivational aspects are probably one of the strongest differentiators between learning in older and younger adulthood because participation in general adult education is primarily driven by work-related motivators (see Kim et al. 2004, p.44). Another difference is that with increasing age, participation in education gains importance as a strategy to either maintain or improve the personal cognitive and physical health. Especially oldest-old adults and individuals who expressed health issues had a higher tendency in the Silverlearning Study to take courses with this motivation in mind. Also, differences in the motivation to participate in education are obvious between the younger and oldest-old age groups, such as a lower desire to participate for travel preparation purposes. However, the primary motivators remain the same in the age group 81+. These findings do not only answer the guiding question what generally motivates older adults to participate in education, they also provide an answer to the question if the motivation changes during the life phase of old age and if older adults participate for reasons that are specific to old age (Sec. 5.1).

An additional guiding question asked if the educational background as well as the personal living and health situation influence educational motivation. In this regard, the discussion of the individual motivation type is consistent with other evaluated survey areas (e.g., biographical experiences, subjective health status, social inclusion, learning preferences). For instance, older adult education can be a strategy not only to stay socially and cognitively active but also as a gateway to knowledge that was not accessible in earlier life due to formal education barriers. Participants who took courses intending to make up for something they did not learn when they were younger, more often experienced negative impacts of historical events on their formal education opportunities. Although the majority of Silverlearning Study participants did not feel a negative effect of historical events on their formal educational opportunities, the percentage was significantly higher in Germany than in the U.S. Also, more oldest-old than younger elderly experienced a negative impact.

Another guiding question asked if the type of motivation to participate in education in old age has an influence on educational behaviors, such as the number of courses taken. In general, the classification of learners by motivation type suggests that older and oldest-old adults participate in education for many reasons and that the different motivators produce very different types of learners, who do not only show different characteristics, but also different educational participation patterns. This finding can be of importance for program planners and marketing specialists in older adult education.

5.8 Educational Preferences of Older and Oldest-old Adults

In addition to current and recent educational activities, the Silverlearning Study also explored the learning preferences of older and oldest-old adult learners in the U.S. and Germany. The following discussion addresses learning partner and learning method preferences as well as other factors that are important for mature adults aged 65+ when choosing an educational provider.

5.8.1 Preferred Learning Methods

Consistent with findings from other empirical research (see Lamdin/Fugate 1997, p.77), the study participants liked to learn in intimate traditional classroom settings, which provide room for discussion with other classmates. The majority of study participants in both countries preferred to learn through presentations or demonstrations that are provided by an expert instructor, discussions with other classmates, and in small group settings (Fig. 5.18). In contrast, learning with family and friends as well as through online courses and webinars were the least favored modes of learning for the study partakers in both the U.S. and Germany. The preference for classroom over online instruction has been potentially influenced by the mode of learning the older generation is most accustomed to. With the increasing importance of online learning in both formal and non-formal education (see Lederman 2018), a growing preference for online learning for the next older generations can be expected.

Although the learning preferences show overall similarities in both countries, some significant differences between the U.S. and German samples are visible (Fig. 5.18). For example, a larger percentage of elderly in the U.S. than in Germany indicated a preference for discussions ($p<0.01$) and learning in small groups ($p<0.01$) as well as for experiential learning ($p<0.01$), learning through traveling ($p<0.01$), and learning on their own ($p<0.01$). In addition, about twice as many American than German elderly liked to learn with family and friends ($p<0.01$) and through online courses or webinars ($p<0.01$). However, these two latter learning methods were least preferred in both samples. In contrast, book or literature research ($p<0.01$) and online research ($p<0.01$) were significantly more popular in Germany.

For the most part, no significant differences in the preferred learning method of older and oldest-old adult learners are visible. However, a lower percentage of respondents aged 81+ than 65 to 80-year-olds in both countries preferred to learn through demonstrations or presentations by an expert. While 79 percent of the respondents aged 65 to 80 in the U.S. chose this answer

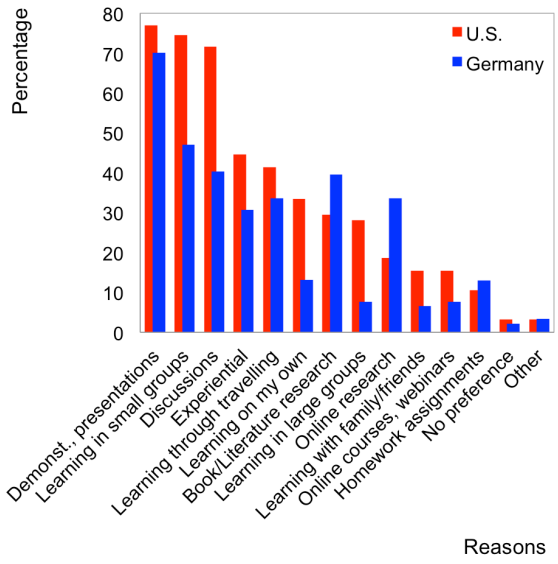

Figure 5.18: **Preferred learning methods, U.S. and Germany.**
(*Basis: n=807 (U.S.), n=672 (Germany), age 65+, >0 courses taken during the last 12 months, multiple responses possible)*

option, 68 percent of the 81+-year-olds indicated a preference for learning through presentations or demonstrations ($p<0.01$). In Germany, the percentage difference in this area is even more pronounced, where significantly ($p<0.01$) fewer respondents aged 81+ (44%) than 65 to 80-year-olds (72%) liked to learn through expert presentations. In addition, fewer oldest-old than younger elderly in the U.S. preferred experiential learning (65-80: 48%, 81+ 30%, $p<0.01$) and learning through online courses or webinars (65-80: 17%, 81+: 8%, $p<0.01$). Such results are not found in Germany.

The preferred learning methods also differ between the genders (Figs. 5.19, 5.20). While women liked to learn in an intimate, social, and experiential manner, men tended to prefer to learn in a traditional classroom with an expert instructor as well as more independently online. A significantly higher percentage of women than men in both the U.S. and Germany liked to learn through discussions ($p<0.01$), in small groups ($p<0.01$), with family and friends ($p<0.01$), through traveling ($p<0.01$) as well as through experiential learning ($p<0.01$). Also book or literature research ($p<0.01$) and homework assignments ($p<0.01$) were more often preferred by women than men in both samples. In contrast, significantly more men than women in both study

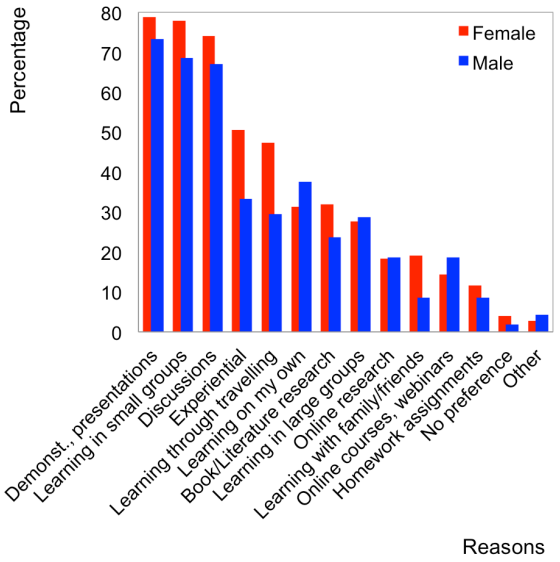

Figure 5.19: **Preferred learning methods by gender, U.S.**
(*Basis: n=533 (women), n=258 (men), age 65+, >0 courses taken during the last 12 months, multiple responses possible)*

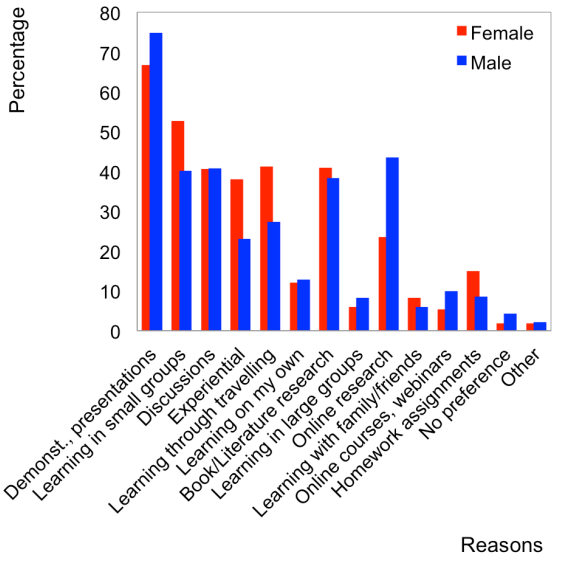

Figure 5.20: **Preferred learning methods by gender, Germany.**
(*Basis: n=315 (women), n=282 (men), age 65+, >0 courses taken during the last 12 months, multiple responses possible)*

samples preferred to learn through online courses or webinars ($p<0.05$ in both samples). A greater preference of men than women to learn through demonstrations or presentations by experts ($p<0.01$) as well as through online research ($p<0.01$) is noticeable in Germany. In the U.S., more men than women liked to learn on their own ($p<0.05$). The larger online-learning preference of men than women is in line with the previously discussed finding that male participants in both countries more often used the Internet on a regular basis than female study partakers (Sec. 5.5.6). Therefore, a greater familiarity of men with online tools and a lower barrier towards online learning settings can be assumed.

Considering the discussed research finding that the formal educational attainment correlates with participation in education in (older) adult age (e.g., Barz/Tippelt 2003, pp.333ff.; Tippelt et al. 2009b), it was assumed that the formal educational attainment can also impact a preference for certain learning methods. Therefore, an analysis of how the previous formal educational attainment influences individual learning preferences was performed. For this purpose, the respondents in both countries were divided into subsamples with and without an academic degree. In the U.S., the top four preferences for both academics and non-academics are the same (expert demonstrations, learning in small groups, discussions, and experiential learning). However, differences between the two subsamples are obvious in the other question items. For

example, about half (48%) of the participants with a higher education degree liked to learn through traveling, while this was only for 29 percent of the U.S. non-academics the case ($p<0.01$). In Germany, both academics and non-academics preferred to learn through expert presentations, learning in small groups, and through discussions. Nevertheless, respondents with an academic degree had a significantly stronger preference for literature research (46% vs. 28%, $p<0.01$) and Internet research (37% vs. 27%, $p<0.01$) compared to the non-academic subsample. On the other hand, German study participants without a higher education degree preferred slightly more often experiential learning techniques (37% vs. 28%, $p<0.01$).

As the discussion shows, the preferred learning methods differ between the two countries in some aspects, such as age, gender, and academics vs. non-academics. The reasons for this difference can be complex and also influenced by other factors, such as the institutional choice or the primary mode of instruction of an educational provider. In this regard, the study data show that the preferred learning method correlates with the type of institution attended for the German sample. More than 80 percent of the respondents who attended courses at libraries or higher education institutions liked to learn through expert demonstrations or presentations. This is in strong contrast to the elderly who participated at *Volkshochschulen*[90] (60%) or churches (51%) who significantly ($p<0.01$) less often preferred these learning methods. Consistent with the type of learning that is common at these institutions, respondents who attended computer clubs liked to learn in small groups (73%), which was about twice as high as for the university sample (39%, $p<0.01$). Learning through discussions with others or the instructors was the preferred learning method of study partakers who participated in political institutions (71%), but not for participants in computer clubs (31%, $p<0.01$) or universities (44%, $p<0.01$). Homework was generally not a very popular learning method of the study participants. However, it was most preferred by the *Volkshochschul*[90] attendees (23%) and the least by those who took courses at health providers (8%). Also, only 10 percent of the university participants preferred learning through homework assignments. Experiential learning was most popular among the elderly who took courses at health providers (64%) and the least popular by those who attended university courses (28%). Learning together with family members was especially preferred by those individuals who took courses at community or senior centers (17%). Only four percent of the university participants preferred this learning method. Learning by themselves was especially appreciated by those who took courses at political institutions (29%). These respondents also had the strongest preference for online research (43%). In contrast, this

[90] Engl. (SvD): Folk high schools (Community adult education centers)

learning method was the least preferred by *Volkshochschul*[91] participants (23%). Not surprisingly, course takers at libraries especially liked to learn through books (59%). Learning through traveling was mostly preferred by respondents who took courses at health care providers (58%) and the least by computer club participants (22%).

Also in the U.S. sample, the preferred learning methods correlates with the institution of attendance, with some of them being similar to Germany. Learning through expert demonstrations or presentations was favored by 100 percent of the elderly who took courses at OASIS and the SCA, but significantly ($p<0.05$) less by the computer club participants (50%). A total of 83 percent of the individuals who attended courses at private providers preferred learning in small groups, but only 60 percent of those who took courses at OASIS ($p<0.05$). A total of 82 percent of the church participants liked to learn through discussions. Only half that many participants at OASIS ($p<0.01$) and 69 percent of the university participants ($p<0.01$) favored this learning method. Health care provider attendees mostly preferred experiential learning (80%), while university (44%) and adult school (43%) participants liked this learning method significantly ($p<0.01$) less often. Sixty-four percent of the attendees at unions and political organizations as well as 60 percent of computer club participants preferred learning on their own. This was only for 34 percent of LLI and 33 percent of museum/theater course partakers the case ($p<0.01$). Learning through books enjoyed 42 percent of the respondents who took courses at churches, but only 20 percent of the computer club participants ($p=0.05$). Another strong difference is also apparent for learning through traveling, which was favored by 76 percent of the health provider participants, but significantly less ($p<0.01$) by the private provider (34%) and adult school attendees (37%). In general, the elderly did not like to learn through homework assignments. However, the strongest preference in this regard had the church participants (18%). Another learning method that was not favored by the study partakers was learning with family. Nevertheless, this method was liked the most by individuals who took courses at health care providers (40%). In contrast, only 13 percent of Road Scholar and university attendees chose this answer item ($p<0.01$). Online research was generally not strongly favored by participants of any institution (less than about 20%).

5.8.2 Preferred Learning Partner

The study results clearly show that respondents aged 65+ in both countries preferred age-heterogeneous over age-homogenous learning settings. While 46 percent of the German and 38

[91] Engl. (SvD): Folk high schools (Community adult education centers)

percent of the U.S. elderly preferred to learn in mixed-age groups, only one percent in the U.S. and two percent in Germany liked to learn with younger students only ($p<0.01$). A total of 28 percent of the U.S. and 20 percent of the German participants indicated a preference to learn with peers only ($p<0.01$). One-third of the respondents in both countries (U.S.: 33%, Germany: 32%) had no preference. While no gender differences in the learning partner preferences are visible in the U.S., significantly ($p<0.01$) more women (50%) than men (40%) in the German study sample expressed a desire for intergenerational learning settings. A slightly higher percentage of oldest-old (34%) than respondents aged 65 to 80 (27%) in the U.S. sample expressed a preference for peer groups ($p=0.06$). No significant differences in the choice of the preferred learning partner are visible in Germany between the age groups. Consistent with the finding that fewer oldest-old adults in Germany held an academic degree (Sec. 5.5.2), the non-academic subsample (25%) in Germany expressed a greater desire to learn with peers than the group of academics (16%, $p<0.01$). In contrast, respondents with no higher education background more often had no specific preference for the age of their learning partners (36% vs. 26%, $p<0.01$). No difference in the learning partner preferences between academics and non-academics is visible in the U.S.

The results of this question are consistent with other research, which suggested that older adults typically prefer to learn in intergenerational learning settings (see Infas 2001, p.102; Tippelt et al. 2009a, pp.44f.), but that a desire for age-heterogenous learning settings is more pronounced among younger-old than oldest-old learners (see Köster 2008, p.45). However, the latter result is only visible in the U.S. sample of the Silverlearning Study. As discussed in Section 4.3.3., the EdAge Study found a general preference of older adults for age-homogenous over age-heterogenous learning settings in subjects with strong perceived performance differences (see Tippelt et al. 2009a, pp.44f.). However, no correlation between the subjects taken and the learning partner preference is apparent in the Silverlearning Study in both the younger and oldest-old age group.

5.8.3 Institutional Preferences

The most important factors when choosing an educational provider were for the Silverlearning Study participants in both samples a variety of offered courses and lectures, followed by proximity and location of the institution, and cost (Fig. 5.21). Other important factors were course length, close-by parking, reputation of faculty or the institution itself, and duration of each class. In contrast, the availability of accessibility options, such as a shuttle service or assisted listening devices as well as places to socialize within the institution, were of

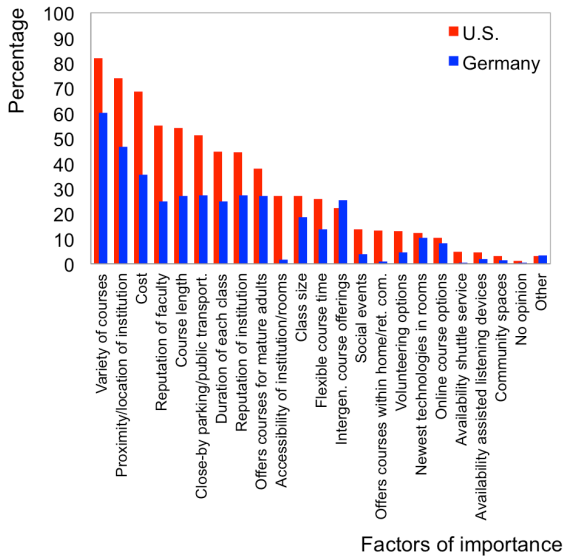

Figure 5.21: **Institutional preferences, U.S. and Germany.**
(*Basis: n=807 (U.S.), n=670 (Germany), age 65+, >0 courses taken during the last 12 months; multiple responses possible)*

lowest importance. Although the most and least mentioned factors in both samples were similar, the actual percentages differ between both countries with a generally higher percentage of U.S. and German responses in most answer categories. For example, about twice as many American than German elderly thought that cost ($p<0.01$), reputation of faculty ($p<0.01$), and flexible course times ($p<0.01$) are important decision factors. In addition, while three-fourths of the elderly in the U.S. sample felt that the proximity of the location is important, this aspect was relevant for less than half of the participants in Germany ($p<0.01$). Also, significantly more respondents in the U.S. than in Germany felt that course length ($p<0.01$), close-by parking or public transportation ($p<0.01$), the duration of each class or lecture ($p<0.01$) as well as class size ($p<0.01$) were important decision factors. About one-fourth of the U.S. elderly (27%) considered the accessibility of the institution and classrooms. Interestingly, only two percent of the German study partakers thought that this factor is of relevance ($p<0.01$). Social events were desired by 14 percent of the U.S. and 4 percent of the German respondents ($p<0.01$). Thirteen percent of the U.S. study participants wished for educational opportunities within their home or retirement community. This answer option was, with only one percent, one of the least important factors for the German study sample ($p<0.01$). Volunteering opportunities within the institution were important for 13 percent of the American and 5 percent of the German

respondents ($p<0.01$). About every tenth participant in the U.S. (12%) and Germany (10%) felt that newest technologies in classrooms are relevant. The opportunity to join classes online from home was with 10 percent in the U.S. and 8 percent in Germany relatively unimportant for both samples.

The self-rated health status partly correlates with a greater wish for accessibility-related aspects when choosing an educational provider. While this result is not visible in Germany, significantly more U.S. respondents who rated their health as (very) poor than the overall sample wished for close-by parking or public transportation (67% vs. 51%, $p<0.05$) and accessibility of the venue (43% vs. 27%, $p<0.05$).

Generally, the answer behavior of respondents aged 65 to 80 and 81+ to this question was relatively similar. However, financial reasons were a less important decision factor for oldest-old respondents in both countries. While 71 percent of the U.S. respondents aged 65 to 80 chose this answer item, 58 percent of the 81+-year-olds thought that cost is an important decision factor ($p<0.01$). In Germany, a percentage difference between 37 percent (65-80) and 21 percent (81+, $p<0.01$) is visible. This finding is in agreement with the already discussed results of the challenge question (Sec. 5.5.4), which shows that oldest-old adults were less often affected by financial challenges. Another factor that was fewer relevance for oldest-old than younger elderly in both the U.S. (65-80: 46%, 81+: 39%, $p<0.05$) and Germany (65-80: 26%, 81+: 13%, $p<0.01$) was the duration of each class session. Also, significantly ($p<0.01$) fewer oldest-olds (13%) than 65 to 80-year-olds (28%) in Germany thought that course length is an important factor when choosing a learning institution. Such a result is not found in the U.S. These results are surprising as the discussed decline in the subjective health rating with increasing age (Sec. 5.5.4) could suggest that oldest-old adults may find it more difficult committing to longer classes. However, another interpretation could be that the oldest-old age can be accompanied by more available time due to fewer obligations in regard to, e.g., work (Sec. 5.5.3) and caregiving responsibilities for grandchildren (Sec. 5.5.3). Nevertheless, some accessibility aspects gained importance for the 81+-year-olds. In the U.S., a higher percentage of oldest-old than younger elderly indicated that accessibility of the institution and classrooms (65-80: 24%, 81+: 41%, $p<0.01$) as well as the possibility to take courses within the immediate living environment (65-80: 12%, 81+: 20%, $p<0.05$) are important decision factors. Although it would be interesting to understand if the wish for accessibility services at educational institutions correlates with the subjective health status, the statistics of those respondents aged 81+ who indicated poor health in the U.S. are too small to analyze this aspect further. A similar result is not visible in Germany.

In addition, women and men show different institutional preferences. In both countries, close-by parking or public transportation was of significantly ($p<0.01$) greater importance for women (U.S.: 57%, Germany: 33%) than men (U.S.: 41%, Germany: 22%). In the U.S. sample, cost (women: 73%, men: 61%, $p<0.01$) as well as the availability of a shuttle service (women: 6%, men: 2%, $p<0.01$) were also more often chosen by female than male respondents. A higher percentage of women than men in the German study sample identified proximity/location of the institution (women: 55%, men: 37%, $p<0.01$), class size (women: 23%, men: 13%, $p<0.01$) as well as that the institution offers courses targeted at a mature adult audience (women: 32%, men: 23%, $p<0.01$) as important decision factor. For German men, reputation of both faculty (men: 27%, women: 20%, $p<0.05$) and the institution (men: 34%, women: 24%, $p<0.01$) was of slightly greater importance. In the U.S., more men (17%) than women (11%) preferred to have newest technologies in the classrooms ($p<0.05$). No other significant differences are visible between female and male respondents in both countries.

Non-academics and academics had very similar institutional preferences in both samples. However, significantly more individuals with a higher education degree in both the U.S. (57% vs. 44%, $p<0.01$) and Germany (29% vs. 18%, $p<0.01$) put emphasis on faculty reputation. In addition, reputation of the institution was of greater importance for academics than non-academics in Germany (34% vs. 17%, p.<0.01). In contrast, course length (23% vs. 31%, $p<0.01$) and courses specifically designed for a mature adult audience (24% vs. 31%, $p<0.01$) were of less importance for German participants with a university background. Similar results are not visible in the U.S. sample.

5.8.4 Conclusion

One of the guiding study questions asked about the educational preferences of older adult learners and if these change during the life phase of old age. The Silverlearning Study indicates that participants in both older and oldest-old age preferred to learn in small and age-heterogenous in-person group settings that are led by an expert instructor who allows time for discussions. A desire for learning in a regular classroom setting and within a community of like-minded people also finds expression in the result that online courses and webinars were among the least preferred learning methods of the study partakers. This finding is consistent with other research, which indicated that older adult learners prefer intimate learning settings that allow time for conversation (see Lamdin/Fugate 1997, p.77; Sec. 4.3.3). According to Siebert (2003, pp.22f.), the interaction with others is one crucial aspect of learning in adulthood because the exchange of experiences, that can differ from the personal ones, allows for the creation of new

knowledge (Sec. 4.1.4). Other research suggested that older adults typically do not prefer inter-generational learning settings in course subjects with strong perceived performance differences between the generations, such as computer courses (see Tippelt et al. 2009a, pp.44f.). However, no correlation between the subject choice and the learning partner preference is visible for any age group in the Silverlearning Study, which is potentially explained by the high level of tech-savviness and the good subjective health of the study participants so that less performance differences between the generations may be felt.

When choosing a learning institution, subject variety and affordability of courses were important decision criteria for the Study participants. In line with their overall independence in daily life (Sec. 5.5.4), the ability to reach the educational providers independently was also of relevance to them. Other accessibility aspects, such as shuttle services or the availability of assisted-listening devices in the classrooms, were not of great important. While the subjective health status did not correlate with a greater wish for most accessibility-related aspects, significantly more U.S. elderly who indicated a (very) poor health wished for accessibility of the venue (incl. close-by parking) and its classrooms than the overall sample. Therefore, as a response to another guiding question, the subjective health situation seems to influence educational preferences in old age only to some extent.

In general, both younger-old and oldest-old adults show similar educational preferences. However, consistent with other research (see Köster 2008, p.45), slightly more oldest-old than younger Silverlearning Study partakers in the U.S. sample preferred age-homogenous learning settings. The course subject choice did not correlate with this preference. In addition, selected accessibility aspects, such as accessible classrooms, gained importance with increasing age only in the U.S. sample. Hence, the study provides indications that older adult learners have educational preferences that appear specific to old age. However, this result has to be understood with hesitations. Since the self-rated health also correlates with a greater wish for accessible institutions, educational preferences are likely impacted by the individual living situation instead by the chronological age only. Younger adults with a similar health situation may have also found these aspects to be relevant. To fully answer this question, a comparative study of the educational preferences of younger adults and older adults can be suggested.

In contrast to the increasing importance of the aforementioned educational preferences with increasing age, financial reasons and course length-related aspects lost significance. Here, a good economic standing (Sec. 5.5.4) of the 81+-year-olds as well as more available time due to lower work (Sec. 5.5.3) and family obligations (Sec. 5.5.3) may have contributed to this decrease in relevance.

Educational preferences can differ between the genders. While women liked to learn in an intimate, social, and intergenerational manner, men expressed a preference for independent learning as well as for traditional classroom instruction led by an expert instructor. Also, women more often than men considered accessibility-related aspects when choosing a learning institution, whereas more men than women favored new technologies (U.S.) or a good reputation of the instructor or institution (Germany). These results appear consistent with the previous findings that female respondents were more socially active (Sec. 5.5.5) and that men were more tech-savvy (Sec. 5.5.6). The relationship status did not have an influence on the importance of accessibility and transportation-related aspects.

The Silverlearning Study indicates that the preferred learning method correlates with the type of attended institution, and thus the mode of learning the respondents are currently accustomed to. Also, an intentional choice for an educational provider that caters to the individual learning style can be assumed.

The individual educational background influences educational preferences only partly. While both academics and non-academics had very similar educational preferences, the previous discussion emphasizes that individuals with an academic degree more often made educational provider decisions based on the reputation of faculty and instructors. Academics also more often liked to learn through literature and online research, while putting more emphasis on the reputation of the institution and less often on the course length and the possibility to learn with peers in an experiential manner.

In general, the reasons for how and with whom individuals like to learn are complex. While some dependencies are visible in the Silverlearning Study, other factors, such as formal school experiences, socialization as well as historical differences in popular methods of learning could not be measured with the data.

5.9 Study Limitations and Suggestions for Further Research

As the previous sections discuss, the Silverlearning Study provides numerous insights into the participation patterns of older and oldest-old adult learners in education as well as their educational preferences and motivations. These insights contribute to a better understanding of the so far under-researched area of oldest-old adults in continuing education and could inform educational administrators and instructors working with older adults to make adequate learner-

centered programming and curriculum decisions. However, study limitations and suggestions for further research emerge from the discussion, which are highlighted in the following.

As discussed in Section 5.2.2, data collection took place between February and August 2015. The initial study plan was that questionnaires should be made available in Spring 2015 (February-June) because it was assumed that many educational providers are in session during this time. A decision to extend the data collection time by two months was made because of difficulties getting some U.S. institutions to participate due to IRB approval requirements. This decision eventually resulted in the fact that some institutions received the invitation during their summer break so that the questionnaire was shared with the participants when classes were not in session. This procedure influenced the question of current participation in education (Sec. 5.6.1) in the questionnaire. As a consequence, the replies to the question of current participation of older and oldest-old adults in education were not used extensively in the previous analysis.

The answers that were given to the question of how many courses were attended during the past 12 months reveal that the elderly participated in a surprisingly high number of educational activities. Since the question asked for the total number of educational offerings attended, regardless of the individual course lengths, it can be assumed that the study partakers also counted one-day or other short-term seminars, which potentially influenced this result. To get a deeper understanding of the type of programs the elderly attended, an evaluation of the total length of educational programs as well as the number of hours elderly learners devote to education is suggested for future research. Also, a distinction between short-term and long-term (multiple week-long courses) courses taken appears valuable.

In general, the overall participation of oldest-old adults was in comparison with the younger age groups relatively low so that in-depth analysis of some age-related correlations could not be performed due to a small sample size. The general question that arises is why not more 81+-year-olds were addressed by the Silverlearning Study especially in the German sample. Since no comprehensive enrollment statistics of oldest-old adults in education in Germany and the U.S. exist (Sec. 4.3.1), it is unclear if the participation ratio represents the overall enrollment trends of oldest-old adults in both samples or if certain aspects, such as personal concerns participating in survey research or differences in the recruitment techniques of the educational providers, acted as a barrier to participate in the study. Therefore, more assessments of the general enrollment of oldest-old adults in education in both the U.S. and Germany appear valuable.

Although the study data show that participation in education differs between older and oldest-old age, the Silverlearning Study results suggest that a synonymous usage of the two

terms oldest-old age and fourth age is not suitable for the study participants. Although some subjective health impairments are obvious in the age group 81+, all surveyed elderly appeared to be in their third age. This finding leads to the conclusion that providers of older adult education typically do not address learners in the fourth age, but rather focus on active and healthy learners. A comparative study with fourth age learners who utilize alternative forms of education from their homes through, e.g., telephone, television, or online, appears valuable in the future. Also, further research on the participation barriers towards older adult education can be suggested. Such research would potentially also contribute to a better understanding of why the gender ratio in education changes with increasing age.

6 Conclusion

The main objective of this thesis is to provide a deeper understanding of education in older and oldest-old age in the U.S. and Germany. The underlying guiding understanding is that access to educational opportunities at every age is a fundamental human right. An additional key motivation that accelerates the importance of the topic of older adult education comes from the fact that developed countries, like the U.S. and Germany, experience significant aging of their populations in which the number of older adults increases while the number of children decreases. This demographic development is driven by declining fertility rates, migration as well as by increasing life expectancy and decreasing mortality due to, e.g., improved health care and hygiene standards. The further life expectancy at the age of 65 has increased in both the U.S. and Germany, and individuals can expect to live two decades or longer after retirement. Therefore, old age has become a new and extended life phase. In addition to these developments, the related societal changes create challenges and raise questions, such as how retirement and health care systems can be financed in the future or how old age can be spent in a meaningful way. Education in old age can play an essential role in responding to these questions and has the potential to transform challenges into opportunities. For example, it can help to maintain an educated workforce, counteract declining cognitive abilities, increase self-confidence, contribute to life satisfaction, and prevent loneliness by providing a platform for social interactions. This conclusion highlights selected findings that emerged from the discussion of demographic developments (Ch. 2), age and aging (Ch. 3), education in the third and fourth age (Ch. 4) as well as from the new empirical Silverlearning Study, which studied older learners' (aged 65+) educational participation patterns, motivations, and preferences as well as their influencing factors in comparison between the U.S. and Germany (Ch.5).

Education in old age is a vital strategy to respond to future workforce developments. As mentioned above, the rapidly growing number of elderly in the U.S. and Germany will create challenges for societies and policymakers regarding, e.g., financing retirement and social

support systems, increasing health-care costs, and maintaining the workforce in the future. An important strategy could be to increasingly utilize the resources of older adults on a paid or unpaid basis. Ongoing professional development opportunities will become a necessity to equip or retrain older workers with skills needed for the quickly changing future labor market. In addition to the economic benefit, second careers after retirement are also a possibility for the individual to help financing retirement and to experience professional fulfillment in later life. A general trend of increased paid labor force participation of older adults in the U.S. and Germany is already visible. Also, the educational background of older adults sees a constant increase in both countries, which will create higher personal demands towards ongoing learning opportunities. However, learning in old age still receives relatively little attention in educational politics, policies, and research. The neglect of this topic finds expression in a lack of enrollment data of mature adults in education, as well as in missing comprehensive national and international comparative research on older adult education.

Education in old age is a public health strategy. Research has emphasized that education and continuous learning positively contribute to physical and cognitive health, well-being, self-esteem, and social inclusion in old age. Therefore, older adult education benefits healthy aging, which can consequently help reducing health care costs.

Old age is heterogeneous, and the oldest-old age is not necessarily synonymous with the fourth age. While some individuals age healthy, independently, and socially well-connected, others suffer diseases, frailty, and loneliness. Hence, the information value of the chronological age is limited and is not a reliable expression of an individual's biological, social, or psychological development stage. To acknowledge this heterogeneity and inter-individual variance, suggestions for sub-dividing old age into various stages, such as into young-old and oldest-old age or the third and the fourth age, have been made. The third age is understood as a time of fulfillment, good health, and productivity and, according to the suggestions of some authors (e.g., Baltes/Smith 2003) attributed to the young-old age. In contrast, the fourth age is dominated by a perspective of frailty and dependence and attributed to the oldest-old age. However, the Silverlearning Study results suggest that an identical usage of the two terms oldest-old age and fourth age is not suitable because even the oldest-old study participants were still active, independent, and socially engaged. This finding is also consistent with other research, which found that oldest-old adult learners do not meet the stereotypes of the fourth age. Defining the fourth age by the personal life situation instead of the chronological age, like Laslett (1991) suggested, seems to be more appropriate. However, it has to be kept in mind that

the Silverlearning Study participants appear to be especially active and healthy individuals who did not represent the general older population regarding, e.g., subjective health and educational status. An additional conclusion from the study is that the broad range of older adult education providers that responded to the study participation request mostly focus on learners in the third age and do not provide educational possibilities for frail or homebound elderly.

Oldest-old age does not necessarily require a separate form and method of education. The aforementioned finding from the Silverlearning Study also suggests that the oldest-old age does not necessarily require a separate education as the motivations, subject and institutional choices as well as learning preferences can show similarities to younger-old learners. Also Schneider (1993, p.146) commented that the personal living situation, personality, or life experiences influence learning preferences more than the individual chronological age. Therefore, this finding contradicts the understanding of geragogy that old age generally requires separate educational and didactical strategies. Nevertheless, the discussion of the heterogeneity of old age emphasizes the need for an individualized and learner-centered approach to education, which is oriented on the diversity of learners and their living situation, interests, and personal resources as emphasized in the geragogical concept.

Older and oldest-old adult learners are dedicated and frequent learners. However, oldest-old age is the turning point for participation in organized education. The Silverlearning Study suggests that if older adults participate in education, they were often frequent and very dedicated learners, who also had plans to continue their educational endeavors in the future. This finding also indicates that older learners typically do not take courses for a particular purpose on a one-time basis, but rather make participation in organized education a frequent and important leisure activity. Also oldest-old study participants were frequent course takers. Nevertheless, the study indicates that the course taking behaviors can differ between younger-old and oldest-old individuals and that the beginning of oldest-old age is a turning point for educational participation. While the frequency of taking courses increased after the age of 65, it eventually stagnated (U.S.) or even declined (Germany) closer to the eighth life decade. Also, making long-term commitments was more difficult after the eighth life decade.

In general, the study results suggest that participants who took fewer courses were more often undecided if they are going to take classes in the future. This insight can be helpful for educational marketing. To keep these learners involved, targeted retention efforts and incentives for those lower-activity learners could be envisioned.

Declining health is not necessarily a barrier to participation in organized education. Although oldest-old individuals had in comparison with the younger age groups a slightly lower subjective health rating and more health challenges, the Silverlearning Study shows that the subjective health status does not have an effect on the course taking behavior. This result suggests that even if the personal health declines, a need for continued educational opportunities exists. It also emphasizes that declining health does not necessarily create a barrier to education in old age, but can also create a motivation to participate as a strategy to counteract a health decline. Although the oldest-old study participants were not in the fourth age and still able to come to the educational institutions, this finding highlights the importance of innovative and accessible education programs that provide ongoing learning opportunities for homebound and frail elderly. So far, only a few such programs have been developed in the U.S. and Germany.

While declining health is not necessarily a barrier to old age, Silverlearning Study participants tended to be conscious about accessibility aspects. In addition to subject variety and affordability of courses, the ability to reach educational providers independently was a crucial decision criterion for them when choosing a learning institution. Especially those elderly who indicated poor health wished for more accessibility of the institution and classrooms.

Older adults participate in organized education for many reasons and not only because of reasons that are relevant to old age. In general, the Silverlearning Study suggests that older adults participate in organized education for many reasons but that they are primarily driven by "intrinsic" (Ryan/Deci 2000) and personal enrichment reasons, such as learning for the sake of pure enjoyment, curiosity, socializing, or cognitive stimulation. Work-related motivators were no longer of relevance, which is the most substantial difference between learning in older and younger adulthood. Also other empirical research suggested that older adults typically participate in education for cognitive and intellectual stimulation purposes. However, participation in education in old age cannot only be a strategy to stay cognitively, socially, and physically active but also be a gateway to knowledge that was not accessible in earlier life due to various barriers. In this regard, the Silverlearning Study shows that participants who took courses intending to make up for something they did not learn when they were younger, more often experienced negative impacts of historical events on their formal education opportunities. In general, the study results indicate that the educational background, as well as the personal living and health situation, influence educational motivation. A classification of the study participants highlights that different types of motivations to participate in education as well as specific subject choices correlate with different learner profiles. These findings cannot only be

relevant for program planners and marketing specialists in older adult education, they also emphasize again that a generalization of older learners in education is not adequate.

Older adult learning is typically non-formal learning. Education for older adults typically occurs in the context of non-formal learning. This is also the case in the Silverlearning Study, where most of the participants engaged in non-formal learning. However, higher education enrollment statistics indicate that a growing number of elderly students pursue formal degrees. In addition, increasingly more older adults are pursuing second careers after retirement, which potentially require formal qualifications, such as certifications. Therefore, providers of older adult education need to acknowledge these trends. They need to realize the vital role they can play in shaping the future of work by not only offering non-formal personal enrichment opportunities but also more formalized personal development and career programs.

Educational participation in old age is complex and influenced by a variety of factors. The personal (learning) biography influences the motivation to learn and to participate in education throughout life. Following the idea of the constructivist paradigm, the individual creates new knowledge based on previously made experiences and learned information so that learning in old age is a much more individualized and heterogenous process than at younger age. Furthermore, learning and participation in older adult education are influenced by a wide range of parameters with complex dependencies. The Silverlearning Study identifies the educational level, gender, age, work and marital status, social participation as well as tech-savviness as significant influential factors on educational participation. Consistent with other empirical research, the study results show a correlation between formal education obtained in younger age and educational participation in old age, with individuals with advanced degrees participating more often in courses than those with lower educational attainment. Also, the formal background influences learning preferences in old age. For example, individuals with a higher education degree more often made educational provider decisions based on the reputation of faculty and instructors than those who did not complete college or university.

Gender-specific differences exist in educational behavior exist. Research indicates that participants in older adult education are typically women and younger elderly. Although the Silverlearning Study comes to the same conclusion, it indicates that the gender distribution is not the same for all of the surveyed age groups. While most of the younger study participants were women, the gender ratio became more balanced with increasing age and even changed towards a higher male distribution in the oldest-old age groups (Germany). Other literature

explains the female decline in education with growing caregiving responsibilities of women for the spouse and friends as well as with widowhood, which can cause financial challenges. As the Silverlearning Study consisted of a sample of older adults in good financial standing, a possible explanation seems to be that women had lower educational attainment than men, which is potentially a result of reduced or interrupted formal education opportunities of women or oldest-old adults due to historical events.

Also, substantial differences in the subject choice between the genders are apparent in the study. While women more often preferred literature and arts-related subjects, more men than women took history, politics, and natural sciences courses. Furthermore, women liked to learn in an intimate, social, and intergenerational manner, and men expressed a preference for learning independently as well as for traditional classroom instruction by an expert instructor.

Older adults favor inter-generational learning. The Silverlearning Study indicates that participants in both older and oldest-old age preferred to learn in small and age-heterogenous in-person group settings that are led by an expert instructor who allows time for discussions. Although other research also highlighted a preference of older adults for age-heterogenous learning settings, it suggested that older adults typically do not favor inter-generational learning in course subjects with perceived performance differences between the generations, such as computer courses. However, such a result is not visible in the Silverlearning Study.

Differences in the educational system between the U.S. and Germany exist. The comparison of the educational providers shows similarities, but also differences between the countries. While both countries offer a variety of academic and non-academic learning opportunities for those elderly who can still come to the institutions themselves, the idea of empowerment and volunteer involvement is much more pronounced in older adult education settings in the U.S. than in Germany. This finds expression in a wide variety of volunteering opportunities for older learners in nearly every educational institution. Incorporating older learners more into educational planning and practice in Germany appears essential when considering the benefits of volunteering on, e.g., well-being and life satisfaction in old age. In general, the Silverlearning Study shows that also in Germany volunteering is an essential part in the life of the learners so that the willingness to volunteer is in principle given.

In conclusion, the field of older and oldest-old adult education is currently developing in both the U.S. and Germany and will play an increasingly important role in the future. More detailed studies on specific aspects (Sec. 5.9) need to be conducted, and concrete

implementation suggestions should inform policymakers on how to most effectively address the changing age structure and the corresponding changes of society.

"Education is the best provision of old age."
– Aristotle

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Appendixes

A. English Survey Instrument

In the following, the stimulus to participate in the English version of the Silverlearning Study as well as the English survey instrument are presented. To visualize the question flow, the paper-and-pencil version is provided.

A.1 Stimulus

Dear Ladies and Gentlemen,

I very much appreciate your interest in the Silverlearning research project, which is being conducted together with the Eberhard Karls University Tübingen, Germany (Research group: Prof. Schmidt-Hertha). As the words silver and learning already express, the study seek to better understand the lifelong learning behavior of older adults in the U.S. and Germany. A special focus will also be on formal education activities of oldest-old adults - a topic that received only little scientific intention so far. An aging society needs a tailored educational system for older learners and with your participation in the survey can help to make meaningful decisions for the future. If you are of age 65 years and older and currently participating in any kind of formal learning activity (non-credit or for-credit), I would very much appreciate your participation in this survey. Filling out the survey will take about 15-20 minutes and all answers are completely anonymous. A bit more about myself: My name is Sandra von Doetinchem and I am lifelong learning expert currently working at the University of Hawaii at Manoa where I am study the learning behaviors of students at every age. I am also the chair of the LEARN council within the American Society on Aging (ASA) and the founder of the lifelong learning blog www.silverlearning.org.

I have had a great passion and interest for lifelong learning for many years, and wrote my Master's thesis on older adult education and learning of the oldest-olds (age 80 and older) at the University Duisburg-Essen, Germany. After my studies, I continued my research in this field at the Osher Lifelong Learning Institute at the University of California, Berkeley. During this time, I found many similarities but also striking differences between lifelong learning in the U.S. and in Germany. Therefore, I decided to write my dissertation in this field. This study will look at the similarities and differences and also seek to better understand differences in formal education behaviors between the different age groups.

This research project is 100% non-commercial and all research records will remain strictly confidential. At no point will any research material of participants be released to a third party. The only use of the collected data is for statistical evaluation.

If you have any further questions about my Silverlearning research project or the survey itself, please contact me at: doetinchem@silverlearning.org

Once again, thank you for your participation. Your answers are of great value.

Yours,

Sandra von Doetinchem

A.2 Survey Questions

1. What is your gender?

☐ Female ☐ Male ☐ Decline to state

2. What is your age bracket?

☐ Below 65 years ☐ 65-70 years ☐ 71-75 years
☐ 76-80 years ☐ 81-85 years ☐ 86-90 years
☐ 91-95 years ☐ 96-100 years ☐ 101 years and older

3. Which of the following groups best describes you? Please check all that apply.

☐ American Indian or Alaska Native ☐ Asian ☐ Black or African American
☐ Latino or Hispanic ☐ Native Hawaiian, Other Pacific Islander ☐ White

☐ Decline to state ☐ Other (please specify): _____

4. In what state or U.S. territory do you currently live? _____

5. Are you currently taking or auditing classes, attending a lecture series or otherwise involved in an organized learning experience (credit or non-credit)?

☐ Yes ☐ No *(Please continue with question 9)* ☐ No longer *(Please continue with question 9)*

6. Why do you take or audit courses, lectures, etc.? Please check all that apply.

☐ Brain/memory stimulation
☐ Health improvement
☐ For the joy of learning
☐ Personal enrichment
☐ Learning something new
☐ Interest in the subject(s)
☐ Meeting new people
☐ For travel (e.g., languages)
☐ Other (please specify): _____
☐ Preparing for a new career
☐ Preparing for a new volunteer work
☐ Improving/learning skills for my job
☐ Improving/learning skills for my volunteer work
☐ Make up for something I did not learn when I was younger
☐ For no good reasons

7. Where do you currently take or audit courses, etc.? Please check all that apply.

☐ Adult school
☐ Church, other spiritual institution
☐ Computer club (e.g., Silver Surfers)
☐ Elderhostel/Roadscholar
☐ Health provider, YMCA/YWCA
☐ Lifelong Learning Institute (LLI), Osher Lifelong Learning Institute (OLLI), Learning in Retirement Institute (LIR)
☐ Library
☐ Museum, theater
☐ OASIS
☐ Political organization, union
☐ Private provider
☐ Senior or community center
☐ Shepherd's Center of America
☐ University, college

☐ Other (please specify):_____

8. In which subject area(s) do you currently take or audit courses, lectures, etc.? Please check all that apply.

☐ Building, construction, home repair
☐ Computers, digital media, film
☐ Creative expression, writing, crafts
☐ Finances, investing, legal issues
☐ Health, medicine, nutrition
☐ History, family history
☐ International events, travel
☐ Languages, communication, multicultural learning
☐ Other (please specify): _____
☐ Literature
☐ Management, human resources, accounting
☐ Nature, environment, gardening
☐ Performing and visual arts
☐ Politics, economy, current affairs
☐ Religion, spiritual
☐ Science, mathematics
☐ Sports, exercising

9. What are the reason(s) you are NOT taking or auditing classes, attending lecture series or participating in an organized learning experience (credit or non-credit)? Please check all that apply.

☐ Offerings were not appealing
☐ Offerings are at inconvenient times
☐ Offered courses, etc. are too simple
☐ Offered courses, etc. are too advanced
☐ Lack of information about courses, etc.
☐ Lack of motivation
☐ Lack of time
☐ Financial reasons
☐ I don't like to participate in courses, etc. without knowing anyone
☐ Interpersonal issues (e.g., issues with classmates)
☐ Other (please specify): _____
☐ Distance/transportation (e.g., institution is too far away, don't drive)
☐ Accessibility of the venue/classrooms (e.g., no elevator)
☐ I don't like to take courses, etc. in general
☐ I don't need to take courses, etc. to learn something new
☐ Health reasons
☐ I don't see the benefits of organized learning/cont. education in older age
☐ I feel too old to participate in organized learning
☐ For no good reasons

10. How many courses, lectures, etc. have you taken or audited during the past 12 months?

☐ None ☐ 1-3 ☐ 4-6 ☐ 7-9
☐ 10-12 ☐ 13-15 ☐ 16-19 ☐ 20 +

11. Did you take courses, attend lectures, etc. within the last 12 months to obtain a degree, certificate or license?

☐ Yes, and I obtained/will obtain the following degree, certificate or license: _____
☐ No

12. Are you planning to take or audit courses, attend lectures, etc. within the next 12 months?

☐ Yes *(Please continue with question 14)* ☐ Not sure *(Please continue with question 14)* ☐ No

13. What are the reason(s) you will likely NOT taking or auditing classes, attending lecture series or participating in an organized learning experience (credit or non-credit)? Please check all that apply.

☐ Don't need it anymore (e.g., completed course, obtained certificate)
☐ Distance/transportation (e.g., institution is too far away, don't drive)

☐ Health reasons
☐ Lack of further motivation
☐ Lack of time
☐ Financial reasons
☐ Future offerings are not appealing
☐ Offerings are at inconvenient times
☐ Other (please specify): _____

☐ Accessibility of the venue/rooms (e.g, stairs)
☐ I don't like to take courses, etc. without knowing anyone
☐ Interpersonal issues (e.g., with classmates)
☐ Offered courses, etc. are too advanced
☐ Offered courses, etc. are too simple
☐ For no good reasons

14. If you would have to choose a learning institution now, which factors would be most relevant for you? Please check all that apply.

☐ Cost (e.g, courses, membership)
☐ Duration of each class/lecture
☐ Course length
☐ Flexible course time
☐ Class size
☐ Reputation of institution
☐ Reputation of faculty
☐ Variety of courses/lectures
☐ Newest technologies in classrooms
☐ Social events
☐ Community spaces
☐ Volunteering opportunities within the institution
☐ Other (please specify): _____

☐ Accessibility of institution and classrooms
☐ Close-by parking or public transportation
☐ Availability of shuttle service
☐ Availability of assisted listening devices/ hearing loops
☐ Proximity/location of institution
☐ Institution offers courses within my home/ retirement community
☐ Opportunity to join courses/lectures online
☐ Courses targeted towards a mature adult audience
☐ Courses targeted towards an inter-generational audience
☐ No opinion

15. What learning methods do you prefer most? Please check all that apply.

☐ Learning in large groups
☐ Learning in small groups
☐ Learning with family or friends
☐ Learning on my own
☐ Online courses or webinars
☐ Online research
☐ Book or literature research
☐ Other (please specify): _____

☐ Discussions
☐ Demonstrations, presentations by an expert
☐ Experiential (e.g., field trips, hands-on activities)
☐ Learning through traveling
☐ Homework assignments
☐ No preference

16. Do you prefer learning with:

☐ Peers ☐ Younger students ☐ Both ☐ No preference

17. What is the highest level of education you have completed?

☐ No formal education completed
☐ Through 8th grade
☐ Some high school, but no diploma
☐ High school/GED
☐ Some college, but no degree
☐ Trade/technical/vocational training

☐ Associate's degree
☐ Bachelor's degree
☐ Master's degree
☐ Doctoral degree
☐ Professional degree (e.g., M.D., J.D.)
☐ Other (please specify): _____

18. Do you feel that you experienced any historical events (e.g., displacement, wars) that impacted your formal education opportunities (e.g., K-12, college/university) <u>negatively</u>?

☐ Yes ☐ No

19. If yes, which historical event(s) impacted your formal education opportunities negatively and how did this find expression (e.g., unfulfilled desire to attend college)? _____

20. Do you feel that you experienced any historical events that impacted your formal education opportunities (e.g., K-12, college/university) positively?

☐ Yes ☐ No

21. If yes, which historical event(s) impacted your formal education opportunities positively and how did this find expression (e.g., possibility to attend college)? _____

22. Do you currently volunteer in any of the following fields? Please check all that apply.

☐ Church, devotional site
☐ Family, friends, neighbors (e.g., caregiver, babysitter)
☐ Health sector (e.g., hospital, care/help of the elderly, disability service)
☐ Social sector (e.g., aid organization, charity)
☐ Visual arts, performing arts, music (e.g., museum, theater)
☐ Law, rights
☐ Sports, exercise
☐ Leisure, enjoyment (e.g., senior center)
☐ Other (please specify): _____
☐ Preschool, K-12
☐ Out-of-school youth work, education for adults/lifelong learning (e.g., LLI, adult school, mentoring)
☐ Local civic involvement (e.g., neighbor-hood association)
☐ Voluntary fire brigade, rescue service
☐ Professional representation (e.g., unions)
☐ Environment, environment protection, animal protection
☐ Politics, lobbies/representation of interests
☐ I no longer volunteer
☐ I have never volunteered in my life

23. Do you currently hold a full- or part-time position for which you are getting paid (e.g., as a employee or self-employed)?

☐ Yes ☐ No

24. If yes, how many hours per week do you currently work?

☐ 0-10 hours/week ☐ 11-20 hours/week ☐ 21-30 hours/week
☐ 31-40 hours/week ☐ 41-50 hours/week ☐ More than 50 hours/week

25. Which category best describes your current relationship status?

☐ Married/Living with someone as a couple ☐ Married/In a relationship with separate households ☐ Divorced/Separated
☐ Widowed ☐ Single/Never married ☐ Other (please specify): _____

26. How many children or stepchildren do you have?

☐ None ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8+

27. How many grandchildren or stepgrandchildren do you have?

☐ None ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8+

28. How often do you get-together with the family members or other persons listed below? (Please think in each category of these persons that you see most often).

	Daily	Weekly	Once or twice a month	Every few months	Once or twice a year	Almost never	Never	N/A
Partner	☐	☐	☐	☐	☐	☐	☐	☐
Child(ren)	☐	☐	☐	☐	☐	☐	☐	☐
(Great-) Grand-child(ren)	☐	☐	☐	☐	☐	☐	☐	☐
Siblings	☐	☐	☐	☐	☐	☐	☐	☐
Parents	☐	☐	☐	☐	☐	☐	☐	☐
Friends	☐	☐	☐	☐	☐	☐	☐	☐
Neighbors	☐	☐	☐	☐	☐	☐	☐	☐

29. How would you characterize your current housing situation? Please check all that apply.

☐ House (without any type of care or assistance)
☐ Intergenerational housing project
☐ Shared house or apartment (e.g., with family, friends)
☐ Nursing home
☐ Other (please specify): _____
☐ Apartment, Condominium (without any type of care or assistance)
☐ Assisted living at home
☐ Retirement community (not continuing care retirement community)
☐ Assisted-living community or continuing care retirement community

30. What is the approximate population size of the city or town in which you currently live?

☐ Below 1,000 ☐ 1,000-9,999 ☐ 10,000-19,999 ☐ 20,000-49,999
☐ 50,000-99,000 ☐ 100,000-499,000 ☐ 500,000+

31. Which kinds of electronic devices do you use once a week or more? Please check all that apply.

☐ Cell phone
☐ Smart phone
☐ Desktop computer
☐ Laptop, Netbook
☐ Tablet computer
☐ E-reader (Kindle, Nook, etc.)
☐ Wii or other game console
☐ Other (please specify): _____
☐ Digital camera
☐ Video camera
☐ Navigational system
☐ iPod/MP3 player
☐ Radio
☐ Television
☐ None of the above
(Please continue with question 31)

32. How often do you use the Internet to access or research information?

☐ Daily ☐ Weekly ☐ Once or twice a month ☐ Every few months
☐ Almost never ☐ Never ☐ I do not have access to the Internet

33. How often do you use the Internet for communication (e.g., email, social media, Skype)?

☐ Daily ☐ Weekly ☐ Once or twice a month ☐ Every few months
☐ Almost never ☐ Never ☐ I do not have access to the Internet

34. If you <u>do not</u> use the Internet, a computer, or other electronic devices, what are the reasons? Please check all that apply.

☐ I do not need them
☐ I do not have the time to learn them
☐ I am not interested in new technologies
☐ I do not have the skills required
☐ Computer and Internet are for young people only
☐ Financial reasons
☐ Other (please specify): _____

35. How would you rate your current health?

☐ Very good ☐ Good ☐ Average ☐ Poor ☐ Very poor ☐ Decline to state

36. How has your health affected your ability or willingness to commit yourself to long-term activities such as classes that extend over several weeks?

☐ Greatly ☐ Somewhat ☐ Neutral ☐ Not much ☐ Not at all ☐ Decline to state

37. Are you challenged in any of the following areas? Please check all that apply.

☐ Vision
☐ Mobility
☐ Memory/ability to maintain attention
☐ Other (please specify): _____
☐ Hearing
☐ Low fitness level/lack of strength
☐ Chronic illnesses
☐ Financially
☐ Decline to state

38. Do you currently need help performing routine tasks (e.g., to run errands, preparing meals)?

☐ Yes ☐ No ☐ Decline to state

39. If yes, in which areas do you currently need help? Please check all that apply.

☐ Preparing meals
☐ Dressing
☐ Other (please specify): _____
☐ To run errands (e.g., shopping, pharmacy)
☐ Transportation/driving (e.g., to visit a physician)

40. Where have you heard about this study? _____

B. German Survey Instrument

The following section presents the stimulus to participate in the German version of the Silverlearning Study as well as the German survey instrument. To visualize the question flow, the paper-and-pencil version is provided.

B.1 Stimulus

Sehr geehrte Damen und Herren,

ich möchte mich freundlichst für Ihr Interesse an meiner "Silverlearning" Studie bedanken, die in Zusammenarbeit mit der Eberhard Karls Universität zu Tübingen (Arbeitsgruppe: Professor Schmidt-Hertha) durchgeführt wird. Wie die Verknüpfung der Worte "Silber" (engl. Silver) und "Lernen" (engl. Learning) bereits zum Ausdruck bringen, soll mit Hilfe dieser Studie das unzulänglich erforschte Weiterbildungsverhalten älterer und hochaltriger Lernenden detailierter untersucht werden.

Falls Sie 65 Jahre und älter sind, würde ich mich sehr freuen, wenn Sie sich ca. 15-20 Minuten Zeit nehmen und den vorliegenden Fragebogen ausfüllen. Ihre Antworten werden selbstverständlich vollkommen anonym behandelt.

Zu meiner Person: Mein Name ist Sandra von Doetinchem und ich bin hauptberuflich als Diplom- Pädagogin und Expertin für Erwachsenenbildung an der Universität in Hawaii tätig, wo ich das Lernverhalten von Studierenden jeden Alters erforsche. Ich bin zudem Vorsitzende des LEARN Gremiums der US-amerikanischen Gesellschaft des Alterns (American Society on Aging) und Gründerin der Internetseite www.silverlearning.org. Bereits während meiner Zeit als Studentin an der Universität Duisburg-Essen habe ich ein großes Interesse an dem Thema "Bildung im Alter" entwickelt und meine Diplomarbeit über Bildung und Hochaltrigkeit geschrieben. Zwischen 2010 und 2013 habe ich meine Arbeit in diesen Bereichen als wissenschaftliche Mitarbeiterin an der Universität in Berkeley fortführen können. Während meiner dortigen Arbeit mit älteren und hochaltrigen amerikanischen Lernenden habe ich viele Gemeinsamkeiten, aber auch spannende Unterschiede zu Deutschland entdecken können. Aus diesem Grund habe ich mich nun entschieden zu diesem Thema meine Doktorarbeit anzufertigen, wobei mir parallele Befragungen in Deutschland und den USA als Grundlage dienen werden.

Das vorliegende wissenschaftliche Projekt ist zu 100% unkommerziell. Alle Daten werden streng vertraulich behandelt und zu keiner Zeit an Dritte weitergegeben. Die einzige Verwendung der gesammelten Daten erfolgt zum Zwecke der statistischen Auswertung.

Falls Sie weitere Fragen zu meinem Dissertationsprojekt oder dem Fragebogen haben, können Sie mich gerne unter: doetinchem@silverlearning.org kontaktieren.

Noch einmal vielen Dank für Ihre Teilnahme. Ihre Antworten sind von großer wissenschaftlicher Bedeutung.

Herzliche Grüße
Sandra von Doetinchem

B.1 Survey Questions

1. Welches Geschlecht haben Sie?

☐ Weiblich ☐ Männlich

2. Wie alt sind Sie?

☐ Unter 65 Jahre alt ☐ 65-70 Jahre alt ☐ 71-75 Jahre alt
☐ 76-80 Jahre alt ☐ 81-85 Jahre alt ☐ 86-90 Jahre alt
☐ 91-95 Jahre alt ☐ 96-100 Jahre alt ☐ 101 Jahre alt und älter

3. In welchem deutschen Bundesland leben Sie derzeit? _____

4. Nehmen Sie derzeit an Weiterbildung (z.B. Kurse an Volkshochschulen, Seminaren, als Gasthöre Universitäten, etc.) teil?

☐ Ja ☐ Nein (Bitte fahren Sie bei Frage 8 fort) ☐ Nicht mehr (Bitte fahren Sie bei Frage 8 fort)

5. Warum nehmen Sie an Weiterbildung (z.B. Kurse, Gasthörerangebote, Vorlesungen) teil? Mehrfachnennungen möglich.

☐ Förderung von Gehirn- und Gedächtnisleistungen
☐ Gesundheitliche Bereicherung
☐ Aus Freude am Lernen
☐ Persönliche Bereicherung
☐ Erlernen von etwas komplett Neuem
☐ Interesse am Thema
☐ Neue Kontakte/Freunde
☐ Vorbereitung auf Reisen (z.B. Sprachen, Kultur)
☐ Sonstiges (bitte angeben):_____
☐ Vorbereitung auf eine neue berufliche Herausforderung
☐ Vorbereitung auf eine neue Ehrenamtsarbeit
☐ Fähigkeiten für meinen Beruf erweitern
☐ Fähigkeiten für mein Ehrenamt erweitern
☐ Nachholen von Etwas, das ich früher nicht lernen konnte
☐ Ohne besonderen Grund

6. Wo nehmen Sie derzeit an Weiterbildung (z.B. Kurse an Volkshochschulen, Seminaren, als Gasthörer an Universitäten, etc.) teil? Mehrfachnennungen möglich.

☐ Volkshochschulen
☐ Kirchliche Bildungseinrichtungen
☐ Universitäten, Fachhochschulen, Seniorenakademien
☐ Gesundheitsanbieter, Krankenkassen
☐ Büchereien
☐ Kulturelle Einrichtungen (z.B. Theater, Museen)
☐ Politische Einrichtungen, Gewerkschaften
☐ Öffentliche Einrichtungen für Ältere (z.B. Seniorentreff)
☐ Andere Altenhilfe- und Sozialorganisationen (z.B. AWO)
☐ Seniorencomputerclubs
☐ Private Anbieter
☐ Sonstiges (bitte angeben): _____

7. In welchen Themenbereichen nehmen Sie derzeit an Kursen oder Vorlesungen teil? Mehrfachnennungen möglich.

☐ Bau, Architektur, Renovieren/Instandsetzung
☐ Computer, Digitale Medien, Film
☐ Literatur
☐ Management, Buchhaltung, Personalwesen

☐ Anlage, Recht, Börse/Persönliche Finanzen
☐ Gesundheit, Medizin, Ernährung
☐ Geschichte, Familiengeschichte/Ahnenforschung ☐ Internationales Geschehen, Reisen
☐ Sprachen, Kommunikation, Multikulturelles Lernen
☐ Sonstiges (bitte angeben):_____
☐ Natur, Umwelt, Garten
☐ Darstellende und bildende Künste
☐ Politik, Wirtschaft, Aktuelles Zeitgeschehen
☐ Religion, Spiritualität
☐ Wissenschaft, Mathematik
☐ Sport, Fitness

8. Falls Sie derzeit <u>NICHT</u> an Weiterbildung (z.B. Kurse, Seminare, Vorlesungen) teilnehmen, was sind die Gründe? Mehrfachnennungen möglich.

☐ Die angebotenen Kursen, etc. haben mich nicht angesprochen
☐ Angebote sind zu unpassenden Zeiten
☐ Angebotene Kurse, etc, sind zu einfach
☐ Angebotene Kurse, etc. sind zu anspruchsvoll
☐ Mangel an Informationen (z.B. zu Kursen)
☐ Mangel an Motivation
☐ Genereller Zeitmangel
☐ Finanzielle Gründe
☐ Nehme nicht gerne an Kursen, etc. teil, ohne jemanden zu kennen
☐ Zwischenmenschliche Gründe (z.B. Probleme mit anderen Kursteilnehmenden)
☐ Erreichbarkeit/Entfernung der Institution(en)
☐ Zugänglichkeit der Institution(en) (z.B. Treppen, andere Barrieren)
☐ Nehme generell nicht gerne an Kursen, etc. teil
☐ Muss nicht an Kursen, etc. teilnehmen, um etwas Neues zu lernen
☐ Gesundheitliche Gründe
☐ Sehe keine Notwendigkeit darin, noch im Alter an Weiterbildung teilzunehmen
☐ Fühle mich zu alt, um an Weiterbildung teilzunehmen
☐ Es gibt keinen Grund
☐ Sonstiges (bitte angeben):_____

9. An wie vielen Kursen oder Vorlesungen haben Sie in den letzten 12 Monaten teilgenommen?

☐ An keinen ☐ 1-3 ☐ 4-6 ☐ 7-9
☐ 10-12 ☐ 13-15 ☐ 16-19 ☐ 20 oder mehr

10. Haben Sie in den letzten 12 Monaten an Kursen oder Vorlesungen teilgenommen, um einen bestimmten Abschluss, Schein oder Zertifikat zu erwerben?

☐ Ja, und ich erwarb folgenden Abschluss, Schein, Zertifikat: _____
☐ Nein

11. Planen Sie in den nächsten 12 Monaten an Kursen oder Vorlesungen teilzunehmen?

☐ Ja (Bitte fahren Sie bei Frage 13 fort) ☐ Vielleicht ☐ Nein

12. Falls Sie in den nächsten 12 Monaten voraussichtlich <u>NICHT</u> an Weiterbildung (Kursen, etc.) teilnehmen, was sind die Gründe? Mehrfachnennungen möglich.

☐ Kein weiterer Bedarf (z.B. Kurs abgeschlossen, Zertifikat erworben)
☐ Gesundheitliche Gründe
☐ Mangel an weiterer Motivation
☐ Genereller Zeitmangel
☐ Finanzielle Gründe
☐ Genereller Zeitmangel
☐ Erreichbarkeit/Entfernung der Institution(en)
☐ Zugänglichkeit der Institution(en) (z.B. Treppen, andere Barrieren)
☐ Nehme nicht gerne an Kursen, etc. teil, ohne jemanden zu kennen
☐ Zwischenmenschliche Gründe (z.B. Probleme mit anderen Kursteilnehmern)

☐ Das zukünftige Kursangebot spricht mich nicht an
☐ Angebotene Kurse, etc. sind zu unpassenden Zeiten
☐ Sonstiges (bitte angeben):_____
☐ Angebotene Kurse,etc. sind zu anspruchsvoll
☐ Angebotene Kurse, etc. sind zu einfach
☐ Es gibt keinen Grund

13. Falls Sie sich in diesem Moment für eine Bildungseinrichtung entscheiden müssten, welche der untenstehenden Faktoren wären für Sie besonders wichtig? (Mehrfachnennungen möglich)

☐ Kosten (z.B. für Kurse, Mitgliedschaften)
☐ Dauer der einzelnen Kurseinheiten (Stunden)
☐ Gesamtlänge der angebotenen Kurse, etc.
☐ Flexible Kurszeiten
☐ Kursgröße
☐ Ansehen der Einrichtung
☐ Ansehen der Lehrkraft
☐ Vielfalt an angebotenen Kursen, etc.
☐ Neueste Technologien im Seminarraum
☐ Soziale Veranstaltungen
☐ Gemeinschaftsräume/Versammlungsplätze
☐ Ehrenamtliche Möglichkeiten innerhalb der Einrichtung
☐ Sonstiges (bitte angeben):_____
☐ Barrierefreiheit der Einrichtung/Kursräume
☐ Nahegelegene Parkplätze/öffentliche Transportmittel
☐ Angebot eines Fahrdienstes
☐ Verfügbarkeit von Hörhilfen
☐ Nähe/Lage der Einrichtung
☐ Einrichtung bietet Kurse in meiner Wohneinrichtung an (z.B. in Seniorenresidenzen)
☐ Möglichkeit an Kursen, etc. via Internet teilzunehmen
☐ Kursangebote speziell für ältere Lernende
☐ Kursangebote, in denen Personen unterschiedlichen Alters miteinander lernen
☐ Keine Meinung

14. Wie lernen Sie am liebsten? Mehrfachnennungen möglich.

☐ Lernen in großen Gruppen
☐ Lernen in kleinen Gruppen
☐ Lernen mit oder von Familie/Freunden
☐ Lernen ohne das Beisein Anderer
☐ Onlinekurse, Webseminare
☐ Internetrecherche
☐ Buch-, Literaturrecherche
☐ Sonstiges (bitte angeben):_____
☐ Diskussionen
☐ Expertenvorträge/-präsentationen
☐ Erfahrungsbezogenes Lernen (z.B. durch Aktivitäten, Exkursionen)
☐ Lernen durch Reisen
☐ Lernen mit Hilfe von Hausaufgaben
☐ Keine Präferenz

15. Mit welcher der folgenden Gruppen lernen Sie am liebsten?

☐ Mit Gleichaltrigen ☐ Mit Jüngeren ☐ Mit Gleichaltrigen und Jüngeren zusammen ☐ Keine Präferenz

16. Welchen höchsten allgemeinbildenden Schulabschluss haben Sie?

☐ Von der Schule abgegangen ohne Haupt-/Volks-schulabschluss
☐ Haupt-/Volksschulabschluss
☐ Realschulabschluss (Mittlere Reife)
☐ Polytechnische Oberschule der DDR mit Abschluss der 8. oder 9. Klasse
☐ Polytechnische Oberschule der DDR mit Abschluss der 10. Klasse
☐ Allgemeine oder fachgebundene Hochschulreife/Abitur
☐ Einen anderen Schulabschluss und zwar: _____

17. Welchen höchsten beruflichen Ausbildungs- oder (Fach-)Hochschulabschluss haben Sie?

☐ Keinen beruflichen Abschluss
☐ Beruflich-betriebliche Berufsausbildung (Lehre) abgeschlossen
☐ Beruflich-schulische Ausbildung (z.B, Handelsschule) abgeschlossen
☐ Ausbildung an einer Fachschule der DDR abgeschlossen
☐ Ausbildung an einer Fach-, Meister-, Technikerschule, Berufs- oder Fachakademie abgeschlossen
☐ Nicht-universitäre Lehrerbildungseinrichtung abgeschlossen (z.B. Lehrerbildungsanstalt)
☐ Bachelor an (Fach-)Hochschule abgeschlossen
☐ Fachhochschulabschluss (z. B. Diplom)
☐ Universitätsabschluss (z. B. Diplom, Master, Magister, Staatsexamen)
☐ Promotion
☐ Sonstiges (bitte angeben): _____

18. Haben Sie das Gefühl, dass sich bestimmte historische Ereignisse (z.B. Kriege, Vertreibung) NEGATIV auf Ihre Bildungsmöglichkeiten ausgewirkt haben (z.B. Schulbildung, Ausbildung, Universitätsbesuch)?

☐ Ja ☐ Nein

19. Falls ja, welche historischen Ereignisse haben sich negativ auf Ihre Bildungsmöglichkeiten ausgewirkt und wie haben sich diese bemerkbar gemacht (z.B. unerfüllter Studienwunsch)?

_____

20. Haben Sie das Gefühl, dass sich bestimmte historische Ereignisse (z.B. Wiedervereinigung) POSITIV auf Ihre Bildungsmöglichkeiten ausgewirkt haben (z.B. Schulbildung, Ausbildung, Universitätsbesuch)?

☐ Ja ☐ Nein

21. Falls ja, welche historischen Ereignisse haben sich positiv auf Ihre Bildungsmöglichkeiten ausgewirkt und wie haben sich diese bemerkbar gemacht (z.B. Studienmöglichkeit)?

_____

22. Sind Sie derzeit in einem oder mehreren der folgenden Bereichen ehrenamtlich aktiv? Mehrfach-nennungen möglich.

☐ Kirche, Spirituelle Einrichtung
☐ Familie, Freunde, Nachbarn (z.B. Pflege, Kinderbetreuung)
☐ Gesundheitsbereich (z.B. Krankenhaus, Altenhilfe, Behindertenhilfe)
☐ Sozialer Bereich (z.B. Wohlfahrtsverband, Hilfsorganisationen)
☐ Kultur, Kunst, Musik (z.B. Museen, Theater)
☐ Politik, Interessenvertretung
☐ Sport, Bewegung (z.B. Sportverein)
☐ Freizeit, Geselligkeit (z.B. Seniorenclub)
☐ Kindergarten, Schule
☐ Sonstiges (bitte angeben): _____
☐ Außerschulische Bildungsarbeit, Bildungsarbeit für Erwachsene (z.B. Volkhochschule, Mentoring)
☐ Lokales Bürgerengagement (z.B. Nachbarschaftshilfe, Bürgerinitiative)
☐ Freiwillige Feuerwehr, Rettungsdienst
☐ Berufliche Interessenvertretung (z.B. Gewerkschaft)
☐ Umwelt, Naturschutz, Tierschutz
☐ Justiz, Recht, Kriminalitätsprobleme (z.B. SchöffIn, EhrenrichterIn)
☐ Ich bin nicht mehr ehrenamtlich aktiv
☐ Ich war noch nie ehrenamtlich aktiv

23. Sind Sie derzeit teilzeit oder vollzeit beruflich aktiv (z.B. angestellt oder selbstständig)?

☐ Ja ☐ Nein

24. Falls ja, wie viele Stunden pro Woche sind Sie derzeit teilzeit oder vollzeit beruflich aktiv*?*

☐ 0-10 Stunden/Woche ☐ 11-20 Stunden/Woche ☐ 21-30 Stunden/Woche
☐ 31-40 Stunden/Woche ☐ 41-50 Stunden/Woche ☐ Mehr als 50 Stunden/Woche

25. Welchen Familienstand haben Sie?

☐ Verheiratet/in Lebenspartner-schaft (zusammenlebend) ☐ Verheiratet/in Lebenspartner-schaft (getrennt lebend) ☐ Verwitwet/LebenspartnerIn verstorben
☐ Ledig ☐ Geschieden/Getrennt ☐ Sonstiges (bitte angeben):__

26. Wie viele Kinder und Stiefkinder haben Sie?

☐ Keine Kinder ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8+

27. Wie viele Enkelkinder und Stiefenkelkinder haben Sie?

☐ Keine Enkel-kinder ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8+

28. Wie häufig treffen Sie die nachfolgend aufgeführten Familienmitglieder und Bekannten? (Bitte denken Sie jeweils an diejenigen Personen, die Sie am häufigsten sehen)

	Täglich	Wöch-entlich	Ein- oder zweimal im Monat	Alle paar Monate	Ein- oder zweimal im Jahr	So gut wie nie	Nie	Nicht zutreffend
Partner	☐	☐	☐	☐	☐	☐	☐	☐
Kind(er)	☐	☐	☐	☐	☐	☐	☐	☐
Enkel/Urenkel	☐	☐	☐	☐	☐	☐	☐	☐
Geschwister	☐	☐	☐	☐	☐	☐	☐	☐
Eltern	☐	☐	☐	☐	☐	☐	☐	☐
Freunde	☐	☐	☐	☐	☐	☐	☐	☐
Nachbarn	☐	☐	☐	☐	☐	☐	☐	☐

29. In welcher Wohnform leben Sie derzeit? Mehrfachnennungen möglich.

☐ Haus (ohne Betreuung) ☐ Wohnung (ohne Betreuung)
☐ Mehrgenerationenhaus ☐ Betreutes Wohnen zu Hause
☐ Wohngemeinschaft mit Familie/Freunden ☐ Seniorenresidenz
☐ Pflegeheim ☐ Seniorenheim
☐ Sonstiges (bitte angeben):_____

30. Wie viele Einwohner hat die Stadt in der Sie derzeit leben (geschätzt)?

☐ Unter 1,000 ☐ 1,000-9,999 ☐ 10,000-19,999 ☐ 20,000-49,999
☐ 50,000-99,000 ☐ 100,000-499,000 ☐ 500,000+

31. Welche der folgenden elektronischen Geräte verwenden sie in der Regel mindestens einmal pro Woche oder häufiger? Mehrfachnennungen möglich.

☐ Mobiltelefon (ohne Internetzugang)
☐ Mobiltelefon (mit Internetzugang, z.B. iPhone)
☐ Desktop-Computer (Schreibtischcomputer)
☐ Laptop, Netbook
☐ Tabletcomputer (z.B. iPad)
☐ E-reader (z.B. Kindle, Nook)
☐ Wii, Playstation oder andere Spielekonsole
☐ Sonstiges (bitte angeben): _____
☐ Digitalkamera
☐ Videokamera
☐ Navigatiossytem
☐ MP3-Spieler (z.B. iPod)
☐ Radio
☐ Fernseher
☐ Keines der aufgeführten Geräte (Bitte fahren Sie bei Frage 31 fort)

32. Wie häufig verwenden Sie das Internet zur Informationsbeschaffung oder Recherche?

☐ Täglich ☐ Wöchentlich ☐ Ein- oder zweimal im Monat ☐ Alle paar Monate

33. Wie häufig verwenden Sie das Internet, um mit anderen Menschen zu kommunizieren (z.B. mit Hilfe von Email, Facebook, Skype)?

☐ Täglich ☐ Wöchentlich ☐ Ein- oder zweimal im Monat ☐ Alle paar Monate
☐ So gut wie nie ☐ Nie ☐ Ich habe keinen Zugang zum Internet

34. Falls Sie <u>KEINEN</u> Computer, das Internet oder andere der oben aufgeführten technischen Geräte verwenden, was sind die Gründe? Mehrfachnennungen möglich.

☐ Brauche keinen Computer, das Internet oder andere moderne technische Geräte
☐ Habe nicht die Zeit, mir das notwendige Wissen zum Umgang anzueignen
☐ Bin generell nicht an neuen Technologien interessiert
☐ Besitze nicht die notwendigen Fähigkeiten und Fertigkeiten
☐ Computer und Internet sind nur etwas für junge Leute
☐ Finanzielle Gründe
☐ Sonstiges (bitte angeben):_____

35. Wie würden Sie Ihre derzeitige Gesundheit bewerten?

☐ Sehr gut ☐ Eher gut ☐ Durch-schnittlich ☐ Eher schlecht ☐ Sehr schlecht ☐ Ich möchte die Frage nicht beantworten

36. Welchen Einfluss hat Ihr derzeitiger Gesundheitszustand auf die Planung von langfristigen Verpflichtungen (z.B. Anmeldung zu längeren Kursen)?

☐ Sehr gut ☐ Eher gut ☐ Durch-schnittlich ☐ Eher schlecht ☐ Sehr schlecht ☐ Ich möchte die Frage nicht beantworten

37. Sind Sie in einem oder mehreren der folgenden Bereiche eingeschränkt? Mehrfachnennungen möglich.

☐ Sehkraft
☐ Beweglichkeit, Mobilität
☐ Aufmerksamkeits-, Erinnerungsvermögen
☐ Sonstiges (bitte angeben): _____
☐ Hörvermögen
☐ Schwächegefühle, geringes Fitnessniveau
☐ Chronische Krankheiten
☐ Finanziell
☐ Ich möchte die Frage nicht beantworten

38. Benötigen Sie derzeit Hilfe im Alltag (z.B. beim Kochen oder Besorgungen erledigen)?

☐ Ja ☐ Nein ☐ Ich möchte die Frage nicht beantworten

39. Falls ja, in welchen Alltagsbereichen benötigen Sie derzeit Hilfe? Mehrfachnennungen möglich.

☐ Kochen
☐ Anziehen
☐ Sonstiges (bitte angeben):_____
☐ Besorgungen (z.B. Einkaufen, Apotheke)
☐ Fahrdienste/Fahrhilfe (z.B. für Arztbesuche)

40. Wodurch sind Sie auf diese Umfrage aufmerksam geworden?

_____