
Is the digital divide between young and elderly people increasing?**by Gerd Paul and
Christian Stegbauer****Abstract**

Elderly people still play a minor role in research on information needs and usage patterns of Internet users. Online research and advocacy groups look optimistically at the (economic and social) potential of the active and technology-skilled elderly; other approaches dealing with the social appropriation of technology see obstacles and stress the dangers of an increasing digital divide between generations. Our objective is to refer to taken for granted normative assumptions of the digital divide discourse, highlighting different requirements for the appropriation of the Internet. Using the concept of technological generations we look at formal and informal learning of young and elderly people in the German context. We use survey material and field impressions we gained in various technology related studies. The results show that the "two worlds apart" assumption (young vs. elderly people) is too simplistic. Factors like gender, education and socio-economic status still play an important role for acceptance and diffusion of a technology. The diffusion rate among the elderly is increasing, but will continue to lag behind the figures of the young users. Cultural preparations and easy access modes are essential for the elderly, who could make use of latecomer advantages. Informal learning and peer group support will be crucial for the diffusion of the Internet among the elderly. In our conclusions we look at the specific social status of the elderly cohort, which makes a comparison with other social groups very difficult.

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Elderly in the e-society


Concepts of the Internet are intertwined with ideas of a technology driven social development. This can be shown, for example, in discourses about the liberating and participatory potential of e-learning, e-government, e-elections, e-economy, etc. (Roesler, 1997; Malone and Laubacher, 1998; Zerdick, 1999; Lührs, *et al.*, 2004). These and other applications (like e-banking, e-shopping, e-health) stand for the promise that in the near future individual well-being and social progress in the knowledge society (Bundesregierung, 2002; IST, 2002) will be enhanced by the technology of the Internet — provided all citizens

have access and are ready to participate. Internet access and competence seem to be imperative. A complete participation of the population would be the best way to make use of the technological and social potential and advantages of the Internet. Non-users are regarded as obstacles to innovation and progress. In this perspective the elderly are the most difficult group due to their low adoption pace which required specific pedagogical efforts to motivate each individual.

Technological optimists would argue that growing user figures among the elderly Internet-user group seem to indicate that the non-user problem will sooner or later disappear. We doubt it. In the article we ask about the nature of obstacles for significant increases in the participation rate among the elderly and pose the question which needs of this group are served — or not. We presume that socio-structural arguments help to answer this question and introduce a specific concept of "technological generations" as an explanatory variable. As a strong contrast group, we take young people, a group with a very high Internet penetration. Most of our arguments are taken from German Internet research and the discourse on the digital divide.

The problem of non-access and exclusion has been for long time on the agenda of Internet research, mainly looking at the consequences of a presumed knowledge gap. Social inequality in most concepts is strongly linked to Internet access: income, education, parents social status and other traditional predictors of social differences lose their weight; what counts is information and Internet access in a world in which information is the most important resource (which creates the digital divide between the information rich and poor; see Jäckel, 1994; Saxer, 1987; Lauffer, 1996; Horstmann, 1991; Domathob, *et al.*, 1996; Roesler, 1997; Burkart and Hömberg, 1998).

The widely hailed necessity to gain IT competence and to practise life-long e-learning has its argumentative power related to the changing conditions of work demands, especially in the dynamic sectors of the service economy and in concerns of political leaders about winners and losers in the race for innovation and competitiveness of nations (EU Commission, 2000; German Ministry of Science and Technology, 2000; Dolata, 2003). The inclusion argument — advocating access to the IT for all groups of the population in order to fight the consequences of the digital divide — is a social political side-effect of the general discussion on the further development of the Information Society. These arguments seem to take for granted a Darwinist assumption that one either rides on top of the high-tech wave and becomes a winner or falls deeply behind as a loser. In political discourse the invocation of more efforts to help the non-computer literate, non-Internet-connected segment of the population has the same status as political speeches on how to end misery in the developing world. It seems to be self-evident that the assumption: "connecting people to the Internet is good and necessary for all social groups" is the normative basis for political action and educational efforts (for an example of this argumentation, see Stadelhofer, 1999). It must be stressed that having access to information is not the problem but rather its interpretation and its reframing in a personal and social context. Too often the current debate equates information for knowledge. The focus on information access — as we have noted earlier in the digital divide discourse — is misleading. Further, there are reasons why the assumption that Internet access is a general problem solver for social and economic issues is too naive.



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In early Internet research, access was regarded as the focal problem. Being connected or disconnected to the Internet seemed to determine the knowledge gap and to create inequality. In other words: representatives of the knowledge gap research argued that more equality could be reached by the provision of better Internet access, taking for granted that due to low hardware cost everyone could participate and that participation is not restricted by inhibiting structures of the Internet (e.g., Gurak, 1996; Korenman and Wyatt, 1996; Rost, 1997; Sproull and Kiesler, 1991).

Research discovered rather early differences and inequality between those with access. These differences were either explained as differences in competence (ability to express oneself, cognitive differentiation, sociability etc.; see Grubauer, 1998) or it was presumed that different interests were the reason (Wetzstein and Dahm, 1996). A set of pedagogical measures was regarded as the best way to level competence differences.

In this article we present limits to the individual (motivational) approach, holding that access is a structural problem (e.g., the integration of the work and non-work spheres), as, for example, expressed in social network approaches (Stegbauer, 2001). The work sphere requires computer literacy and gives a magnitude of Internet use-reasons. The elderly, who communicate mostly within the same age cohort of retirees and who have a similar educational background, have no professional incentives to use the Internet, which has a lot to offer to young and well-educated people (chats, games, films, music, etc.) but provides less to offer for the elderly. There are good reasons why they refuse to participate. Our aim is to understand these reasons and to study obstacles for access by the elderly.

As a by-product of a recently finished housing study with 65 plus dwellers (n= 352, see Paul, *et al.*, 2004) we found a very low Internet user rate (four percent) among the interviewed elderly. This was a reason to look systematically at existing literature and empirical findings. When we were putting together dispersed information on the elderly and the Internet we realised that there were not only different research traditions (marketing, media, aging and technology research) but also a lot of implicit normative assumptions on the use-motives and necessities for the elderly to become active Internet users. In the first part of this paper we take a critical view at these normative arguments.

The results of our own study (the housing study of elderly 65 plus dwellers) had a too small database of Internet users, which made further statistical analysis impossible. We rather refer to bits and pieces of studies on the elderly and the Internet. Survey data was either used from the "cyberatlas" (former "NUA") and other information services (like "nrw-media") or was found online at special statistical data sources in Germany, provided by Social Science Institutions (ZUMA Mannheim, Zentralarchiv Köln, Deutsches Zentrum für Altersforschung Berlin). Our own research on specific technologists and Internet user groups (Paul, 1989; Konrad and Paul, 1999; Stegbauer, 2001) and current research with elderly employees and dwellers of a housing company provides a background for some of our assumptions.

Context and age-specific needs and learning attitudes are the key to involvement and usage patterns of different social groups, which are not sharply distinguished in "digital divide" discourse. Regarding the high vs. low participant dichotomy, which equals the young vs. old division, we present arguments which influence usage patterns in both groups (gender, education, status). We conclude that the technological generation concept employed here has two consequences: a) as elderly people have a different social and educational background and different learning attitudes it makes little sense to argue that participation levels will approximate in the long run; and, b) peer group support is essential for the informal learning mode.



Age research classifications about life–style orientations of the elderly often highlight the "active elderly." For social and marketing research the most interesting group of potential and current users are the "young" elderly [1], which means the age group between 55 and 69, who, to a certain degree, have Internet access in their current job. From 70 on only a very small figure (3.9 percent) use computers, the non–user rates are very high (men 93,9 percent, women 97,4 percent, figures from GeroStat database of 2003–03–16, at <http://gerostat.prz.tu-berlin.de/dza/cgi>). Other studies mention that the elderly use the Internet at home or in specific Internet courses.

When we talk about the elderly we mean not biological age but the new status after having left behind the work–sphere cycle. As only a minority of workers in Germany work after 60 years it would make sense to look more closely at the 60 plus group. However quite a lot of the German statistics count from 65 (pension age) on which sets pragmatic limits for an adequate age classification. A differentiation of the 65 plus group, though, could refer to the idea of generations; it could follow the "technological generation" concept.

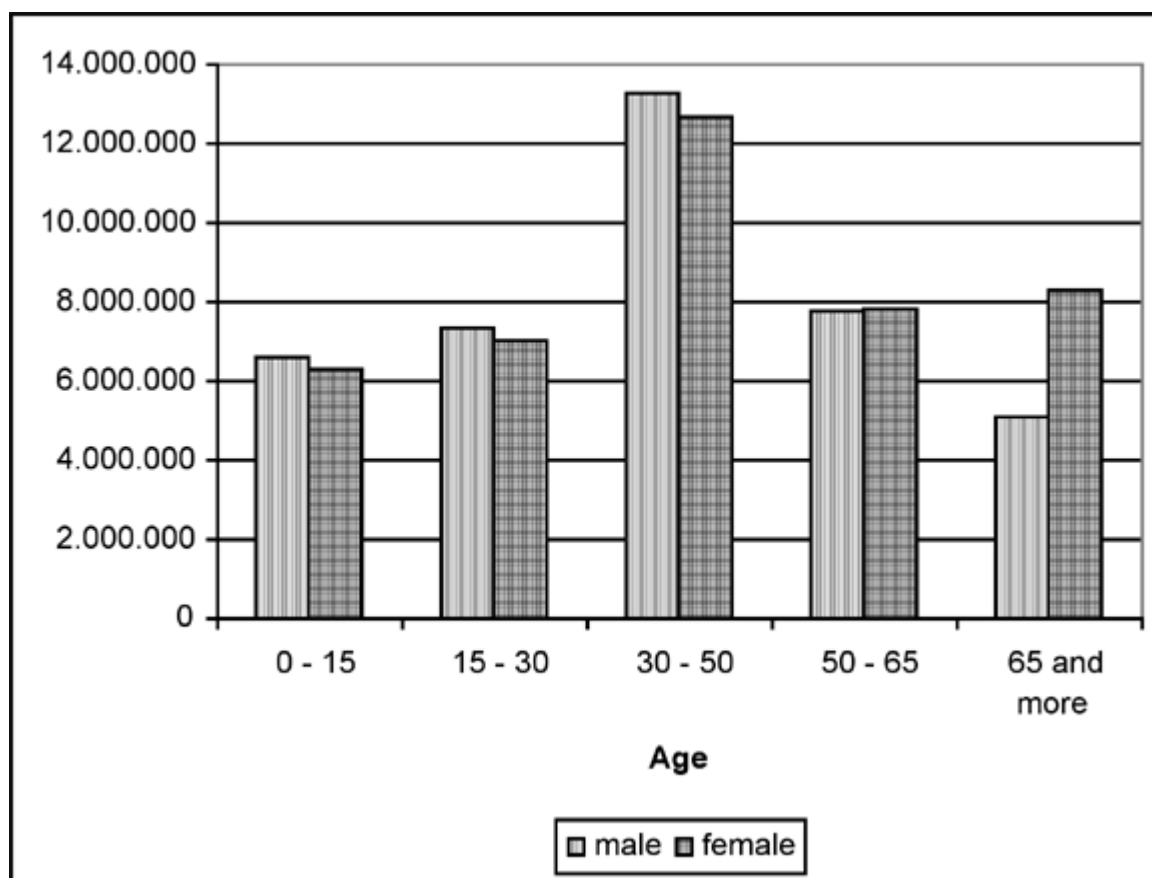


Figure 1: The German population by sex and age (grouped).

Source: © Statistische Ämter des Bundes und der Länder (2001), at http://www.brandenburg.de/statreg/daten_02/173-11.htm, accessed 14 March 2004.

Generations are not only marked by different educational backgrounds. Socialisation in different times creates different learning styles and approaches to technology. In a traditional sense the term "generation" refers to same experiences of age groups in different historical phases (for example the 68 generation). Giddens (1991) noted that "a generation is a distinct kinship cohort or order which sets the individual's life within a sequence of collective transitions" [2]. In technology research, the phrase "technological generation" is used (e.g., Larsen, 1993). For Germany, Sackmann and Weymann (1994) developed four generations: the ones born before 1939 belong to the "pre–technological generation"; the group born between 1939 and 1948 are of the "generation of the household revolution"; the age group born between 1949 and 1964 are the "generation of sophisticated household technologies";

and, the ones born after 1964 belong to the "computer-generation," Tully argues that one could easily speak of a next, fifth generation — the ones who have grown up with a variety of digital helpers [3]. Each generation grew up with certain technical devices which influenced everyday life significantly. For all generations the phase of childhood and adolescence influenced their technology attitudes and competence significantly. The same experience and a familiarity in everyday practise constitute a generation-specific body of technological basic knowledge (Larsen, 1993). We suppose that learning new technologies for each generation is dependent upon personal resources and possible migration paths to levels of the next generation. When we speak about the elderly our focus is on the "generation of the household revolution" and the "pre-technological generation." Both groups have in common with young people that their use of computers and of the Internet is not determined by work-sphere demands (as is the case in the middle age group which we neglect here).

It is well known that young people belong to the most intensive Internet user group. This is well documented (Tully, 2000; JIM, 2002; see table below). Research on elderly net-users is less widespread.

Not too many facts and figures are known about the use of the Internet among the elderly in Germany. In the 50–59 age group we find 56 percent Internet users in the second quarter 2003. In the 60+ group it amounts to 21 percent (Forschungsgruppe Wahlen Online, 2003). Elderly people, here seen as the 60+ age group, are the fastest growing Internet user group: from 1997 to 2001 their number increased by 3,625 percent [4]. New figures show a moderate growth of Internet users in almost all age groups (which indicates saturation), with the exception of the still fast growing 60+ group.

Table 1: Internet Users Rate in Different Age Groups.

Source: Forschungsgruppe Wahlen 2003, www.fgw-online.de, own calculation), based on telephone interviews of German adults (over 18 years), at least 3,800 interviews per wave.

		1. Quarter 2000	1. Quarter 2001	1. Quarter 2002	1. Quarter 2003
All	Percentage of Internet use	24	37	45	53
	Percent change in Internet use		54.2	21.6	17.8
18–24	Percentage of Internet use	38	63	60	74
	Percent change in Internet use		65.8	-4.8	23.3
25–29	Percentage of Internet use	44	59	70	74
	Percent change in Internet use		34.1	18.6	5.7
30–39	Percentage of Internet use	35	49	65	70
	Percent change in Internet use		40	32.7	7.7
40–49	Percentage of Internet use	30	49	61	69
	Percent change in Internet use		63.3	24.5	13.1

50–59	Percentage of Internet use	25	38	46	55
	Percent change in Internet use		52	21.1	19.6
60>	Percentage of Internet use	5	11	12	20
	Percent change in Internet use		120	9.1	66.7

Elderly Internet users are still not the average representatives of their age group in several social aspects: they have a purchasing power above the average, they are better educated and they have a strong learning attitude [5].

A small sample (n=600) of study of a local online club for the elderly revealed that their income on hand is 40 percent higher than that of other retirees and that they are strongly prone to online shopping and banking [6].

Social stratification of the users

Generally young heavy users have more public and scientific attention than "light" or casual users or non-users. There are at least three types of "heavy" Internet users among the population. The first group represents Internet users who perform their online activities nearly exclusively at work, often mixing corporate and private interests. A second group uses the Internet equally at work and home. We might describe these individuals as young professionals, for whom technology use is permanently part of their lifestyle. A third group largely uses the Internet at home; we might include in this group students and — to a lesser degree — the elderly.

Technical obstacles for the elderly

There is some evidence for a linear decrease of Internet use in all age groups [7]. If non-users are the main problem, then the elderly become a significant problem group. There are, however, some severe socio-technical arguments which demonstrate why the elderly lack sufficient motivation to participate. We have to keep in mind that the IT sector targets its products to the young and affluent, having in mind a trickle down model from early adopters to the broad public.

Product developers do not care very much about the fact that the elderly cannot use tiny mobile telephones very well or that they are unable to decipher icons. A large number of elderly cannot read text on the screen or use a keyboard due to visual impairments or other physical or psychological handicaps. Our own research (Düsseldorf, *et al.*, 1998) showed that producers of electronic devices widely neglect the needs of the elderly, whom they regard as a marginal group. Although research in ergonomics on user-friendliness has a sound set of rules and standards (DIN 33455 for barrier free products in Germany), producers do not think of a "design for all" when developing new applications and programs. The same is true for many Internet sites. The personal computer itself is too complex and only the very enthusiastic are willing to care about new upgrades, read incomprehensible instructions and buy specialised magazines offering tips and tricks. As Donald Norman noted:

"The major problem with today's PC is its complexity. The complexity of the PC is pretty fundamental; it is built into its foundation. There are three major reasons for complexity: the attempt to make a single device do too many things, the need to have a single machine suffice for every person in the world and the business model of the computer industry." [8].

How do the elderly and young use the Internet?

Elderly retirees and very young Internet users have in common that professional interests play a small role in their motivation to use the Internet. Admittedly there are striking differences in use-patterns: the young are supposed to be strongly interested in popular music, games and computer related information, whereas the elderly seem to be more inclined to look for serious information related to health and finance. Searching for information is reported by German senior citizens as the main motivation to use the Internet; they are looking for news (online magazines) and specific information (like product information or travel tips). Many (63 percent) use the Internet for information about their hobbies, and almost half of them (46 percent) for communication (e-mail and chatting). Four out of ten elderly Internet users use the Internet for learning activities [9]. Sending e-mail and the information searching are the main motivators for the elderly in our current housing study. Only four percent use the Internet. In this study, non-users (and to a certain degree persons with a computer but no Internet access) argue, that they have sufficient access to the world by television and telephone, and that it takes too much effort to learn and to be up to date about the Internet. Many remark that they delegate specific information searches (hobbies and travel information) to their children. The public debate on computer-virus threats and abuse cases in financial transactions were often mentioned as inhibitors to dealing with the Internet. The Internet is seen as interesting and useful but has too little to offer relative to the vital needs of the elderly.

Gender differences

Generally it is very important to make a gender difference in the use of information technologies and the Internet. Based on a 1996 survey, six percent of men between 55 and 69 use the computer daily, but only two percent of women [10]. It is well known that men use the Internet more frequently and for a longer duration than women [11]. It is well known, be it from research on computer students (Neusel and Wetter, 1999; Zwick and Renn, 2000; Winkler, 2002), or from youth and pedagogical research, that girls have a more pragmatic attitude towards computers. Aggressive "shoot them all" computer games are typically used by males. From research on the young we learned that computer use and the Internet fits into different activity patterns, attributing different meanings and values to these activities. Bingham, *et al.* (1999) found that boys and girls belonged to different communities of practice: e-mailing and chats for girls, browsing for the boys [12]. Other studies affirmed that girls use the Internet for social reasons — and they are more insecure and less confident in their abilities when using the Internet than boys [13]. German data on computer usage at school shows only slight differences in usage pattern, but boys use computers more frequently at home (72 percent) than girls (56 percent) [14]. Little is known about gender differences among elderly Internet users. A U.K. study from the charity "Age Concern" found that male seniors mostly go online for information or to pursue their hobbies, whereas women prefer to use the Internet to communicate with close friends and family (NUA, 2002). We presume that the Internet interest of elderly male users is somehow influenced by their former job experiences.

Web site developers assume that the Internet is largely used by young males. The majority

of potential elderly users are women. Compared to men, life expectancy of women is remarkably higher in all European countries — in Germany the difference is six years [15]. This means that the majority of elderly users do not represent the target audience of young males; as a result many Internet sites do not relate to the needs of elderly women.

Economic and educational inequality between generations

The use of the Internet is strongly defined by the two factors — education and income [16]. Both variables correlate strongly but it is difficult to assess the defining one. The income situation of the elderly in Germany is less precarious than a few decades ago (Münnich, 2001). Today's seniors were schooled before the rapid expansion of higher education, which started in Germany in the early 1970s. This means that their levels of formal education are much lower than that in younger cohorts. Many have the lowest level of secondary education or none at all. Among the current younger male group (18–29 years) only 25 percent fall into this lowest level of education, while in the 60+ generation more than two-thirds are in this group. Among the female subgroup differences are even more striking: only 20 percent of the young women cohort finished their educational career at the lowest level, whereas 80 percent of the 60+ women cohort left school at this level.

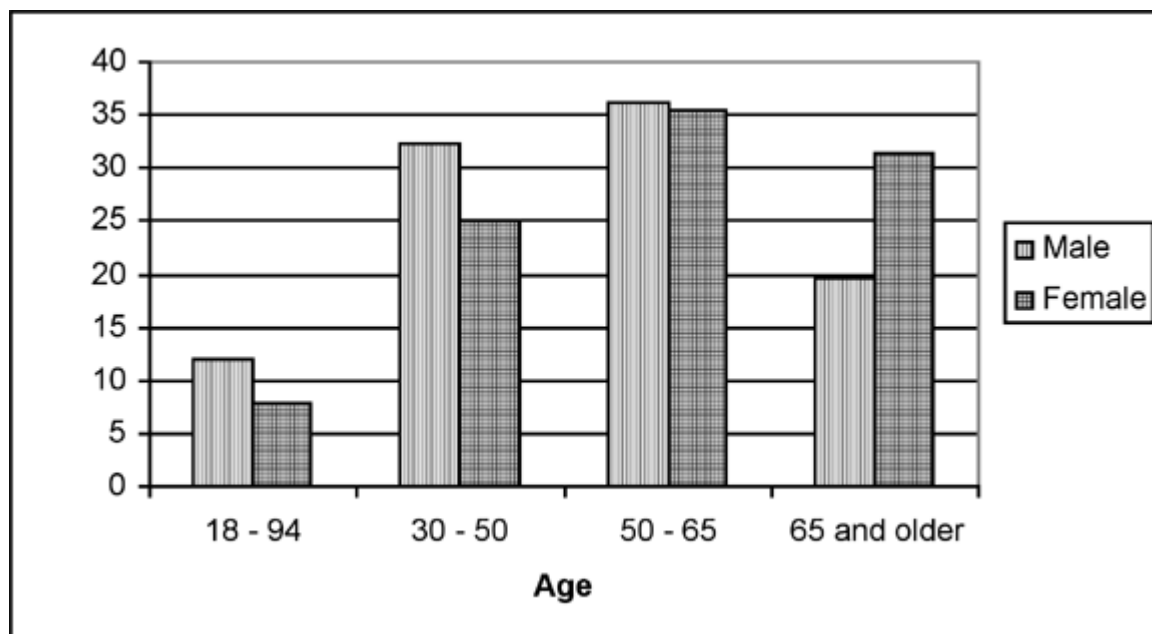


Figure 2: Sex and lowest educational level by age.

Source: Allbus, 1996, own calculation.

Only a minority of the elderly obtained some form of higher education. So we can expect that the ability for complex information processing is lower among them than in a comparable group of present-day 15-year-old pupils. Additionally, in Germany low-level secondary education foreign languages like English were not mandatory; hence a large number of the elderly cannot use large parts of the Internet meaningfully. We also have reasons to assume that the appropriate use of Internet-based information requires intellectual interest and curiosity, which is less developed among those with a low educational background.

In summary: As educational background has an effect on Internet participation, most present-day seniors (with their low educational level), especially women, are insufficiently prepared for the Internet. It takes skills to transform Internet-based information into usable

knowledge. Hence this limited capacity to access large parts of the Internet diminishes the use–value for these groups. The fact that women constitute a higher proportion of the elderly has three side effects: They have a lower educational level (than men in their cohort) — they can be found more often in the computer–abstinent "very old" age group [17]; and, they were traditionally raised to demonstrate little interest in technology. Elderly user quotas should be compared with those with little education or with non–formally employed individuals, like, *e.g.*, traditional housewives.

Experiences and use–contexts

The different socio–cultural orientations of elderly and young people are not just age–related differences of interests. Today's teenagers grew up with digital machines and — to a certain degree — with many binary options, with a visual culture of images and their rapid procession. Tully, for example, identified five different dimensions of technology which have impacted young lifestyle: technology as an enabler of future professional chances; as symbolic capital; as means for fun and action; as an object for social distinction; and, as means to structure daily activities [18]. Principally the young get in touch with these technologies through trial and error and informal learning processes among peers. The elderly are more used to reasoning, systematic and logical thinking, linear step–by–step processes which are good for formal learning but turn out to be an obstacle when dealing with new technologies. Such peer–related behaviour seems to be rational: In one of our small exploration studies in the 1990s on social networks and their significance for the adoption of computers, we learned that most were dependent upon good friends who could help in case something went wrong. These friends are usually among one's own generation. The term "generation" means (apart from Mannheim's definition as "Erlebnisgemeinschaft" = community of the same experience) relatively homogenous age groups, where people find their friends in the same group. Social research about personal relations in our field focuses on two different concepts: 1) similar people, with common values and status attract each other (see Lazarsfeld and Merton, 1982; Wolf, 1997); and, 2) the opportunity to meet people with different characteristics (*i.e.* age) is limited (Blau and Schwartz, 1984).

This may explain why different adoption speeds relates to age. Both the "pre–technological" and the "household revolution" generation did not have the same opportunities to find support among Internet–skilled friends, because their friends had no experience and there are only a few enthusiastic about the Internet. These few Internet users lack opportunities to exchange their experiences with others, as in other generations.

For the young, the use of the Internet has individual and collective significance, the latter in the sense of a cultural background for communities, collective styles and values offering the possibilities to distinguish from others. At the same time the use of the Internet allows some to participate in a technology orientated "modern" lifestyle, dominated by gadgets and strong normative rules of what is "in" and what is "out." This strong technological lifestyle group, though, as it is demonstrated in the Deutsche Shell youth study, represents only a minority of well–educated male high school students [19]. Even among the young there is a minority which, after a certain period of enthusiasm, withdraw from computers and the Internet.

There are also quite a number of young and elderly with low skill levels who are not at all well trained to read digital information and transform it into a meaningful knowledge. The number of students who are hardly able to read or to understand even simple texts is estimated between 15 and 25 percent in Germany [20]. As reading and writing are minimal requirements in order to effectively use search engines, these individuals are excluded. Pure learning by doing helps, but even if they manage to access digital information they need an intellectual effort to translate it into personal meaningful knowledge.

Some research has shown that use patterns are a function of a specific personal integration of a technological object into a given lifestyle. For example, for the elderly persons and especially for women the mobile phone is regarded as a means for feeling safe, whereas for

the young unlimited accessibility is highly important [21]. As for the elderly, it is very likely that most Internet users belong to the group with an "active lifestyle" of the "household revolution" generation. These are well-educated elderly who have an internalised learning attitude and regard the Internet as a challenge for learning and a good means to enhance their knowledge and find a different way of relating to others [22]. For them the Internet is like a book or an outdoor event: a means to attribute individual significance to a given offer. Accessing the Internet means not only knowing about computer hardware and software. They provide a certain cognitive complexity and flexibility. As the elderly generally have problems with semantic complexity and quick information processing (Schwarz, *et al.*, 1998; Kühn and Porst, 1999) it is very likely that the more non-cognitive orientated elderly are not attracted by the Internet.

Contrary to the diffusion of other technological innovations (Rogers, 1983) communication technologies have advantage for latecomers (Markus, 1987; Werle, 1995): ease of use, low cost, a large variety of offers, and more participants. Underling diffusion models take the viewpoint of the individual, not socio-structural — *e.g.* social-network effects. If age groups are in fact relatively distinct, effects must be broken down for specific generational aspects.

We conclude that the social network of the elderly does not provide sufficient support for those who want to become familiar with the Internet. Most sites meet the needs of experienced young male users, whereas the need and interest of elderly women, the majority of the senior potential, are not targeted. Generally, for the elderly the Internet has a different collective significance than in other generations.

Learning difficulties

Participation in the information society means having the means to buy a computer and to mobilise resources for transaction and learning costs. As mentioned before, it means, too, the application of cognitive competence. Our interview experiences with elderly engineers (Paul, 1989; Konrad and Paul, 1999) demonstrated that they had little difficulty understanding the use of computers. In a current large study (of SOFI institute for Bertelsmann Foundation) elderly employees in the German retail sector have expressed concern over learning how to use computers well. They are very ambivalent about their ability to learn. On the one hand, they think they are shrewd and have the necessary cognitive level; on the other hand they express a certain uncertainty and a distance to the computer world, using generation arguments like "my generation was not brought up with these machines" or "this is something for my kids, not for my generation."

How can they be approached successfully? The answer is through both informal and formal learning. Computer-learning and the knowledge acquisition of modern technologies is *per se* informal learning. You need a device, a problem and someone who can help you to solve the problem. This is the big advantage of the young generation, who are socialised into this muddling through approach. Older individuals essentially have to unlearn some routines in order to deal with technology. However they have considerable latecomer advantages [23]. There are a number of stories about grandpa learning about a computer from his grandson or daughter, learning step-by-step and supported by a younger individual acquainted with his shortcomings and peculiarities. This generational co-operation is one smooth solution to a deeper conflict in which an older individual is dependent but wants to be autonomous. The need for individualised special support by others, even by younger, "known" individuals, is a potential menace to one's self-image and role as the "grown-up." On the one hand informal computer-learning with peers or family members increases acceptance and creates an atmosphere of trust and understanding. On the other hand the complicated emotional situation of both parties can lead to conflicts. In short, often a professional pedagogical approach might be more appropriate. We frequently heard in interviews with the elderly that wanted to avoid being a stupid absolute beginner; this concern discourages them from giving it a try.

When professional instruction is advocated the problem of special support is at a different level. A lot depends on the instructor's image of the elderly. Reading the literature on the need for the participation of the elderly [24] we discover between the lines two inadequate approaches. The first is viewing the elderly in a deficient position, needing paternalistic help from the outside to discover online information related to their interests. This approach entails the risk of putting the elderly into a golden cage with special "senior" options; this approach certainly backfires as many of the elderly do not identify with a "geezer" image [25].

"The elderly are so obviously the objects of other people's preconceptions about their needs and capabilities. Thus the technological development which is currently targeting the elderly finds that these preconceptions conform well to notions of what technology should be contributing. One example is the preconception that IT should serve as a tool for elderly people to create social contacts and to keep themselves informed." [26]

The other attitude is to minimise learning problems, instead making it seem — with a lot of positive examples — so easy: you can learn like children in a playful and satisfying manner. These attempts to foster empowerment and self-reliance are in contradiction to the real difficulties involved in using many computer programs. The "you just need a positive attitude" message does not address the worries of the elderly.

Somewhere between formal and informal learning we have found interest groups that provide self-help advice and specific information for the elderly. These groups cover a broad range of actors: media and other content providers like the sites of medical or pharmaceutical associations which target a profit potential group in the health sector, semi-statal initiatives and communication platforms (like the Senior Online network in North-Rhine Westfalia) which also provide online learning (like VILe network of "Zentrum für Allgemeine Wissenschaftliche Weiterbildung" of the University of Ulm) and numerous local autonomous initiative and Internet cafes for senior citizens [27].

Formal learning for the elderly takes place in specialised introductory courses of adult education programs, open to anyone. Specialised services are more age-specific like, for example, the Berlin based "Silver Media" computer school, which initially was a free computer meeting point for the elderly offering a general introduction to computers or practical courses like how to store or modify one's photos, make inventories of collections or use financial software. These practical courses meet the needs of their users and are embedded into various support and enabling activities of peers and specialised instructors. Since 1998 more than 6,000 of the 55+ elderly took part in "silvermedia" courses [28]. The initiators of "silvermedia" wrote:

"You have to start with the needs and preferences of the target group and anchor these in courses, e-learning offers, forums and newsgroups. It is not sufficient to label offers as "senior portal" or "senior specific" one has to synchronise content and methods according to the need of the target group. We use a mix of education and information, virtual communication and real contact, entertainment and fun." [29]

The "silvermedia" experience shows that there is a potential for age-specific courses and for low-level introductory courses. It requires — like most successful learning activities — a lot of manpower for support and instruction, plus a technical infrastructure. This works fine as long as a basic (State) funding is guaranteed, which in Germany was for a long time the case in most of the age-specific learning services. It becomes more difficult now with budget cuts by various governmental agencies. As a result specific learning institutions for the elderly lose not only considerable part of their clients but also resources to maintain their technical infrastructure.

It might be the case — given a current controversial discussion about the "burden" of the elderly — that a new definition of "generation" might be more appropriate. Rosenmayr's definition of "generation" is a "polarisation of interests of age related large groups which mutually allocate and deny each-others resources" [30]. This would mean that inclusion

rhetoric is good for economically sound times; when it comes to periods of stagnation and crisis only appeals to self-help or the invocation of the market to provide courses would remain.

Trial and error, self-education as informal learning is not comfortable for the elderly, but until now it has been the way to acquire practical knowledge. As the elderly have less social network support than the young, the entrance barrier is higher. Differences in generational experiences, exploratory behaviour and informal learning explain why the elderly have different usage patterns of the Internet from those of the young.


Conclusion

In group 60+ the proportion of Internet users is smaller than in other age groups. Elderly men are more likely to use the Internet than women. The rate of elderly users will gradually grow in Germany [31] but it will never reach the rates of younger users. The so-called digital divide or knowledge gap between current younger and older generations is not very likely to be closed in the near future. Nevertheless the gap will become smaller over time, because the rate of elderly Internet users is growing. We expect that growth will in turn create more growth. If the Internet becomes more widely diffused among the elderly, there will be more opportunities for mutual support.

The use of the Internet by the elderly may not reach the levels noted for younger audiences. This is a result that many popular Internet applications are not aimed at the elderly and their interests [32].

Concerns for increases in the digital divide between generations must be taken seriously but they still have a normative base (taking for granted that everyone has to use the Internet which *per se* has a positive value). On the one hand, these barriers can be removed via peers of younger informal or professional supporters. On the other hand having the means and training to access the Internet might become more important, presuming that the development of public (like e-government) and other Internet-based services increases rapidly. The elderly, especially those with reduced mobility, will be more dependent on simple access modes than younger age groups.

We tried to show that knowledge gap and digital divide discourses implicitly foster the myth of a technological driven social development. In this vein the elderly are obstacles for the rapid development of the Information Society, which promises to remove social barriers and provide a variety of e-based services.

No doubt, on the individual level, the elderly can profit personally from turning to the Internet. On the societal level, with the growth of services like e-banking or e-government, traditional face-to-face services will decrease. In a way, some elderly Internet adopters are contributing involuntarily to a decrease in living conditions for non-Internet users of their own generation. 

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Notes

1. A three category stratification — following the division "young elderly", elderly and very old people — makes sense, as for example proposed by the Berlin based Sentha project (Seniorengerechte Technik im häuslichen Alltag). They propose three groups: 55 –64 years, 65–75, 75 and above (www.sentha.tu-berlin.de). This division offers the opportunity to examine the first group more thoroughly, which in marketing language are the "best agers" and who are regarded as the core group of the "silver market,"
2. Giddens, 1991, p. 146.
3. Tully, 2003b, p. 136.
4. Ochel, 2003, p. 44.
5. Ochel, 2003, p. 45; o.A. Context 16/01.
6. *Frankfurter Rundschau*, 2001–03–22, 69: 29.
7. Cosse, 2003, p. 14.
8. Norman, 1998, p. 77.
9. See Ochel, 2003, pp. 50 and 81; Context 18/91.
10. "several times per week" men, five percent; women, two percent"; figures from GeroStat database of 2003–03–16, <http://gerostat.prz.tu-berlin.de/dza/cgi>.
11. See media NRW Info service of 2001–07–31: p. 1; Gershuny, 2002; Cosse, 2003, p. 14. Of the small group of computer abstinent young people in Germany (17 percent), 84 percent are women; Deutsche Shell, 2000, p. 213.
12. Bingham, *et al.* in Marquet, *et al.*, 1999, p. 471.
13. See, for example, Kielholz, 1999, p. 537.
14. See JIM, 2002, pp. 16 and 31.
15. <http://www.destatis.de/basis/d/bevoe/bevoetab3.htm>.
16. Robinson, *et al.*, 2002, p. 285; Pew, 2003, p. 6.
17. See also Pew, 2003, p. 16.
18. Tully, 2003a, p. 35.
19. Shell, 2000, pp. 191ff.
20. PISA E, 2002, p. 9.
21. vdi-nachrichten 2000–07–14, p. 19.
22. Every second German academic took part in training courses in the last three years, among the group of low qualified it is only every tenth; Datenreport, 2002, p. 484.
23. Ease of use, price, robustness; see Tully 2003b, p. 162.
24. See, for example, Erkert and Salomon, 1998.
25. In Germany any marketing campaign that addresses directly the "seniors" or the "elderly" usually fails because the target audience does not see itself as "seniors" or "elderly"; they

always feel much younger.

26. Östlund, 2003, p. 6.

27. See for example the list in Erkert and Salomon, 1998, pp. 67ff; Ochel, 2003, pp. 62ff.

28. In Frankfurt a similar institution with an Internet café for the elderly had 21,000 visitors in two years; see *Frankfurter Rundschau*, 2001–01–02, p. 28.

29. Schulze, 2003, p. 163.

30. Rosenmayr, 2001, p. 27.

31. "NetValue" figures from the U.K. (which is in third position with 13 percent of the total home online population after Sweden [17.4] and Denmark [16.3]) show a sharp Internet usage increase of 90 percent since 2001 for the elderly (NUA Survey information of 28 March 2002). A 2002 study holds that the Internet is number one hobby for British pensioners and that around 83 percent of seniors in the U.K. go online on a regular basis (NUA survey report of 13 May 2002).

32. This does not mean, that the elderly wouldn't use chat or other collaborative media, such as newsgroups or mailing-lists. For a structural investigation of a mailing-list for elderly Jewish people, see Stegbauer (2001).

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Is the digital divide between young and elderly people increasing? by Dr. Gerd Paul and Dr. Christian Stegbauer

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