The Digital Lireracy of oIder Citizens in Extremadura (Spain)

By Artemio Baigorri & Mar Chaves

1. Introduction

The profound impact that the new Information and Communication Technologies (ICT) are having on society has led, in recent years, their growth and potential to become objects of study in all fields of specialization in the Social Sciences. One of the latest developments has been that both researchers and public administrators are beginning to focus attention not only on the already existing social needs that the ICT are satisfying, but also on the new needs that these technologies themselves generate. One that is especially evident is that of technological and digital literacy in sectors in which the impact is most immediate. Access to the advantages in terms of quality of life offered by ICT has become, since the mid-1990s, a major determinant of social exclusion or integration in the framework of the new Telematic Society.

A second element that conforms the present work is old age. While this is an increasingly ambiguous sociological category, for most of the population it means a time of increasing dependence that the ICT are already helping to palliate, and doubtless will do so far more in the future – a future that, for the present in the West, is marked by an increasing number of old age people in relation to the rest of society.

The third element corresponds to the policies put into effect by public administrations to confront the challenges deriving from the irruption of ICT into society, and most especially from their impact on groups of the population, such as the elderly, that are at risk of falling into a situation of digital exclusion. Those public initiatives in the form of programs of tech-

nological and digital literacy for everyone in general, and for the elderly in particular, have come from regional administrations. In Spain it has been the regional governments which, faced with the do-nothing policies of the central government, have taken on the responsibility of providing access to the new telematic tools, taking advantage of European Community funds available to this end. This has in particular been the case in the Autonomous Community of Extremadura, the region we analyse.

The scope of the present article is to describe the policies in Spain that are related to providing access, training, and qualification of the elderly in the use of ICT. Also, an analysis is given of public and private technological literacy initiatives in the Autonomous Region of Extremadura aimed at enabling the elderly in the use of these new tools, and at their active and full integration into the Telematic Society. Particular attention will be paid to analyzing the benefits acquired in this qualification process for this social group.

Due to the approximate character of this research, and project pilot, its conclusions, even if they are based on a relatively small sample, must without question serve as the bases for a more detailed study.

2. The age-based digital divide in Spain

The growth, and above all the potential, of the new ICT have been the basis of many research studies and social policies in which governments are taking account of the digital literacy of diverse economic, political, and civil sectors. At the same time, the growing utilization of ICT is beginning to be considered as a determinant of social exclusion or integration within the Telematic Society;[1] a type of society characterized by its

1. The authors consider this denomination, Telematic Society, more appropriate to define with more clarity the nature of the emergent society. A denomination that appeared for the first time in a report linked with the ' religion' saint-simoniana that has guided the French technocracy for almost two centuries: the famous Nora-Minc report on the computerization of the society that revolutionized, at the end of the ' 70s, the European economic ideas (Nora, Minc, 1983). This denomination is confirmed by James Martin, a technologist, adviser of electronics multinationals and university professor, who published, *The Wired Society* in 1978, a book that expresses the tendencies of this society (Mar-

"capacity to surpass space/time barriers thanks to new technologies of processing, transmission and diffusion of information" (Baigorri, 2000).

The non-uses, or an inefficient uses, of ICT may lead to new mechanisms of exclusion from this emergent society. This is a key aspect which needs baring in mind when undertaking studies of the elderly and how they relate to the new technologies. Both historically and theoretically, the elderly have been considered to be an excluded sector of the population, so that we are faced with another manifestation of exclusion – the digital divide defined like the differences between countries, and within them, between their social groups, with respect to access to advantages and benefits derived from the use of ICT (Baigorri & Fernandez, 2000); a reality that, in the case of Spanish elderly, is specified in the following sections.

On the other hand, the Welfare State is based on the universalization of access to certain goods and services economic, cultural and personal, such as education, health, and housing. A growing number of these social activities and public services are beginning to be carried out telematically in teaching, health, assistance in the home, and many other fields. This supposed universalization thus depends to an ever greater degree on real and effective access to the new technological goods and services. And this real and effective access in turn depends on three factors – the provision of infrastructure (telematic networks), access to the necessary equipment (both home computers and complements of all types), and finally, but of no less importance, the capacity to use the technology. Therefore the degree of integration within the Telematic Society will be influenced by the processes of integration with respect to the uses and applicability of the ICT, that is to say, digital literacy. Like learning processes, digital literacy includes a set of actions in order to reach a result: the acquisition of knowledge in the use of ICT – computers and Internet -being our thesis the existence of a real influence of those knoweledges on the quality of life of the population that use those technologies..

tin, 1978). This same author published a new book in 1981, with the title of *The Telematic Society*, which focused on the interactions between new information technologies and society (Martin, 1985).

Although some authors (Selwyn, 2003) doubt that the use of ICTs necessarily supposes an objective improvement in the quality of life, the unquestionable fact, made clear by all the research, is that, in the case of the elderly, the new ICTs give the possibility of access to goods and services to them that otherwise would be more difficult to access: trips, services, sanitary information, on-line banking, are just some of the activities that the most of the elderly who are connected to the Internet use regularly in the United States (Fox, 2004). Therefore, the lack of digital literacy, together with the lack of access to technology, telecommunications and information, and the level of income are key factors in a more and more multidimensional digital divide (Baigorri & Fernández, 2000; Bertot, 2003). The analysis of literacy initiatives thus becomes indispensable if one wishes to determine the degree of inclusion of different social groups, and especially if the aim is to evaluate the effectiveness in attaining the objectives of these processes.

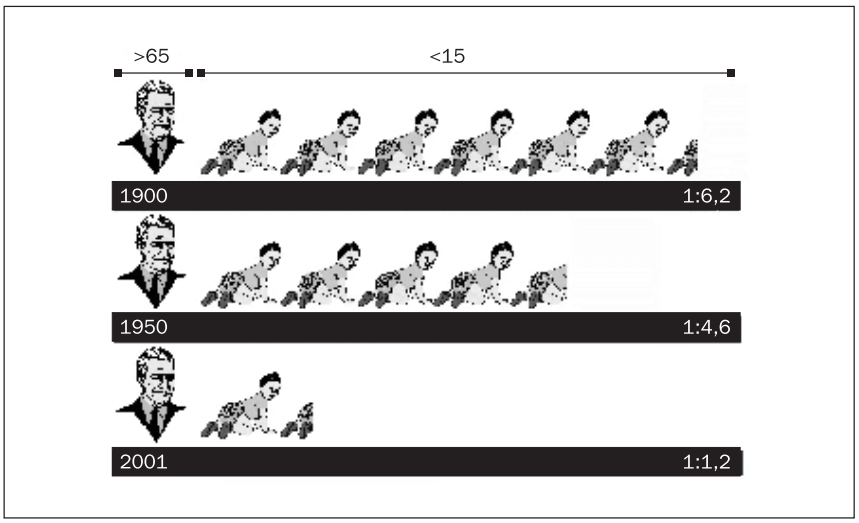
But in addition to the benefits associated with the results of these learning processes, specifically with respect to the elderly, this process can be beneficial for them in another sense; not only because they acquire a knowledge that enables them in their dialogue with the new technologies, but also because digital literacy is an activity that implies participation and use of their leisure time; other important aspects that influence their quality of life and the levels of satisfaction, even if they donot reach a full digital literacy.

This proposal is defended in our analysis of the initiatives of digital literacy with the elderly in Extremadura. However, it is necessary to make a brief reference to the present relation between this social group and ICT in Spanish society. Due to their low rates of integration as users of the technological tools, this group is regarded, a priori, as refractory to the new technologies of the society of the present century, but paradoxically they will constitute an important mass of users, due to the progressive aging of the developed societies.

Several reports have provided evidence in Spain, that the number of older people rose throughout the past century and will continue rising in the immediate future. This is above all a consequence of the interaction of two socio-demographic phenomena – the increase in life expectancy at birth, and the decline in the birth rate. According to INSERSO's (the institution in Spain responsible for policies concerning the elderly at the state-

wide level) most recent calculations, in 2003 the elderly – the third and fourth ages – comprised 16.8% of Spain's population, with this segment having grown seven-fold since the beginning of the 20. century. There are more than one and a half million octogenarians (the so-called fourth age), and the forecasts are for an even greater growth in their number over the next thirty years. Figure 1 expresses the situation more clearly by showing not only the absolute increase of the elderly population, but the proportion of children for each person older than 65.

Figure 1: Ratio of <15-year-olds to >65-year-olds in Spain.



The same tendency can be seen in the Autonomous Community of Extremadura, which, as mentioned above, is one of the regions with the highest proportion of elderly people who account for 18.8% of the population. The gender differences follow the same pattern as at the national level. The aging of the Spanish and Extremadura society is patent, and future predictions point to a progressive increase in both cases. We thus have a major contingent of older people who will constitute a quantitatively larger proportion of the Telematic Society of the present century.

We have already noted, however, that integration into the Telematic Society will not be achieved without prior technological literacy. But in the case of the elderly we are faced with the situation that their real capac-

ity to access and effectively use the new tools differs so vastly from that of other groups in society that it has become one of the facets of the so-called digital divide.

Although the outlook for the integration of the elderly as users of the Internet looks hopeful in other countries such as the United States, in Spain and in Extremadura the percentage of elderly users of the Internet are low. According to the latest study of the Nielsen/NetRatings consultancy published at the end of 2003, the number of Internet users older than 65 had grown 25% in the United States with respect to October of 2002, from 7.6 million connected users to 9.6 million. In Spain, however, the percentage of Internet users older than 65 has been estimated at just 1.2%, and is indeed the lowest percentage in Europe.

It is evident therefore, that in Spain the digital divide affects the elderly very markedly. Although we can not establish the causes of these low levels of integration, it can be fairly confidently stated that they are most likely related to the costs of equipment and Internet connection, and to widespread digital illiteracy. These are aspects that have been absolutely ignored by state administration policies between 1996, the year that the Internet irrupted into everyday life, and 2003 i.e., during the period of time in which the conservative Partido Popular was in power. The regional governments have been in charge of this digital (il)literacy, for all the citizenship in general, and for vulnerable groups specifically, like the group of elderly.

3. Policies concerning access, training, and qualification of elderly people by means of ict: regional initiatives and programs

The policies concerning access and qualification of elderly people by means of the new ICT cannot be understood without making reference to the technological situation in Spain. As was mentioned above, the conservative government opted in the mid 1990s to let the country's incorporation into what was then called the Information Society be exclusively a product of market forces. The consequences could not have been more catastrophic for a country that, while among the world's top fifteen economic powers, has been relegated to the condition of a subordinate in the

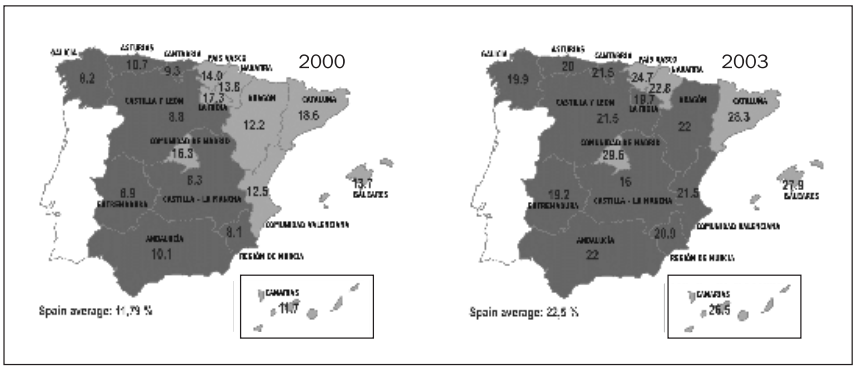
Telematic Society, ranked 28 in the countries of the world in the Digital Access Index (DAI) drawn up by the International Telecommunication Union (ITU) and currently regarded as the most reliable indicator of integration in the Telematic Society.

Within the European Union, Spain has also been systematically losing ground. The last Eurostat report on the topic shows the increasing gap between Spain and the EU average. In 2000, for the EU as a whole, there were 25 users of the Internet per 100 inhabitants, while for Spain there were only 14. Two years later, this 11 point gap had grown to 17 points: in 2002, for the EU as a whole there were 36 users per 100 inhabitants and in Spain only 19 users per 100 inhabitants. In that same year, for the EU as a whole, 14% of Internet users connected via the faster and more advanced technologies – cable and wireless networks – while in Spain the corresponding percentage was only one half this figure. The OECD report "Measuring the Information Economy", published in 2002, also ranked Spain last of all the countries in the OECD on all the variables that it considered – production of ICT, infrastructure endowment, and the access and use made of it for production and consumption.

Faced with the growing citizens' demand for ICT infrastructure and access services, particularly to the Internet, it has been Spain's regional administrations that have attempted to respond to the challenge in so far as their possibilities have allowed and always with the aid of Community cohesion funds. To the degree that Spain's political system is based on a decentralized organization of the State (a 'State of Autonomous Communities'), the regional governments have become de facto responsible for carrying out the policies to integration of all social groups into the Telematic Society, with the goal of reducing the digital divide in access to the advantages offered by ICT. This has been particularly evident in the case of the integration of specific groups – the elderly, women, and the rural population. But, since the central state has chosen not to take part in advancing the Telematic Society, there has been no definition of certain telematic standards to which the citizen has a right. This has caused new lines of division to arise imposed by the market and by social stratification. In some regions, mechanisms of integration into the Telematic Society have been made available to the elderly. In others, this has not been the case, or insufficient resources have been made available to overcome the inequalities between regions. Indeed, if anything these inequalities

have become even more acute, as is reflected in figure 2 which shows the percentages of the population of each region who had access to the Internet in 2002 and 2003. One observes that there has been an increase over these two years in the number of regions below the national average. It is an especially useful graph because it shows the concentration of the 'telematic wealth' in the three main traditional economic centres in Spain (Madrid, Cataluña and País Vasco); and also, because it shows how the region of Extremadura, continues to occupy the last place with respect to the use of the Internet.

Figure 2: Percentage of the population of each region of Spain with access to the Internet. Source: Encuesta General de Medios (2000 and 2003 EGM).



There have been substantial differences in how the various Spanish regions have tackled the problem of the elderly's digital exclusion. In some, there has just been a usually small percentage of the elderly who have been helped to attain digital literacy. Others have gone much farther, and have subsidized the purchase of computer equipment or connection to the Internet. In some regions, together with local government programs, initiatives have arisen on the part of private organizations. These have been the result of the actions of, in some cases, non-governmental organizations involved with groups at risk of exclusion, and in others, large corporations that have made programs of digital literacy and telematic insertion part of the objectives of their social action plans. Indeed, the present work analyzes the digital literacy program sponsored by the Fundación la Caixa, which belongs to one of the most important Spanish

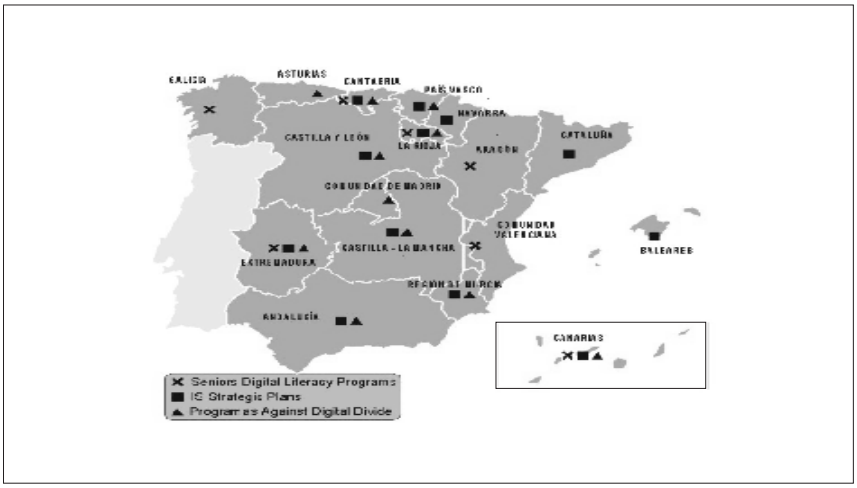
banking institutions. To what degree these actions on the part of large banking corporations reflect an authentic interest in solidarity, or are a marketing product (bearing in mind that the banks themselves sell computing-connected products), is a question that will have to be considered.

With respect to the public initiatives on the part of the Autonomous Communities aimed at making up for the lack of a state policy of insertion into the Telematic Society, the Extremadura region was a pioneer in setting out, in 1997, the design of a 'Global Project for the Information Society' with the aid of European RISI (Regional Information Society Initiative) funds. Although the regional government has long had an explicit commitment to the Telematic Society, the actions that have been carried out have not managed to pull the region up from the bottom position to which it had descended in the regional ranking of integration into the Information Society. In 1997, prior to the Infodex program, the percentage of Extremadura's population with Internet access was greater than that of Andalucía, Cantabria, and Galicia, and the same as that of Castilla-La Mancha and Murcia. In 2003, only Castilla-La Mancha – which, as we saw, was very late in defining a Strategic Plan – was behind Extremadura. Nevertheless, the region has been a pioneer in a series of programs concerning digital or technological literacy in collaboration with the Regional Federation of People's Universities, creating a network of public access telecentres known as "Knowledge Centres" in rural zones and the less wealthy neighborhoods of the cities. We shall return to these in more detail below. As in Canarias, Extremadura also has a network of "Aulas Mentor" oriented to the telematic tutoring of adults.

Between 1999 and 2000, most of the regions developed their own strategic plans of integration into the Telematic Society, under a great variety of denominations and with very varied scopes. Many of them also include the development of specific programs aimed at fighting against digital exclusion.

The following graph summarizes the information collected in the e-España 2003 from AUNA Foundation (that belongs to the second telephone operator in Spain) report focusing specifically on three variables: the existence or non-existence of a Strategic Plan for the integration into de Telematic Society, of specific programs to fight against the digital divide, and of specific digital literacy programs for older people.

Figure 3. Integration Programms into the Telematic Society of the spanish regions.



As shown with this map, only Extremadura, the Canary Islands, Cantabria and La Rioja have designed strategic plans for integration into the Telematic Society, with specific programs of action oriented at fighting against the digital divide, and specific programs destined to the digital literacy of elderly people. Five of the 17 Communities (among them Madrid) have not as yet presented a strategic plan of global telematic development; six of them (paradoxicalally the richest regions) have not considered programs to fight against the digital divide; and the majority, 10 of them, have not started specific programs directed towards the digital literacy for elderly.

3. Case study: Plan for digital literacy in extremadura, and the 'new knowledge centres'

The process of technological integration of Extremadura's elderly population is being carried out through programs of technological literacy connected to the leisure time use of the Internet in specific venues. These include Old People's Day Centres, and venues specially created for the purpose – known as 'New Knowledge Centres' (NKC). The latter are

sponsored by the Junta of Extremadura (the regional government) and administered by the Regional Federation of People's Universities, a private non-profit institution co-financed by the town councils and the Junta of Extremadura. This action is complemented by agreements with the "Fundación la Caixa" (belonging to the La Caixa financial institution) for the development of projects specifically related to the new technologies and the elderly. We shall next briefly describe these two initiatives.

Private initiative: Fundación la Caixa [The La Caixa Trust]

The agreement with the Board of Social Welfare of the Junta of Extremadura dates from 1997. This type of agreement carries with it a significant fiscal benefit to La Caixa, the banking entity associated with the Trust. Extremadura's regional parliament passed a law taxing the deposits captured by financial institutions whose headquarters are outside of the region. But these taxes may be avoided by investing in the less-favored sectors of the region.

The Fundación la Caixa's program is directed at the older citizen. Particularly noteworthy is the computing equipment of the "cyber-classrooms" installed in 14 Old People's Day Centres in the region, including both rural and urban settings, and the computer-use classes (at the levels of Initiation, Internet, and Advanced Volunteers).

To work towards the objective of technological literacy of the elderly, these programs are based on three fundamental axes. The first corresponds to the "cyber-classrooms" themselves, in which introductory courses to computer use (the CD-ROM, word processor, household accounts, spreadsheet, and the design of pamphlets, advertisements, posters, etc.) are combined with no-cost access to the Internet. The second corresponds to the creation of "mediathèques" – physical spaces that redefine the concept of library, adapting it to the ICT – located in the daytime centres for the elderly, in which one can find books, newspapers and magazines, videos, and materials on new computer-based supports, together with multimedia computers to facilitate consulting the available information. And the third corresponds to the Internet space for the older citizen – the website "Club Estrella" – in which the elderly can meet and correspond with other people, exchange experiences and know-how with other users, participate in debates and surveys, buy, sell, and swap prod-

ucts, keep up to date with the news and with what is new, or discover the possibilities of courses to which they can have access.

The courses that are taught are on three levels: Initiation (how to use the computer and word processors, scanner, etc.), the Internet, and Advanced Volunteers (in which the computer-literate elderly take on the process of making their companions literate), with each level depending on having mastered the previous one. This topic will be gone into in more detail in section 3.2, as this initiative formed part of our case study.

Public initiative: the New Knowledge Centres

With respect to the actions of the Junta of Extremadura itself within its Technological Literacy Plan, the regional government created the so-called "New Knowledge Centres" (NKC). The concept is one of a connected network of public spaces, located in cultural and social centres in the region, endowed with computer equipment, and staffed with specialized motivational personnel, in order to facilitate the access of adults to ICT. There are currently 34 of these distributed over the entire region. Ten of them are located in the less-wealthy neighbourhoods of the cities of Badajoz, Cáceres, and Mérida. We must also note that the absence of a specific NKC in a given location is partially compensated by visits of "travelling Centres".

Due to their general character, they are open to every type of public. Responding to the socioeconomic characteristics of the town or village in which they are located, each NKC develops technological literacy programs for different social groups. In this sense, one finds specific activities for the elderly in Badajoz, Miajadas, Mérida, Villagonzalo, Don Benito, and Cáceres. And in the NKC website (www.nccextremadura.org) one finds the "zone La pic@ta", directed specifically to the elderly.

The activities carried out in the NKC have the following structure:

Dissemination activities: The goals of this group of activities are: disseminating the Technological Literacy Plan among the population of older citizens; developing a space for social-virtual encounters between older people aimed at enabling them to exchange experiences; creating a network of collaboration between the various Old People's Day Centres in Extremadura; and introducing older people to a knowledge of the reality of the Extremadura region by means of the new technologies. Other prime objectives are to encourage intergenerational relationships by

means of joint activities with State Schools, and to disseminate the potential of the technologies applied to health, and in particular to teleassistance at home. These activities were carried out by means of Leisure and Spare Time Workshops, videoconferences between Day Centres, Older Citizens Fairs, and symposia on the topic. At quite another level, a spin-off of this type of activity is the dissemination of local culture and of the elderly's potentialities by means of the creation of personal web pages.

Training activities: This group of activities is specifically directed at training older people in the use of ICT. The activities are structured into training modules that commenced in January 2003. There have been high levels of participation by both men and women. These modules, adapted to the needs and preferences of the elderly, have dealt with the following topics:

- Word processor
- Learning how to use the scanner
- Navigating the Internet; using search engines
- Creating and handling e-mail
- Instant messaging

Specific leisure activities: making albums of photographs; the use of ICT to exhibit work in wood, textiles, painting, recipes, etc.

The levels of participation and of the results in this type of initiative have been relatively good. In 2003, a total of 1400 pensioners were registered as new users of the NKC, participating in programmed activities on using the computer, and browsing the Internet.

One can establish significant differences between the two initiatives for technological literacy, even though their pedagogical content might be similar:

Observations	NKC. Junta of Extremadura	Cyberclassroom. La Caixa
Location	Social and cultural centres in the region (34, Integra-Red)	Old People's Day Centres in the region (14)
Users	All social groups	Elderly
Dependence Directives	Junta of Extremadura	La Caixa
Dependence Motivational personnel	Junta of Extremadura	Private Educational Company
Pace of Learning	Individual, the elderly person sets the pace of learning each educational module.	In groups, and with the pace determined by the schedule set in the La Caixa directives The courses are structured into modules of 1 to 2 months.
Reinforcement in Learning	Activities of Dissemination Creation of personal pages Related to personal experiences and hobbies	Club Estrella website, in which they practice, with little possibility of access to other pages Association of Volunteer IT Professionals (in progress)

We should add some annotations to the content of this table with respect to the pace and reinforcement of learning, since, as will be seen in the case study, these are the factors that could be behind the differences in the degree of technological literacy attained by the elderly persons studied in the two initiatives.

The individual rate of learning, or "at your own pace", facilitates the more effective understanding of the content by the elderly persons, even though it might involve a longer time of learning. The group rate of learning forces a given schedule to be followed, which implies a dependence on the group, or "keep up with the speed of the class". With respect to reinforcement in the learning process, the pedagogical material was generally complemented with other activities to favour interiorization of the knowledge, but with certain differences. In the public initiative, the complementary activities were aimed at interiorizing knowledge by directly relating it to potentialities of the new technologies in areas close to the elderly (health/telemedicine, personal relationships/e-mail, and personal experiences). In the private initiative, reinforcement was through the use of the Club Estrella website (with restrictions on visits to other pages), and through the Association of Advanced Volunteers whose functions were not fully defined as it had only just started up.

3.1. Case study

In our case study, we have looked at the experience of two groups of old people participating in two different technological literacy initiative courses.

The group that participated in the public initiative course, i.e., at the New Knowledge Centres, comprised six elderly persons – four men and two women. They were selected by the course instructors themselves on the basis of the high level of knowledge these students had acquired, and a group discussion was carried out with them.

The group following the private initiative program of the Fundación la Caixa in their own Day Centre comprised 13 elderly persons – 5 men and 8 women. They were members of the Old People's Day Centre of the town of Olivenza, in which the literacy courses were being given, and where all three levels of literacy – Initiation, the Internet, and Advanced Volunteers – were offered. The conclusions drawn with respect to this group, and which form the basis of our comparative analysis, refer to five of these elderly persons (three men and two women) who were in the final course of advanced volunteers, and who would have, a priori, high levels of knowledge. The data corresponded to their responses to items of the structured questionnaires given to this group.

The differences with respect to the technique used to access the information in the two groups result from the characteristics of the respective technological literacy experiences. In the public initiative, the elderly persons attending the courses are from all parts of Extremadura. For organizational reasons, this made it difficult to use responses to the questionnaire. Instead, we chose the option of carrying out a single discussion group with them, based on a prior evaluation from interviews with their instructors of the knowledge they had acquired. On the contrary, we opted for structured questionnaires given to the all elderly persons who were participating in the private initiative. There was a fundamental issue underlying this choice. A preliminary questionnaire had been given to students of the final course, with items centred on the possible direct connection between the new technologies and higher levels of their relational quality of life. The responses to this questionnaire showed the sparseness of the knowledge that these students had acquired, in spite of being in the final course of the new technology literacy program. It was therefore decided to evaluate what really had been learnt, and to seek the possible

causes in the differences between this group and the public initiative group.

One must not forget that the digital divide is more than just a lack of infrastructure, and that the actions that will help to bridge the gap are not merely related to the indiscriminate provision of this infrastructure. While this may be a necessary step for the full literacy of citizens, practical literacy comes through really enabling people in the use of the new technologies. For this reason, we opted for a methodological analysis of the two initiatives to find any substantial differences that might allow us to extract elements or factors that affect the acquisition and interiorization of the target knowledge.

We would stress again that the analysis that is presented was carried out taking as reference the entire group belonging to the public initiative, and only those participants who were in the final course of the private initiative program. The two groups present certain different inter- and intra-group socio-economic characteristics related to age and work experience prior to retirement or to reaching the age of 65. Most of the elderly persons in both groups had an educational level corresponding to primary school and an income level associated with a retirement pension.

Although the results may not be extendable to all the elderly persons of the region who have followed a technological literacy course corresponding to one of the two initiatives, we can establish certain substantial differences in the elderly persons who were studied. These differences are presented in the following table:

	NKC Junta of Extremadura	**Cyber classroom. La Caixa**
Acquired knowledge	Good, in both the use of the word processor and other applications, such as inthe Internet and the use of e-mail. **Observations**: The individual learning rate, or "at your own pace", is a decisive factor. I.e., being able to go back over the lessons and not going on to another topic until the previous one has been mastered even though this means spending more time on acquiring the skill, is fundamental, and indeed forms the methodological basis of the teaching.	Poor, especially with respect tothe Internet and e-mail. **Observations**: The group learning rate and the pre-determined timetable of the modules on which the courses are based lead to an insufficient grasp of the knowledge, and independently of whether or not the elderly persons have learned the lesson, they go on to the next course.

Attitude towards the New Technologies	Positive **Observations**: Due to the Reinforcement of learning with secondary activities that are related to the new technologies and their specific applications in areas of interest to the elderly; important. At the same time, they learn to use the applications by relating them to their own hobbies (reading, writing, etc.), which reinforces both the learning and the positive attitude to the new technologies.	Indifferent **Observations**: Due to the paucity of the knowledge acquired, their attitude towards the new technologies is one of indifference.
Advantages and benefits provided by the new technologies	**Technological literacy because of specific results:** Perfection of individual interests Interpersonal communication Access to useful information Letting yourself be known through one's own home page **Technological literacy as social activity:** Social participation Staying active Social integration **Observations:** The above beneficial aspects deriving from the process of technological literacy are found in this group both because the results allow them to feel that they have not got left behind, and because the social nature of the learning process itself leads them to feel active. But they do not see it as just another activity – this group finds greater satisfaction in using the new technologies than in doing other activities in their daily lives.	**Technological literacy as social activity:** Social participation Staying active Social integration **Observations**: Ignorance of the applications of the new technologies influences attitudes towards them. Thus, in this group, the process of technological literacy is beneficial in as much as it means another activity to do, but they themselves say that it is neither better nor worse than other activities that they do in the Old People's Day Centre. Although their levels of satisfaction with this type of new-technology related activity are fairly good, they do not differ substantially from the satisfaction reported for other activities done by this group.

As one observes in the table, a full digital literacy has not been attained.The level of skill in specific uses of the computer that would be considered as basic was relatively low. On the other hand, although the Day Centres are constructing their own web pages, the students contribution to this activity, and in this centre in particular, is simply to bring pho-

tographs to be posted on the page. None of them participate directly in constructing the page. On the contrary, the students from NKC showed a more involved use of the Internet, and a greater knowledge of its uses and applications. This group was characterized by greater constancy in attending the courses even when these are structured at their own pace of learning, by a high level of interest, and by a more strongly positive attitude towards the new technologies, especially regarding the e-mail which they all used in order to correspond with relatives and friends. Another distinguishing characteristic was that three of the group had their own personal web pages, and not just the group pages as in the case of the Fundación la Caixa initiative As we mentioned above, we believe that the rate of learning and reinforcement are at the base of these differences, so that these are factors to take into account in programming effective technological literacy initiatives.

Also, whether or not the knowledge is interiorized affects the comprehension of the possible advantages and benefits associated with the new technologies, i.e. in specific uses of the Internet and the computer in their everyday lives, and understanding in which areas these technologies could be of help to them. The group showing the greater amount of knowledge do indeed see the new technologies as useful tools in their daily lives because of the access to information, the potentialities offered for personal communication, and the applications to their personal hobbies. Thus, it is interesting to highlight how each of these participants adapted their use of these telematic tools to their own concerns, experiences, and skills. Hence, as an anecdotic example, while the Internet and access to information was important, the use of word processors and the e-mail was more so. Some participants used the word processor to improve and polish one of their main hobbies – writing. Such was the case of Carmen, for instance, a woman of 73, who has put her books of poetry up on her own web page (http://es.geocites.com/carmen_libros), and her other hobby, textile work, she maintains accessible on another personal page (http://es.geocites.com/laborcarmen). On the basis of her previous work as a telephone operator in a large company, she also talked to us about the differences between the communication technologies of yesteryear and those of today. Or the case of Ceferino, a man of 82, on whose personal page one can find his own experience acquiring technological literacy and his books on computing topics (http://www.geocities.com/ceferinojimenez/).

On the contrary, the other group from the private initiative do not view these tools as of any use in their daily lives. They see their utility as being associated, not with the result of the process of technological literacy, but with the process of learning itself and as a social activity that keeps them occupied and active. Even so, their level of satisfaction with this activity is not much higher than that reported for other leisure activities that they do in the Day Centre. Perhaps an anecdotal example is that they state that "staying active", "staying informed", and improving their "family relationships" are the points that they would lay most stress on in order to improve their quality of life, but, unlike the group with the greater knowledge, they do not relate these attitudes to the capacity that the new technologies have to provide these improvements.

The differences in the two groups' attitudes towards the new technologies also affect their preconception of how age is related to the ability to deal with them. Thus, while the group with less knowledge argues that the efficient use of a computer or the Internet depends on your age, this view is not shared by the other group. Nevertheless, this latter group does express some reservations concerning the Internet. Even though it is a group with a good level of technological literacy, it has still not taken advantage of all the possibilities with respect to mobility and time offered by the Internet in banking transactions, dealings with Public Administrations, and purchases. The answer to this question is always the same: they are scared of doing this type of activity. One can find the basis for this attitude in that they had not been taught how to carry out these processes. We would stress, therefore, that the preconceptions and stereotypes about the Internet need to be overcome before full digital integration can be attained. There has to be effective learning of the advantages and direct benefits deriving from the use of the new technologies, but they will also have to be related to the characteristics of the elderly and to the social environments that are closest to them. It is to be understood, therefore, that reinforcement in learning should centre on the uses of the Internet that can be directly of use to the elderly as a social group.

4. Conclusions

The first data obtained from the pilot study, and which must therefore be regarded as approximate in nature, do not allow us to go beyond confirming the cultural shock represented by the new technologies for these elderly persons, and the significant differences between the groups with respect to the level of technological literacy that they acquired. For the group corresponding to the private initiative, we cannot say that the use of these new tools and the Internet is significantly changing their lives. They have a deficient understanding of the tools, which have not become an interior part of their lives. They are unaware of the real advantages of the technology, and their use of it is ineffective in comparison with the other group from the public initiative and the NKCs. We can draw the following conclusions from the comparison of the two groups:

1. For our first group, their levels of satisfaction with the new-technology-related activities were not suggestive of any significant differences with the satisfaction provided by other activities. While the elderly of this group expressed an enormous satisfaction with the activities, they left us unable to define which variables would allow us to quantify or qualify this supposed state of well-being. Unlike the other group, the lack of awareness of the advantages and the low level of interiorization of these technologies into their lives (an ineffective use, or a low level of attendance at the classes) does not allow this group of the elderly to perceive the technologies as an important part of their everyday activities. What has been achieved in this group is what we have been defining as technological literacy as a social activity.

2. The level of knowledge acquired in the private initiative is very low, particularly with respect to the Internet and e-mail. This does not allow us, therefore, to analyze any substantial changes deriving from these tools and the benefits that would be attributed to them. In particular, it does not permit the verification of the supposed improvement in the quality of life of these elderly persons from their use of telematic tools. For the other group of the elderly acquiring digital literacy, their greater level of knowledge allows us to be more precise on the need to acquire these skills in an individually suited manner, since subsequently and ideally, each of these

elderly persons has adapted the tools provided by the technology to their own particular concerns and experience, forming it into a major part of their leisure time in improving their hobbies, and in helping them understand these technologies as being an important part of their daily life, permitting them to improve their relational quality of life, access to information, and interpersonal communication. In this group, therefore, technological literacy has been attained both in the result and understood as a social activity.

3. At the base of these differences in the knowledge acquired by the two groups are the differences in "pace of learning" and "reinforcement". We find that the "individual pace" is advantageous in these activities of technological literacy, and that it is reinforced when a series of activities is provided that directly link the new information and communication technologies with the elderly as a group. We would also maintain that the uses and applications of ICT, and their associated benefits and potential advantages differ according to a multitude of personal characteristics or dimensions, and that the processes of learning the new technologies should be adapted accordingly.

4. The knowledge acquired does not depend a priori on the person's work before retirement, on the fact of having turned 65, or on his or her level of studies. In the first case, the subjects who participated in this comparative analysis had very different work experience, and in no case did this have any computer connection. The were also very similar in their educational level. Therefore, the differences found in knowledge related to dealing with the new technologies did not depend on educational level or previous experience, but on the teaching methods used in the two types of initiative, without forgetting another important factor – the elderly person's readiness to stay active, in particular with a part of that activity related to the new technologies. It also depends on his or her capacity to relate the newly acquired skills to pre-existing knowledge so that the two become interdependent, or so that the new skills can provide a support for previous experiences.

In the next part of the study, we shall go into these and other questions in greater detail, and also broaden the field of the elderly who have acquired digital literacy in the cited initiatives. One can assume that main-

taining one's technological literacy is a necessity for certain groups of the population linked to the work force or to the consumer market. Even though these are sectors in which the elderly supposedly have no place (notwithstanding the fact that current demographic trends mean that society will have to take more account of their particular needs as a potential economic niche), the fact is that the new technologies can fulfil a fundamental role in enabling this group to attain greater levels of personal relations and in supplying their needs for intercommunication. At the same time, these new-technology-related activities are also occupational activities, oriented to maintaining the elderly's active lifestyle by means of the new technological possibilities.

5. References

Baigorri, A. (1998), 'Info-ricos e info-pobres. Navegando sin remos por la cresta de la red', Diario HOY (puede consultarse en http://www.unex.es/sociolog/BAIGORRI)

Baigorri, A. (1999), Vejez y nuevas necesidades sociales en Extremadura ante el siglo XXI. Ponencia presentada en la Escuela de Administración Pública de Extremadura. (Noviembre, 1999)

Baigorri, A. (2000), 'Elementos para un análisis crítico de la red', I Congreso Internacional de Alfabetización Tecnológica, Cáceres (puede consultarse en http://www.unex.es/sociolog/BAIGORRI)

Baigorri, A., Fernández, R. (2000), 'La división digital: desigualdades de acceso a las nuevas tecnologías de la información en el alumnado universitario', I Congreso Internacional de Alfabetización Tecnológica, Cáceres (puede consultarse en http://www.unex.es/sociolog/BAIGORRI)

Bertot, John Carlo (2003), 'The multiple Dimensions of the Digital Divide: More than the Technology 'Haves' and 'Have Nots'', GOVERNMENT INFORMATION QUARTERLY, 20, pp. 185-191

Castells, Manuel (1996), The Rise of Network Society, Blackwell,Oxford.

Fox, Sussanah (2004), 'Older Americans and the Internet', Pew Internet & American Life Project, Washington DC (http://www.pewinternet.org)

Gómez, R. (1990) Las causas de muerte en España, 1981-1985. CSIC. Documentos de trabajo. Madrid.

INSERSO (2002) Envejecer en España. Documento presentado en la II Asamblea Mundial sobre envejecimiento, (Abril, 2002) Madrid

Lavoie, B., O'Neill, E. (1999), 'How World Wide is the Web: trends in the Internationalization of Web Sites', Annual Review of OCL Reasearch 1999 URL: http://www.ocl.org

López A. y otros (2003), Informe Mensual sobre penetración de la nueva economía nº 10. Centro de predicción Económica. UAM. (Marzo, 2003). Madrid.

Martin, James (1978), The Wired Society, Prentice-Hall, New York (versión en español: La sociedad interconectada, Tecnos, Madrid, 1980)

Martin, James (1981), Telematic society. A challenge for tomorrow, Prentice Hall, Englewood Cliffs (versión en español: Paidós, Buenos Aires, 1985)

McConnaughey, J., Nila, C., Sloan, T. (1995), 'Falling through the Net: a Survey of the "Have Nots" in Rural and Urban America', U.s. Department Of Commerce, Washington, URL:
http://www.ntia.doc.gov/ntiahome/fallingthru.html

McConnaughey, J., Lader, W. (1998), 'Falling through the Net II: New Data on the Digital Divide', National Telecommunications And Information Administration URL:
http://www.ntia.doc.gov/ntiahome/net2/falling.html

Nora, S. y Minc, A. (1983), La informatización de la sociedad, Fondo de Cultura Económica, Madrid

Pavón F. y Castellanos A (2000), El aprendizaje de las Personas Mayores ante los retos del nuevo milenio. Dykinson. Madrid, pp. 197-236

Powell, Walter (1991), 'Neither market nor hierarchy: network forms of organization', en Thompson, Frances, Levacic & Mitchell, Markets, Hierarchies & Networks. The coordination of Social Life, Open University/Sage, London, pp. 265-276

Taqi, Ali (2002) 'Tercera Edad, trabajo e iguales oportunidades'. Revista Internacional de Seguridad Social. Volumen 55.

Digital references

AUNA (2004), e-España 2003, Fundación Auna, Madrid, http://www.fundacionauna.org/documentos/eEspana/C3.pdf
International Society for Gerontechnology: www.gerontechnologie.nl
Nuevos Centros de Conocimiento de Extremadura: www.nccextremadura.org
Portal de mayores. Fundación La Caixa: www.clubestrella.es
Plan de Atención para personas mayores de Extremadura: www.juntaex.es/consejerias/bs/mayores/
Estadísticas europeas en www.eurostat.eu