

# Old PEOPLE and New TECHNOLOGIES

*A gap to overcome*

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**Abstract** — This paper aims to reflect and discuss the main problems concerning the use of ICT (Information and Communication) and AT (Assistive Technologies) by old people. Some obstacles and constraints were identified as well as some proposals to overcome those difficulties the old people faced when they tried to use ICT/AT. Taking in account that Portugal is a country with a high rate of old people this paper also aims to become a reference for the implementation of policies towards the increased use of ICT/AT by the Portuguese old citizens. This paper it is only a part of the literature review of a post-doc project that will include old citizens (+65) from Lisbon and from Castelo Branco (a rural and middle town of Portugal) in order to research the literacy, the use, the obstacles and the positive opinions of this population.

**Keywords** - Old people/citizens; ICT (Information and Communication Technologies); AT (assistive Technologies); Portugal.

## I. ICT AND INCLUSIVE INFORMATION SOCIETY

As argued by [1] Information and Communication Technologies (ICT) provides a number of solutions to respond to the challenges that face the EU (ageing population, high expectations with regard to quality of life, in particular in healthcare, environmental and transportation concerns), and the leadership and technology expertise all remain available within European's borders, but strong political leadership is needed at all levels: pan-European, member State and regions.

Often the political discourse discuss about the opportunities and it is common the discussion about the opportunities and threats of the information society in what concerns 'participation' and 'inclusion' that are frequently used to describe the main aim in order to create favorable economic and social conditions from which as many citizens as possible can benefit for their everyday life. Achieving 'an information society for all', that means an 'inclusive information society', had become one of the main political priority for the European Union [2] [3]. As a consequence of the increasing use of ICT in all areas of private, public and business life, the ability and skills to operate these technologies and the means to access them regarded as important prerequisites and components of social inclusion.

According to [4] carrying on the hype to name everything with an 'e-' in front, the terms 'e-inclusion' and 'e-

participation' have been introduced by European policy documents as simple catchwords referring to policies addressing the quite complex role of ICT in the context of social inclusion. The designation 'digital divide' has been established and considered as a metaphor signifying the flip side of 'e-inclusion'. In the viewpoint of [5], the digital divide marks the 'gap between individuals, house holds, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies and to their use of the internet for a wide variety of activities.

The problem related to the 'info-exclusion' is real problematic because it means not so much exclusion *from* information but rather *by* information. The concept of the 'digital divide' directly relates to the spiral of uneven access to and usage of information and communication technologies and the socio-economic rebound caused. In the opinion of [5], the digital divide, conceived of as a digital version of the analogue knowledge gap, usually conflicts with common social policies and visions of an inclusive information society. In this context, all the initiatives which main goals try to minimizing the digital divide had become an important component of regional, national and European policies [2].

We agreed with [3] that the digital divide, understood as a manifestation, cause and effect of social exclusion, plays an important role in social and employment policies, education policies and general information society policies, particularly in the framework of the *eEurope* initiative, under heading of participation in the knowledge-based society. It must not be forgotten, as stressed by [1] that ICT provides a number of solutions to respond to the challenges that face the EU (e.g. ageing population, high expectations with regard to quality of life, in particular in healthcare, environmental and transportation concerns), and the leadership and technology expertise all remain available within European's borders, but strong political leadership is needed at all levels: pan-European, member State and regions. We also agree with [6] that ICT are not only an enabler, however, but also a new source of challenges which need to be tackled.

The combination of the elderly people and ICT is common described in problematic terms because old age often represents a kind of disengagement from different social areas, such as a field of technology. In consequence the digital divide

holds an age-related division, with elderly citizens being over-represented among the non-adopters of technology.

## II. ELDERLY PEOPLE AND ICT TRAINING

It is consensual that elderly people have had to acquire ICT competencies in disadvantageous conditions: for example they have had to learn to coexist with technologies that slowly displaced manual activities in almost all activities and services: restaurants, shops, hospitals, government offices and libraries [7].

Training elderly people must be planned by taken into account relevance, accessibility, usability, affordability and availability of resources and appropriate training and ongoing support for ICT learning in later life are significant for a range of stakeholders. As [8] and Buys [9] argued, both refer implications for training providers aiming to match training and support to the needs of new users of technology.

Other suggestions are presented by [10] that the delivery of learning for older people requires different approaches when compared to the training required for younger people. [10] also stresses that this is especially important if older learners need to acquire skills they have never used or encountered before as, for example, with new technology learning. However, as stated by [8], older learners as students do not need different teaching methods, but that they need to be able to use new knowledge and skills but both trainers and website designers have to provide a range of innovative material to suit different styles and different literacy levels.

## III. SOME OF THE MAIN PROBLEMS AND REASONS FOR THE NON USE OF ICT

The most common reasons for elderly people's non-adoption may be divided into two different categories. One of them relates to biological, cognitive, psychological, social and economic factors connected with later phases of life. Failing eyesight, declining abilities to learn and to remember new materials, reducing contacts with environments that feature new technologies (e.g. workplace), and limited financial means, for instance, may hinder ICT-adoption [11]. The same viewpoint is shared by [9] stating that cognitive slowing is a factor which has implications for learners, trainers, course developers and training providers. The use of adaptive technology solutions are readily available and should form part of train-the-ICT-trainer instruction.

The reality of cognitive slowing with its implications for ICT training and support is acknowledge. Age-related cognitive impairment has dual implications for older adults learning about and via ICT in later life. The other cognitive ageing aspect is that more time is needed by many older adults to select and carry out ICT procedures and to practice and complete coursework within required time frames.

Usually the elderly people may take a little longer to learn new skills than when they were younger and report that they also need more time to process information and associate it with what is already known. It is quite normal that elderly tend to associate ICT with the world of work or with professional needs. Another aspect may be related to the perceived

complexity of the object, namely the idea a person has of the effort that will have to be made in order to integrate the object into his/her normal life.

This representation is truly personal and will largely depend on the past and the technological experience of the individual, as well as on the competences s/he has already accumulated [12]. Thus elderly are proponents of technological advancement, which may have interesting advantages for them, but not at any price. They do not want that face-to-face contacts and non-technological alternatives disappear because of the introduction of new ICT [11]. Elderly showed their preference to keep the option of continuing communicate face-to-face i.e. it seems that they wants to maintain and preserve the traditional modes of communication.

As presented by [11], elderly pose two important conditions. First, new technologies must be easily accessible to them, which require that future ICT keep the typical physical limitations of elderly in mind, and their lack of ICT-related knowledge and skills. In addition, accessibility implies that ICT is affordable for elderly with lower incomes.

According to [12] elderly people adopt a so called 'Personal equation'. This equation includes three variables: the object's usefulness; its complexity; the social norm. Usefulness refers to the meaning a technological artifact could assume in the everyday life of a (potential) user. This meaning depends on the individual's comprehension of the technology, his/her ability to imagine the object's insertion into his/her life. This use projection is mainly based on an ability to imagine the sense and place the object could assume a place that is obviously linked to real and imaginary projections in the individual's personal and social environment. Other barriers may be related with the excessive sophistication, the rapid technical evolutions of the devices because they force people to resume a learning process and thus imply a considerable and unaffordable investment [12].

## IV. THE IMPORTANCE OF THE USE AND APPROPRIATION OF ICT BY ELDERLY PEOPLE

As stated by [11] elderly people would like to see ICT in a way that enhances the quality of their life. For example, ICT may promote and support the social relationships of elderly and help them fight loneliness; ICT also may ameliorate their physical condition and help them live independently (assistive technologies, in particular); offer them the possibilities to stay mobile, to relax, to learn and to work, in order words: to fully participate in society. But at the same time elderly people also want to keep the opportunity to communicate face-to-face with other people (e.g. go to the doctor, go to the bank, go shopping at the grocery, enjoy nature, etc.). By citing [11], elderly people likes that their home environment should be a cozy place, instead of a cold technological one.

In order to overcome the digital divide among elderly people may be done with the concept of 'domestication' developed by [13] and supported by [14] that means people domesticate technology through a process of appropriation,

objectification, incorporation and conversion by turning technology into a part of their everyday life.

These assumptions are also supported by the theories of situated learning proposed by Lave & Wenger about learning is social practices. According to this in this kind of learning process the single user learns how to use the technology and by incorporating it in the everyday life the learner/user becomes socialized into socio-technical network of the technology question [14].

The importance of appropriation is also argued by [12] who affirm that appropriation approaches are user-centered, while adoption approaches tend to be impact-centered or conception-centered where the context plays an important role in which integration takes place. One practical example is presented by [11] with Domotica that may promote independent living, online relationships may compensate the lack of real life contacts. This example demonstrates that more and more technologies are conceived as a means to 'empower' the elderly.

In order to complement the previous statements, [14] refers that a constructivist approach to technology, technology is understood as a socio-technical ensemble (or network) consisting of a variety of both human and non-human actors linked together in a network in which the technology is coming into being. Every human being is a part of many different socio-technical networks. To be included in a socio-technical network requires a process of socialization where the person integrates the technology in question in his or her everyday life and by doing this learns how the relations in the network are constructed.

An example presented by [15] about the «Senior's Club» the apprenticeship model for elderly ICT-training is supported by peers, tutors and technology in use. The elderly trainees are not measured or assessed because use in context is important not how well, how fast or in what amount it can be done. What is aimed is what use elderly like to put the technology and how they use it. The main aims of the training proposed by [15] does not need to cover the whole application from A to Z, but needs to be more of practical use, of cognitive exercise value, or just... purely for fun.

In resume, as argued by [16], mere access is obviously not the purpose, but only the vehicle for assumed positive effects for those who have access. Once access has been established, the next question has to be: «To what end?» We also agree with the statements of [17], that social organizations and policy institutes warn that simple access is not necessarily effective in producing change in low-income communities. That it is why [18] stressed that a promising approach to collect indicators about how people actually make use of the Internet are tracking surveys, where people are questioned about what they did during their online sessions.

#### V. THE CASE OF PORTUGAL: A BRIEF STATISTICAL OVERVIEW ABOUT THE NEED OF USING ICT BY THE PORTUGUESE ELDERLY PEOPLE

The Portuguese population according to the last projections from the Portuguese National Institute of Statistics [19] citizens

with over 65 years (65+) represented 16% of the total population in 2001 and about 17,4% in 2007 what means a slow but worry growth. The Portuguese elderly (65+) are characterized by a very high consumption of Television but the usage of Internet is very low because just only about 4% of them have Internet access [20]. A more detailed Portugal InfoSociety Profile is presented by [21]: Households with internet access 40%; Households with a broadband connection: 26%; Individuals using the internet at least once a week (16-24 years old: 85%; 34-34 years old: 58%; 35-44 years old: 41%; 45-54 years old: 26%; 55-64 years old: 17%; 65-74 years old: 4%. The percentage of individuals (16-74 years old) using the internet, by education level: individuals with low education level (schooling level <= 9 years) 24%; individuals with medium education level (>9 but <= 12 years) 81%; individuals with university level (> 12 years) 90%.

The Portuguese e-Inclusion history can be summarized as follows: Green Book on the Information Society in Portugal (1997); National Initiative for Citizens with Special Needs in the Information Society (1999); Connecting Portugal – National Action Plan for the Information Society (2005-2010); National Action Plan for Growth and Employment (2005-2008); National Strategy for Sustainable Development (2006-2015); National Action Plan for the Inclusion of People with Disabilities (Launched August 2006); National Action Plan for Inclusion (2006-2008). The Portuguese e-Inclusion Legal Framework includes: Resolution 96/99 (August 1999): launched the National Initiative for Citizens with special needs in the Information Society; Resolution 97/99 (August 1999): the e-Accessibility of websites from Public Administration (central and local); Resolution 110/2003 (August 2003): launched the National Programme for the Participation of Citizens with Special Needs in the Information Society; Resolution 120/2006 (August 2006): launched the National Action Plan for the Inclusion of People with Disabilities; Resolution 9/2007 (January 2007): launched the National Action Plan for Accessibility 2006-2015; Resolution 155/2007 (October 2007): stated new strict e-Accessibility Guidelines for all Government and Central Public Administration websites.

Many and diversified Portuguese initiatives were and are launched but our aim is to put in practice measures that implies the use of ICT by the elderly people. Because the elderly group of people is not a homogeneous one in terms of education, income, or even the types of disabilities often associated with age, elderly people as a group are at the greatest risk of being excluded from the benefits of the Information Society. Future developments may include the emerging concept of Ambient Intelligence that offers great potential, with the possibility for the whole environment (e.g. at home, on the move, in the street, whilst driving or during transportation, in public buildings, etc) to have embedded intelligence that helps solving everyday life's needs [22].

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