Chapter 21
Telegerontology®:
A New Technological Resource for Elderly Support

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ABSTRACT

One of the priorities of a modern society must be to offer all individuals the possibility to access all resources available. In this sense, there are still great differences even among well-developed countries when it comes to facing shortages in two important groups, elderly people and disabled people, even more so in the case of elderly people who are also disabled. The amazing progress of remote ICT applied to this field has meant spectacular advances, some of which will be described in this chapter. We will also devote one section to future tendencies and finally, we will focus on the system called Telegerontology®, which apart from including the basic principles of accessibility and usability, also includes those of gerontology attention, i.e., the capacity to assess the patient before the intervention.

INTRODUCTION

As the number of elderly people grows progressively and medical advances increase life expectancies, it is foreseen that the percentage of elderly people over 65 will raise from 7.3% in year 2000 to 16.2% by 2050, while 37.7% of the Japanese population, 24.1% of British, 21.0% of the EEUU population and 30% of Europeans will be older than 65 (United Nations, 2007). The growing number of elderly people also increases the dependence and/or pathologies associated with aging such as Alzheimer's disease (AD) or depression. These people need support from caregivers and there is a social and economical pressure for staying at home as long as possible. This phenomenon increases the need of help from their family and professional carers. For family carers to assume the role of caregivers is a serious

undertaking that increases the risk of psychological, social and financial burden.

Similar to the aging phenomenon, the development of the information and communication technologies (ICT) make their application possible in different social and sanitary areas and with different objectives, like the one we are dealing with, focused on providing on-line services to the elder environment, both his/her own home or a residence. Moreover, since elderly disabled people constitute a large group, another aspect to take into account would be to have the technology to minimize their deficits.

In order for elderly people and remote control devices to interact efficiently, it is necessary to consider the elderly characteristics as well as the accessibility and usability of the devices. In a large percentage of cases, elderly people report good health, despite the elderly representing the largest group of people with disability. One important element when approaching the use of ICT addressed to the disabled population would be to assess elderly people capacities which, in principle, would be enough to interact with the machine; that is, the capacity to see, the capacity to listen, to communicate and to carry out different tasks. In Spain (INE, 2008), the total disability rate per thousand inhabitants is 302.7; 349 per thousand when referring to women and 240.7 when referring to men. This figure goes up to 514.6 per thousand for people over the age of 80. With regard to disabilities that may interfere in the interaction with the ICT, 91.4 per thousand

present with visual disability or limitation; 103.5 per thousand with hearing limitation; 59.9 per thousand with communication limitation and 50.1 per thousand present with some disability in knowledge application and task development (Table 1). Furthermore, women represent a higher rate than men and it is common to find individuals presenting with several disabilities at the same time.

Disability in the elderly population will be an extra handicap in the use of ICT; hence the development of devices fulfilling the "accessibility" and "usability" criteria is necessary to reach the highest number of users. Accessibility is a term that refers to the guarantee that any resource, no matter what its origin, is available to all people, disabled or otherwise (Berners-Lee & Fischetti, 1999); while "usability" is a measurement to know how much a product can be used by some people to reach certain objectives (Nielsen, 1993). It is clear that both terms can be used with several meanings in different situations but in this case we are referring to the use of ICT; that is, any device we design no matter to whom it is addressed, and more over if it is addressed to disabled elderly people, must fulfill the accessibility and usability premises. In our case, and since we refer to the ICT application as reaching the interaction between a remote control and a user via Internet, we would need to know how a remote assistance device addressed to elderly people with or without disability would be, in order to fulfill the aforementioned premises. The answer is not an

Table 1. Elderly people with some disability of limitation with regard to the use of new technologies, by gender. Rate per thousand (Source INE, 2008)

	Total	**Men**	**Women**
Total for all disabilities	302.1	240.7	349.0
Vision	91.4	71.2	106.5
Hearing	103.5	94.1	110.5
Communication	59.9	48.9	68.0
Learning, knowledge application and task development	50.1	35.2	61.3

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