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## The elderly and environmental perception in collective housing

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### Abstract

The interaction of people with physical spaces happens in reciprocal association, where the person-environment system is influenced by and causes an impact on human behavior. Bearing this in mind, this paper sets out to show how elderly residents perceive the environment in collective housing. What is therefore sought is to understand how the elderly perceive their space, in response to their wants and expectations, by applying different techniques for assessing perception in groups of elderly people. The findings in three institutions, in which elderly people reside, have shown a similarity in results, which are seen to be less than enlightening, probably due to the cognitive impairment of the elderly.

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### 1. Introduction

Technological advances and their consequences have been huge in very different areas, and have also been recorded where the elderly population is heavily present. Currently, a more participatory role in society is offered to the elderly, in addition to which society has improved their quality of life as proven by longevity rates. This improvement has increasingly entailed that products and services must be designed for this growing sector of the population. In this context, appropriate environments [1] that make it possible for people with such specific characteristics to move around and to feel safe need to be dealt with and evaluated. This means that the principles of ergonomics applied to architecture and universal design should be heeded.

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According to Reis & Lay [2], Rapoport says that environmental perception occurs initially through the human senses, with the obvious predominance of the sense of sight [3]. However, it is undeniable there is a relationship with cognitive aspects that comprise the prior knowledge of sociocultural dimensions and emotions [4].

Thus, understanding the physical space occupied by the elderly is critical to their quality of life and safety. This concern is due to the fact that the changes resulting from the aging process, which the elderly are subject to, change their senses and influence the activities of their day-to-day lives (ADLs).

Therefore, understanding how the elderly perceive the space that they experience constitutes a very important task [1], to the extent that the environment interacts in an evident symbiosis with its user, thereby also having a direct impact on human behavior [5].

The Research Group for Ergonomics Applied to the Built Environment – ErgoAmbiente (in Portuguese), which is linked to the Post-Graduate Program in Design at the Federal University of Pernambuco, has conducted studies related to housing for the elderly in order to provide principled underpinning with regard to criteria on physical-spatial suitability.

Thus, environmental perception is transformed into a tool that investigates spaces, its purpose being to be an aid or new projects for homes as well as to make it possible to make existing environments suitable for the elderly.

There are many aspects to be considered in order to make an environment adequate, such as luminous, thermal and acoustic comfort, layout, sizing, use of color and claddings, and so forth. And even if the spaces meet the normative precepts relevant to the nature of their activities, the user has the final say on effectively adapting them. Therefore, besides the legal aspects, physical environments must also meet the subjective criteria of those who use them. These criteria consider people's wants and expectations with regard to spatial quality.

Therefore, qualitative studies of direct observation of human behavior in a physical environment use various techniques. However, the cognitive impairment of elderly users must also be considered as must the reliability of data obtained when using the different assessment tools of environmental perception.

Therefore, this paper presents the results from of three Long-term care institutions for the elderly, by using different techniques of environmental awareness in order to identify how the elderly perceive the spaces to which they relate themselves.

## **2. The elderly user and perception of the environment**

The aging process brings about changes in an elderly person's physiological and psychological capacities, as well as predisposing them to depression [6; 7], this being evidenced by the decrease in fully carrying out the activities of everyday life. Thus, due to their loss of or reduction in autonomy, the built environment gains in importance because it is involved in the quality of life and security of the elderly.

The influence of the physical environment in aging processes has been evidenced as to the potential of spaces as an element that facilitates life or makes it difficult [8], depending on the physical-spatial conditioning factors and as to the user's perception of this space [9; 10].

Given this scenario, what are required are environments that are better fitted to the limitations imposed by the senescence process and/or senility, in an attempt to mitigate the constraints caused by a very broad range of physical barriers in these spaces.

Bearing this in mind, ergonomics looks to harmonizing the user-environment interaction in its activities, thereby providing improvement in the well-being of people with very singular characteristics, in which integrating the design of the built environment and interdisciplinary gerontology are present in the quest for more suitable environments.

For Pinheiro & Elali [5], people's use of spaces occurs consciously or even unconsciously, and the relations established are subject to biological and cultural influences, whether these do so simultaneously or not. Therefore, human-spatial relations contribute to changes in the behavioral state, such as modifications in mood, in addition to which they represent ownership of portions of space.

Thus, what this shows is the importance of understanding human behavior in accordance with the spatial dimensions and their relationships with users, so as to understand the person-environment system and to identify how this user interacts with the environment, taking his/her wants and expectations into consideration. Thus, based

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