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POSTER TITLE

CHROMATIC APPLICATIONS IN INTERIOR SPACES FOR THE ELDERLY IN THE P. BORJA GERIATRIC CENTER OF THE FONTILLES FOUNDATION

FIELD & TOPIC

Environmental color design
Architecture and landscape

KEYWORDS

color, architecture, interior design, elderly, space.

ABSTRACT

The interior space in architecture is one of the most important concepts throughout the history of architecture. There are many characteristics that define the three-dimensional aspects of space in order to obtain a more habitable place.
This communication is focused on a particular chromatic study, carried out in three interior spaces at the P. Borja Geriatric Center of the Fontilles Foundation (Alicante), where the appropriate chromatic modifications have been made to achieve improvements in their habitability. This Geriatric Center is specialized in the care of elderly people with varying degrees of dependency. This study is part of a research project carried out by the UPV Architecture Color Group, approved by the Ministry of Industry and Competitiveness of the Spanish Government (2016-2019). The aim of this research project is to establish parameters and chromatic modifications in built interior spaces of the public centers of the Valencian Community, where older people live.

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The facilities of the P. Borja Geriatric Center of the Fontilles Foundation (Alicante) present certain architectural features that can be studied because it is a building located in a unique natural landscape, and it offers a climate especially suitable to accommodate people with certain dependency. It is a very different place from other centers that have been built in an urban area. P. Borja Geriatric Center, that was constructed also at the beginning of the 20th century, is a benchmark of social compromise, where various studies on health and wellness are carried out.

In this context, the study focuses, firstly, on an analysis of the original color of the most common rooms of this center; and, secondly, on the elaboration of new chromatic proposals that allow to improve the interiors spaces. The spaces analyzed in this study are, today, the most used by residents in their daily lives: a multipurpose room where group activities are carried out, a corridor and its transit to other rooms, and a standard bedroom. All the chromatic modifications have been made in this pilot center.

01 THE P. BORJA GERIATRIC CENTER: CASE STUDY

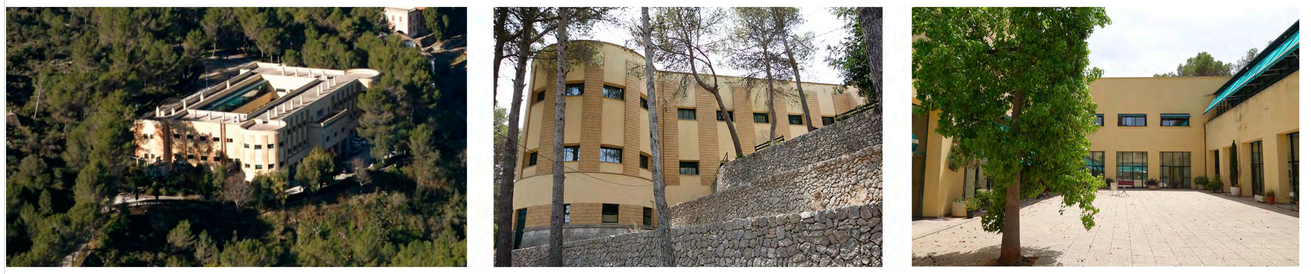


Figure 1: Current state of the P. Borja Geriatric Center, in Fontilles, Alicante. Location and relationship with the natural environment.

The P. Borja Geriatric Center, that is located on the town of Fontilles (Alicante), is part of the Sanatorium of Fontilles, an autonomous complex for the integral treatment of leprosy. Currently, the Center works according to the new model of Integral Person-Centered Care (AICP) since 1998, improving the well-being and quality of life of people and achieving the recertification of ISO 9001 / 2015 in 2017 (Online fundacionfontilles.org). The building has been selected from about twenty of the public centers that have been analyzed in our color study of the Valencian Community because it is a historical building with particular characteristics that other centers in the region do not have; moreover, its architecture has been involved of multiple modifications (Llopis, 2018). Its presence, with a great volumetric impact, is characterized by the unique place where it is located, that is, its natural environment and landscape surrounding (Fig.1), as well as its wide interior spaces, that is not common compared with the rest of the residences analyzed.

02 THE PILOT CENTER: CASE STUDY

PREVIOUS STUDIES

Figure 2: Focus Groups conducted in small groups of older people, to know their visual status and color preferences.

It should be noted that, before the chromatic intervention, the interior of the center was characterised, in its entirety, by the typical uniform yellow color in all its walls, and a dark green color in the metallic details such as handrails, carpentry and other elements of design. These colors these colors promoted a hospital image that did not follow any type of study or habitability conditions. Thus, it has been necessary to carry out an exhaustive analysis that allows to elaborate a color chart determined by the organization of the space, the type of activity that is carried out in each area, as well as the need to achieve more current spaces that help bring the resident closer to social proximity.
A final objective of this study, is to establish chromatic modifications that help the perceptual improvement of residents (Torres-Barchino et al. 2017). To do this, as a previous phase to the chromatic intervention in real spaces, two types of analysis are established: firstly, to determine the visual state of the elderly through a deep literature review (Delcampo-Carda et al. 2019) as well as objective tests (focus group) carried out in small groups of elderly people aged between 70 and 90 years (VVAA MODIFICA. 2019) (Fig.2).

VIRTUAL REALITY

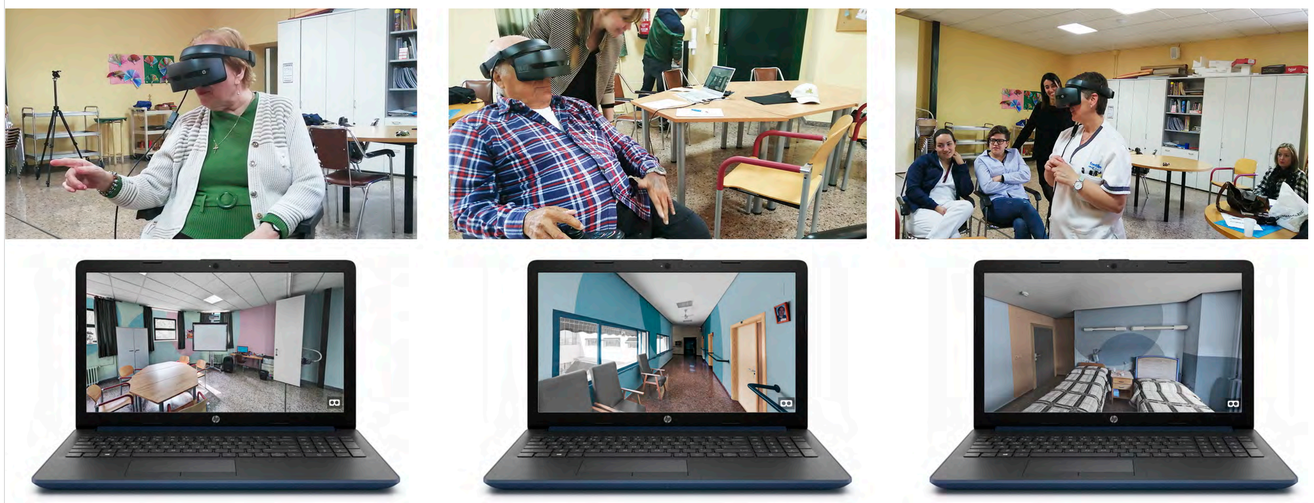


Figure 3: Test conducted to residents and staff of the P. Borja Geriatric Center. Visualization by Virtual Reality glasses of the images of the rooms best known by the resident: multipurpose room, corridor and bedroom.

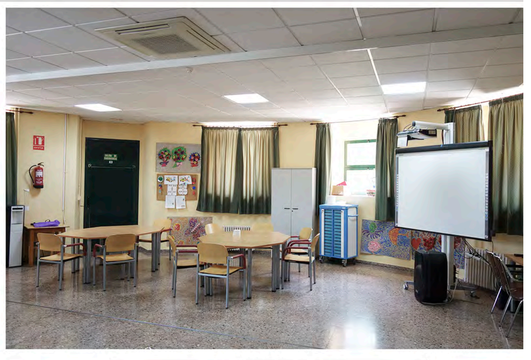
The conclusions drawn in this first theoretical-practical analysis determined the second phase of the analysis, that is, a survey consisting of a test based on images, of the rooms best known by the residents, visualized by Virtual Reality glasses in their original chromatic state and the same images modified in other color schemes previously selected by residents (Fig. 3).
In these images, 4 different color schemes (mainly based on value and contrast modifications) of the three specific rooms were shown. Subsequently, the test aimed to collect the responses about the best perception of the spaces and the particular chromatic preference before carrying out the painting process in the center's facilities. For this, a questionnaire is prepared for each participant, consisting of 3 different parts, based on the evaluation of the three main real spaces existing in the Geriatric Center. Each of these spaces is presented individually.
The chromatic proposals offered in this study for these spaces by using the new technologies of Virtual Reality, have given the possibility to visualize and select chromatic compositions before painting them. The combinations have been defined as a result of the previous study through geometric forms that suggest harmony and dynamism, as well as the unquestionable participation of the older residents and the staff.

03 RESULTS

BEFORE CHROMATIC INTERVENTION

	NCS COLOR
Walls	S0804-Y10R
Doors	S3020-G80Y
Carpentry	S7020-G
Wardrobe	S3020-G80Y

	NCS COLOR
Walls	S0804-Y10R
Doors	S3020-G80Y
Carpentry	S7020-G
Handrail	S7020-G

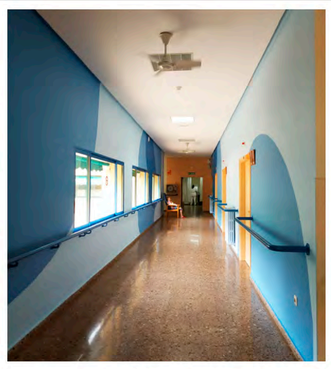


	NCS COLOR
Walls	S0520-Y20R
Doors	S3020-G80Y
Carpentry	S7020-G

AFTER CHROMATIC INTERVENTION

	NCS COLOR
Walls	S0520-R90B
	S2040-R90B
	S3050-R90B
	S1015-Y30R
Doors	S2040-R80B
Carpentry	3050-R90B
Wardrobe	S1020-Y40R
	2040-R80B

Bedroom



	NCS COLOR
Walls	S0520-R90B
	S2040-R90B
	S3050-R90B
Doors	S1020-Y40R
	S1060-Y40R
Carpentry	3050-R90B
Handrail	3050-R90B

Corridor

	NCS COLOR
Walls	S0520-R90B
	S2040-R90B
	S1015-B20G
	S1015-Y80R
Doors	S3040-R80B
Carpentry	S3050-R90B

Multipurpose room

Figure 4: Before and after the chromatic intervention. Final result.

As a result, various compositions were designed with geometric shapes and color variations between warm and cold colors (Fig.4). The difference of each one of the spaces studied, does not depend only on its dimensions, but on the lighting (natural light entrances and artificial light points). Furthermore, the route that the resident makes during the day, will be a fundamental characteristic to determine any variation or color approach in the whole space.

Analysis of the spaces according to uses and times, main objectives:

- To perceive and generate an **attention space** for **transit time**: corridors.
- To perceive a **balanced space** for **resting time**: bedroom.
- To perceive a **dynamic space** for **action time**: activity or multipurpose room.

The result of this work has been carried out in the facilities of the P. Borja Geriatric Center for three years and culminates during this year 2019. The implementation of the color chart and its application in the indicated spaces, has demonstrated a new perception of them in the Case Study Center, in which both residents and staff participated in the process in the different compositional designs intended for this place.
This Research Project, leads to the reflection of the study and application of color, as well as the idea of generating designs that help to improve the original built spaces whose modifications allow a more friendly habitat, improving the quality of life of older people with certain degrees of dependency.
Likewise, we believe that a common color chart cannot be established for all buildings of this type. The particular study for each type of center must be considered based on its own characteristics, as well as knowing the state of the people who inhabit them.

CONCLUSIONS

Currently, the residents of the center show a more positive mood after the color intervention in the inhabited spaces. The activity-multipurpose room as a group room and game room, has managed to improve the attitude of the resident. It is still too early to draw definitive conclusions. These conclusions should be determined throughout the rest of this year to assess the satisfaction results of resident users.

In short, our study is a pioneer in this type of experience in the Valencian Community, so a theoretical-graphic document has been prepared as a result of the tests based on the organization of color in residential spaces that will soon be revealed in a "White Paper", especially indicated to designers and architects.