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**ESCUELA POLITÉCNICA SUPERIOR Alicante University**

Carretera San Vicente del Raspeig s/n 03690 San Vicente del Raspeig. Alicante (SPAIN)

[eurau@ua.es](mailto:eurau@ua.es)

# Designing a Post-Occupancy-Evaluation (POE) Tool for Hospitals

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Addressing functional and emotional users' needs in hospitals

**Cambra-Rufino, Laura**<sup>1</sup>

1. Escuela Técnica Superior de Arquitectura de Madrid, Departamento de Construcción y Tecnología Arquitectónicas, Universidad Politécnica de Madrid, Madrid, Spain, lauracaru@hotmail.com

## Synopsis

This abstract is an introduction to my PhD thesis in progress at Escuela Técnica Superior de Arquitectura de Madrid (Universidad Politécnica de Madrid). My area of interest is the influence of Architecture on Healthcare and vice versa. My research field is the environmental conditions (both quantitative and qualitative) in specific areas of an acute hospital where recovery takes place. The article focuses on the methodology followed on this study which consists of a literature analysis, a three-month hospital placement in Dénia (Alicante), study trips to reference hospitals and a three-month placement at the "Centre for Healthcare Architecture" Chalmers University of Technology, Sweden. The aim of my research is to design a post-occupancy-evaluation (POE) tool which gathers the latest research on evidence-based design, best practice advice and lessons learnt on hospital facilities.

**Key words:** Healthcare Architecture, Hospital, Evidence-Based Design, Post-Occupancy-Evaluation, User Experience, Qualitative Research.

## 1. Introduction

The purpose of this extended abstract is to share the research work I am developing for my PhD thesis at “Universidad Politécnica de Madrid”. This project is being funded by “Ayudas para la formación de profesorado universitario FPU, Ministerio de Educación Cultura y Deporte de España”

My research project is based on the influence of the built environment on people’s health. My field of interest is the environmental conditions in specific areas of an acute hospital. By environmental conditions I am analysing both physical/quantitative/objective aspects (sound levels, temperature, lighting levels, etc.) as well as psychological/qualitative/subjective components (art, views, greenery and music among others). The aim of this work is to develop an assessment tool that will rank hospitals according to their environmental quality and will also facilitate the decision-making process during the design stage.

### 1.1. Spanish hospitals

The “Instituto Nacional de la Salud” INSALUD created in 1978 was the national institution responsible for the design and maintenance of public healthcare facilities. This institution had its own architects specialised in healthcare architecture.

Due to the decentralisation of its competences to every region of the country, the INSALUD disappeared in 2002. Since then there has been a lack of coordination, knowledge and expertise on hospital architecture which has its direct impact on the conservation status of many hospital facilities nowadays.

### 1.2. Transdisciplinary research

Healthcare architecture has received little attention from the Schools of Architecture in Spain which do not normally include hospitals in their curriculum. Its design is a complex and difficult task that needs to be addressed by a transdisciplinary approach. Users become of a paramount importance and architects need to consider the functional and emotional needs of a wide variety of roles (nurses, doctors, other staff, companions and patients).

Poor architectural design results in weak environmental condition in vital places like a childbirth room with the only view of a clock hanging on the wall, an intensive care unit with no daylight reference or a patient hospital room with light glare from the bed.

### 1.3. “Well is the new Green”<sup>1</sup>

On a climate change paradigm, not only do we need more energy efficient buildings but also places that perform better at a human scale. Hospitals should be buildings that help us heal and promote our health and it is the architects’ responsibility to deal with these demanding requirements.

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<sup>1</sup> Clive Shrubsole, MSc Health, Wellbeing and Sustainable Buildings, UCL.

## 2. Methodology

### 2.1. Method

The diagram below (Fig.1) summarises the method followed.

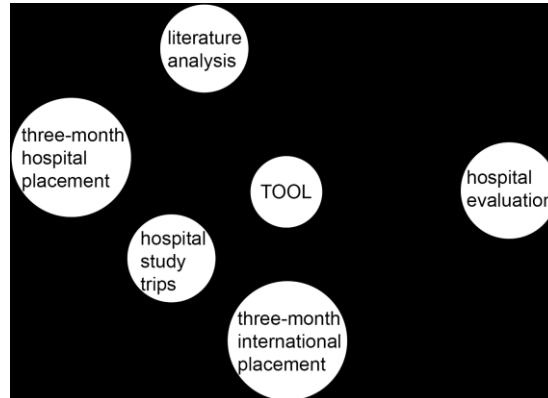


Figure 1.

– Literature analysis: studying Spanish standards and recommendations for healthcare units, British standards and other international guides. Analysis of evidence-based-design research on papers.

– Three-month hospital placement: Hospital Marina Salud de Dénia. Placement sponsored by “Beca DKV Arte y Salud”. Observation on site, sketching, walking and semi-structured interviews to staff, patients and companions.

– Hospital study trips: visiting reference hospitals in Spain and Sweden.

– Three-month international placement: learning from the researchers at the “Centre for Healthcare Architecture” in Sweden.

#### 2.1.1. Centre for Healthcare Architecture

The School of Architecture at Chalmers University of Technology in Gothenburg has a specific centre where not only architects but also nurses, environmental psychologists and occupational therapists conduct research and training on the interaction between healthcare, patients and architecture.

Thanks to this collaboration, this centre provides knowledge and coordination to the different stakeholders at a national level. Thus government decisions on healthcare facilities are founded on research-based knowledge which improves the long-term social investments.



### 3. Results

From December 2017 to February 2018 I collected data with the POE tool from four different hospitals (Fig. 2). These results include information about the areas considered in the study which are some in-patient units (paediatric unit, neonatal unit, maternity ward, internal medicine unit and intensive therapy unit) plus the circulation spaces.



Figure 2.

### 4. Conclusions

When the tool is finished, I will be able to provide hospitals with a mark that grades the environmental quality of the areas studied and a list of items that could be addressed to improve their results.

Thanks to this POE tool, more architects would have an easier way to access information about best practice, research knowledge and lessons learnt from other hospitals. Thus, they might be able to make better informed decisions when designing hospitals and hopefully hospitals will perform better at a human scale.

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## Biography

**Laura Cambra-Rufino.** Born in Ontinyent (south-east coast of Spain), Laura graduated from Architecture at Universitat Politècnica de València in 2012. After finishing her MArch she got a job at the Vertical Transportation team at Arup London where she worked for almost three years. During that experience she designed the vertical transportation strategy for goods and people on a wide variety of building types including airports, conference centres and hospitals. Since September 2015 she has been working on her PhD at Universidad Politécnica de Madrid which focuses on the influence of the built environment on people's health. In order to understand hospital performance from its user perspective she has spent a large amount of time in hospitals: a three-month hospital placement and several study trips to reference hospitals in Spain. In March 2018 she moved to Gothenburg for a three-month placement at the "Centre for Healthcare Architecture" Chalmers University of Technology.