



## KEY POINT SUMMARY

### OBJECTIVES

The objectives of the study were to document and analyze the spatial and physical environments at the aged care facility in order to develop a knowledge base of experience design and propose a framework to research the relationship between the occupants and the architecture.

## Structuring the Environmental Experience Design Research Framework through Selected Aged Care Facility Data Analyses in Victoria

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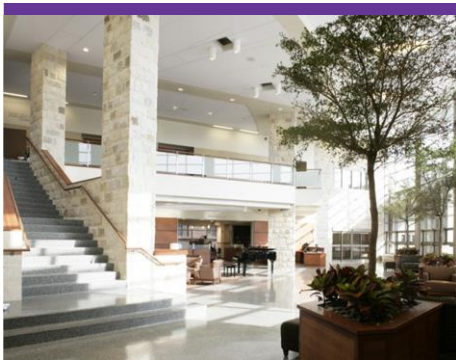
### Key Concepts/Context

There is a strong relationship between the behavior of building occupants and the spaces they use. The design of such spaces affects their psychological well-being in ways that are not fully understood. As buildings are experienced on a daily basis, designers must take into account how the users interact with the architecture. Experience-based design is emerging as a more focused tool that affects environmental psychology and is the focus of this study.

### Methods

The study was conducted at Adare supported residential services (SRS), a 45-resident multi-cultural, aged care facility in Victoria, Australia. Environmental quality measurements were performed indoors for one week at the facility. The goal was to obtain a sample of winter conditions influenced by climate, elderly activity, and building operation. Monitoring instruments were placed in one bedroom, one dining area, and outside. Measurements were taken over a 24-hour period of the temperature, relative humidity, CO<sub>2</sub> and PM<sub>0.3-2.5</sub> concentrations (measurement of the concentration of airborne particles). In addition, a thermal comfort tool was used to examine the thermal comfort of the areas monitored. The data collected was later put into graphs for comparative analysis. To establish the research framework for the environmental experience design (EXD), the authors developed an integrated research approach to combine theories and practices on emotions, user experience design, and environmental psychology. They selected the following four topics of environmental experience design to research:

- 1- Environmental experience design of freedom
- 2- Environmental experience design of connection to natural environment



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- 3- Environmental experience design of belongingness
- 4- Environmental experience design of individual dignity

## Findings

The study found correlation between the type of space, number of occupants, and time of day on indoor air quality. CO<sub>2</sub> levels were of course higher in the dining area and at night in the bedroom due to being occupied. PM<sub>2.5</sub> levels were higher due to activities in the monitored areas that stir up dust. As a result, it was concluded that adequate temperature and relative humidity were needed to maintain a comfort level that would enhance psychological responses in the elderly. The study also created a new term, environmental experience design (EXD), and a research framework based on literature review of four topics to be used by other researchers. The study findings were placed in a diagnostic matrix for environmental experience design. It was intended to be used to improve the design of aged care facilities by defining objectives and connecting them with design solutions.

## Limitations

The study only used collected data for environmental conditions at the aged care facility. Information on the impact of different design elements on the well-being of the elderly came from literature reviewed by the authors. The analysis of the data was subjective and the relationships developed did not show a clear path to experience-based design. Moreover, the users' subjective comfort and environmental experience were not measured to give an evidence-based conclusion.

## Design Implications

Considerations from the diagnostic matrix included easy access to outdoor gardens, interaction with pets, scented plants, and having a garden community space. For the rooms it was recommended to provide private bathrooms, allow for multiple activities, and include hand rails in the corridors. Other design considerations were to have direct visual access to the outdoors from each room, elimination of physical barriers, and wider doors, corridors, and turning spaces. In addition, the following were recommendations based on the four topics of the research:

**Design for freedom** – Open floor plan, avoiding levels, and include moveable partitions

**Develop connections to natural environment** – Natural light, vegetation, and ecosystems – Outdoor gardens, garden crafts



**Create a sense of belongingness** – Inviting built environment and flexible spaces –  
Allow for personal items in patient rooms  
**Respect individual dignity** – Creating non-hierarchical space, controllable spaces

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