

# Module 8:

## Creating dementia friendly environments



## Contents

|   |    |
|---|----|
| Defining an environment.....                          | 5  |
| Defining a dementia-friendly environment.....         | 6  |
| How the experience of dementia relates to design..... | 6  |
| Design Principles.....                                | 6  |
| Design and dementia .....                             | 7  |
| Applying the principles of good design .....          | 7  |
| Current controversies and issues .....                | 19 |
| Summary .....   | 20 |
| Resources.....  | 20 |
| References.....                                       | 21 |

## Module 8: Creating dementia-friendly environments

### Introduction

We all have a relationship with the environment around us. The environment can either make everyday life easier for us or it can restrict our ability to function. The environment will impact on the quality of care provided to a person with dementia. This session will discuss how environments are made up of many facets—physical, social and cultural—and that there is no “one size fits all” design brief for environments; rather, a set of design principles to assist decision-making in creating or modifying environments for people living with dementia. The diversity of people’s religious and spiritual needs, cultural backgrounds and socioeconomic circumstances need to be considered when creating environments, particularly long-term care environments. Understanding what elements in the environment are important, and why they are important, provides health professionals with the knowledge to make changes to that environment that meet people’s needs better. Whilst much of the literature relates to institutional settings such as residential aged care facilities and hospitals, principles of good design can be applied in a person’s own home. The session begins by providing a general overview of what makes an environment “dementia-friendly” and goes on to focus on the aspects that relate to the physical environment in particular

### Objectives

On successful completion of this session you will be able to:

- Understand what is meant by a dementia-friendly environment
- Understand how the experience of dementia relates to design
- Understand the principles of good design for dementia care
- Understand how to apply the principles of good design
- Highlight current controversies and issues in environments and design relating to the care of people with dementia
- Access relevant and evidence-based resources
- Debate current controversies surrounding creating friendly environments.

Module topics

- Defining an environment
- Defining a dementia-friendly environment
- How the experience of dementia relates to design
- Principles of design
- Design and dementia
- Applying principles of good design
- Current controversies and issues
- Case study
- Summary
- Resources
- References

Readings for this session

Bennett, K. (2006). Designing for walking: creating rich environments. In M. Marshall (Ed.), *Dementia: walking not wandering*. London: Hawker Publications

Day, K., Carreon, D., & Stump, C. (2000). The therapeutic design of environments for people with dementia: a review of the empirical evidence. *The Gerontologist*, 40(4), 397.

Mackay, K., & Marshall, M. (2006). Thinking about taps: reflections on dementia and disability. *Alzheimer's Care Quarterly*, 7(3), 203

Dementia Enabling Environments. Alzheimer's Australia and University of Wollongong Virtual Information Centre. Available at [www.enablingenvironments.com.au](http://www.enablingenvironments.com.au)

### Defining an environment

It is recognised that the physical environment, or what is often discussed or referred to in the literature as the 'built' environment, can have a significant effect on a person with dementia; that is, it can support them or hasten their deterioration (Alzheimer's Association Australia, 2000). However, leading researchers in the area of dementia and design explain: "the physical environment does not exist in a vacuum: it must work in partnership with other elements of the setting" (Calkins & Marsden, 2007). Indeed, other words which can be interchanged for the word 'environment' ('surroundings' 'settings' 'situation' 'atmosphere') clearly demonstrate that the word 'environment' denotes multiple elements: physical; social; and cultural.

## Defining a dementia-friendly environment

An Australian team that developed guidelines for creating dementia-friendly environments in residential care settings define a dementia-friendly environment as:

*A cohesive system of support that recognises the experiences of the person with dementia and best provides assistance for the person to remain engaged in everyday life in a meaningful way.*

(Davis et al., 2009)

What is clear from this definition is that the focus for the environment should be to assist people with dementia to remain engaged in meaningful everyday life. This becomes particularly challenging for a residential care facility, trying to provide opportunities for a group of individuals to continue living familiar lifestyles.

## How the experience of dementia relates to design

Before we can modify or create an appropriate environment we need to understand how the environment may be experienced by a person with dementia and what elements in the environment have the greatest effect. While we know that the experience of dementia is different for everybody, and that no one space can be everything to everybody, the collection of experiences as described by Stewart and Page (1999) has contributed to the development of a common set of principles for design.

## Design Principles

There is almost universal agreement about the features of good design for dementia care (Fleming, Crookes, & Sum, 2008). Summarising the consensus view in the international literature, these six broad principles are produced:

- Compensate for disability
- Maximise independence, reinforce personal identity and enhance self-esteem
- Demonstrate care for staff/carers
- Be orienting and understandable
- Welcome relatives and the local community
- Control and balance stimuli.

It is now possible to consider how these principles can be applied to the creation of environments that are “dementia-friendly”.

## Design and dementia

Design for people with dementia must consciously create a sense of calm and attempt to reduce risk, noise, glare and odour (Downs, 1997). Fixtures and fittings, furniture and furnishings have been traditionally chosen in the healthcare setting on the basis of functionality and clinical suitability. In recent years better surfaces and a more appropriate use of pattern and texture have greatly improved the residential aged care environment, both aesthetically and functionally, reducing stress on staff and residents alike and creating a more home-like environment.

Colours in healthcare generally have also changed dramatically in recent years as the healthcare community has become more familiar with the effects of colour on people, both physically and emotionally. The topic of colour and its therapeutic benefits, however, remains as a debate among researchers who study dementia (Brawley, 1997). Nevertheless, the importance of achieving effective colour contrast to support ageing senses and maximise vision for the older person is an important consideration in any setting.

Lighting is the design consideration that has the greatest impact on the success of the healthcare setting (Brawley, 2006). Everything relating to light has a consequence, and, while providing appropriate lighting is complex, it is essential for the older person to see and function to maximum independence. Inappropriate or insufficient lighting is recognised as one of the biggest issues in contemporary residential aged care (Noell-Waggoner, 2002; Briller et al., 2001a; Perez, Proffitt, & Calkins, 2001).

Interest in gardens and outside areas has increased in recent years, again in recognition that these spaces are very important to many people living with dementia; however, these spaces are not always available or well-utilised in the institutional setting.

Finally, technological advances are an important part of healthcare systems and new products and technology have provided some solutions for assisting people with dementia as well as their carers.

### Applying the principles of good design

Elements of the physical environment that are important to consider in relation to supporting a person with dementia include:

- Colour
- Lighting
- Interior surfaces, pattern and texture
- Fixtures and fittings
- Furniture and furnishings
- Gardens and outside spaces.

The physical environment

Colour

It is known that colour can contribute enormously to creating interesting and inspiring environments (Davis, Byers, Nay, Koch, & Andrews, 2007). While the ageing process creates a decline in human vision, primarily due to changes in the lens, people with dementia frequently have vision problems that are related to dementia rather than the ageing process. These include impaired depth perception, spatial disorientation, altered colour perception and a reduced ability to perceive contrast (Briller et al., 2001b).

People experiencing dementia, like many older people, may also experience other vision impairments such as cataracts, macular degeneration, diabetes retinopathy, colour-blindness (particularly in men) and glaucoma (Cernin, Keller, & Stoner, 2003). The most notable effects of these impairments will be blurred vision and losses of both the central and peripheral (side) vision (Brawley, 1997).

Of particular importance for people with dementia is the use of colour in way-finding (Bennett, 2006; Brawley, 2006; Briller et al., 2001b). Using colour and effective colour contrast in the environment will allow the person with dementia to “see” their environment more clearly. This increased visibility will promote greater confidence in walking, and finding destinations, and minimise confusion and agitation.

Effective colour contrast

Older people need about three times as much contrast as younger people to find objects in their surroundings. As we highlighted earlier, people with dementia may also have additional problems with colour perceptions.

Therefore, we need to select colours that contrast significantly. Combining colours from the middle of the spectrum such as yellow or green, with dark colours from either end of the spectrum such as red and blue, will produce the most effective contrast (Wolfmaier, 1999).

Activity

***How effective is the colour contrast in your environment?***

***Walk around the environment looking through a piece of yellow cellophane (to create an older more yellowed lens) and ask yourself the following questions (this list is not exhaustive):***

- How well can I distinguish the floor from the walls and do I feel confident enough to walk at my normal speed?
- Can I 'see' objects of significance like chairs, doors, door handles, TV, tabletops, toilet seat, dinner plate and cutlery, steps (if you have them) and grab-rails?
- Do I recognise particular areas from the colours and patterns used, such as a dining room, a lounge room, or a toilet?
- Is it easy to find the doors to outside garden spaces and are the paths easy to see?

Can I find my way about easily? Are there landmarks that help me? Is colour an important part of the landmark to me?

If colour can be used to bring greater visibility to objects and items of significance then it can also be used to hide objects or "camouflage" them; that is, render them invisible to the person with dementia. This is especially useful for disguising doors such as the main entrance door to your home or facility, doors to the linen press or storage cupboards, and, in institutional settings, to staff areas.

Finally, lighting plays an important role in achieving effective colour contrast and must be considered when selecting colours. The availability of natural daylight, and the light sources being used, should influence the selection of colours (Noell-Waggoner, 2002).

Camouflaging  
with colour

Lighting and  
colour  
rendering



Colour rendering refers to how true (accurate) colours appear under a given light source compared to daylight. The Colour Rendering Index for lamps uses 100 as the number for light that most closely resembles daylight; therefore, any bulb with a number 80 or higher indicates a reasonably accurate colour rendering.

#### Key messages

- Colour can affect the way people feel physically and emotionally
- Colour is an important way-finding tool
- Colour selection should allow for vision associated with ageing and dementia, with a strong emphasis on achieving effective colour contrast throughout the environment
- Lighting must be considered when selecting colour
- Paint is relatively inexpensive and easy to change compared to furniture and furnishings, so consider selecting colours for the more expensive items first.

*(Davis et al., 2007)*

#### Lighting

As well as lighting being important in selecting colours and achieving effective colour contrast to assist a person with dementia in “seeing” and way-finding, lighting can have other effects on a person with dementia.

According to Brawley (2006), low environmental light levels are believed to accentuate sundowning, impact on a person’s ability to perform activities of daily living (especially for those with reduced manual dexterity) and be responsible for a major proportion of falls amongst older people living in residential aged care settings.

Limited access to natural light is believed to impact on circadian rhythm (sleep/wake cycles), vitamin D synthesis and the absorption of calcium by tissues, as well as affect general feelings of wellbeing (Brawley, 2006; Noell-Waggoner, 2002).

Noell-Waggoner (2002) suggests that appropriate and sufficient lighting is complex and usually involves a combination of raising light levels, balancing natural light and artificial light (to achieve even light levels) and eliminating glare.

*Activity*

Measuring light levels

**How good are the light levels in your environment?**

Wear sunglasses inside for several hours. How well can you recognise faces, read signs and see across a room? If you believe that your environment may not have proper lighting levels as a result of participating in this exercise, consider obtaining a light meter to more accurately measure the light levels throughout your building.

Units commonly used in measuring light levels are the footcandle (Fc) and lux. A light meter will assist you in measuring the footcandles or lux of light in the different areas and spaces within your workplace.

Minimum light levels recommended for a residential care facility are 50 Fc for dining areas and kitchens and 30 Fc for all other rooms.. Activity areas would ideally need good task lighting in addition to this general room lighting. It is also important to vary lighting levels, depending on the time of the day, with Briller et al. (2001a) suggesting that interior entry areas during the day should be at 100 Fc but only at 10 Fc at night and hallways should be 30 Fc during the day and 10 Fc at night. It is also important to remember that minimum light level recommendations are just that—absolute minimums—and you would be encouraged to implement higher levels of light in all areas of your environment to better assist a person with dementia (Pollock, 2003).

**Light meters**

<http://www.infolink.com.au/>

Type “light meters” in the infolink search field for a selection of light meter products in Australia. Light meters will provide measurements in footcandles/lux and are usually hand held and battery powered. A good quality light meter will cost somewhere between \$100 and \$200.

**Key messages**

- Ensure light levels exceed minimum recommended light levels
- Balance natural light and artificial light to achieve even light levels
- Eliminate glare
- Clean existing light systems regularly

(Davis et al., 2007)

Interior surfaces

Surface finishes that are chosen for walls and floors often influence the warmth and ambience of spaces. Use of colour and pattern through wallpapers and stencils can provide interest and stimulation for a particular space as well as providing cues and landmarks for orientation. However, people with dementia can be overstimulated by too many designs and patterns in one space and particular patterns may trigger delusions for some people with dementia (Brawley, 1997). Large patterns can also be visually distracting and confusing, with large motif patterns on floors creating the illusion of holes or steps (Briller et al., 2001b).

Slippery surfaces and surface glare also significantly influence mobility and provide an increased risk of falls (Bennett, 2006). Consider the benefits of soft surface flooring to both minimise falls injury and reduce noise (Brawley, 2006).

Moveable screens are clever solutions to breaking up spaces and absorbing sound. Soft furnishings are also effective in absorbing sound and reducing the level of noise in an environment. Texture can also stimulate thinking and responsiveness and may help to recall memories (Brawley, 1997).

Interior surfaces also play an important role in lighting, with both walls and ceilings supporting lighting fixtures or distributing daylight through skylights and windows.

- Surface finishes such as carpets, wallpaper and ceiling acoustic tiles can minimise noise level and reduce glare
- Patterns on floors and wall coverings can assist in orientation and way-finding (although it must be noted that some can also cause problems as described on the previous page)
- Floor coverings such as carpet and cork tiles can optimise functional abilities
- Ensure good tonal (colour) contrast between walls and floors
- Pattern and texture greatly contribute to the warmth and ambience of spaces.

*Davis et al. (2007)*

Fixtures and fittings

Activity

Many resources cover discussions about the environment through the function and purpose of rooms and spaces. Many discussions about fixtures and fittings will involve, for example, what to consider in the bathroom or the kitchen (Pollock, 2003). Relating the function and purpose of the fixture and fittings with the activity trying to be undertaken is beneficial. Sometimes the most simple of tasks, and what is required to support the person in dementia in continuing to do those tasks for as long as possible, can be undermined by inappropriate fixtures and fittings.

*What about the fixtures and fittings in your environment?*

1. *Have you ever looked at the fixtures and fittings in your work environment in relation to everyday activity before?*
2. *What other fixtures and fittings do you have in your work environment (that you may have even recently replaced to “smarten up the place”), which may inadvertently be imposing dependency on a person with dementia?*

Try to select fixtures and fittings that:

- Look familiar and belong in a domestic setting
- Are comfortable to use
- Are safe to use
- Are effectively colour contrasted to the background
- Allow for reduced manual dexterity.

(Davis et al., 2007)

Furniture and furnishings

Furniture and furnishings are important in creating home like environments (Davis et al., 2007). Older people, including many people with dementia, often spend long periods of time in sitting activities, so chairs need to provide comfort and support (Briller et al, 2001a; Perez, Proffitt & Calkins, 2001; Marsden et al., 2001). It is also important to consider the way we arrange furniture in spaces because seating arrangements can encourage or hinder social interaction (Perez, Proffitt, & Calkins, 2001). A room with chairs arranged around the perimeter is not very welcoming (Briller et al., 2001a).

The type of furniture in a room will provide cues about the function of the room for the person with dementia. Furniture pieces can act as landmarks, and, particularly in the residential care setting, these landmarks can assist with orientation (Marsden et al., 2001). In the residential care setting furniture and furnishings offer the greatest opportunities to personalise spaces, with familiar pieces assisting in recognition of purpose. Of particular importance is the opportunity to validate personal identity. Much of how we think about ourselves, and how we represent ourselves to the world, is reflected in our own environments (Davis et al., 2007). Personalising a bedroom area in a residential care facility is an important part of presenting self and is a good way for staff to get to know the person.

Furniture that promotes independence and mobility is important for wellbeing and self-esteem (Davis et al., 2007). Furniture that is able to be used independently will also provide more safety for walking and movement. Providing rest areas and rest spots, at regular intervals with appropriate furniture, will encourage mobility of varying abilities and frailty (Bennett, 2006).

Davis et al. (2007) suggest selecting furniture and furnishings that:

- Promote independence and mobility
- Provide important way-finding and orientation cues
- Colour contrast effectively with the walls and floors for greater visibility

Have rounded edges to minimise bumps and abrasions.

Time spent outside is essential for good physical and mental health. As Brawley (2004) stated: “being outside is necessary for well-being and for the enjoyment of life itself”. As we discussed earlier in lighting, limiting access to daylight can impact on circadian rhythms (sleep/wake cycles), vitamin D synthesis and the absorption of calcium in the tissues, in addition to feelings of general wellbeing (Brawley, 2006; Noell-Waggoner, 2002). For some people with dementia, the outside world has spiritual and religious significance and will continue to be an important part of their lives (Davis et al., 2007).

### Gardens and outside spaces

Outside spaces can offer places of solitude and privacy, which is very important for people with dementia living in communal environments such as long-term care settings. Brawley (1997) explains that outside spaces can also provide a more active and stimulating environment for people in the early stages of dementia, giving them:

- The opportunity for a change of pace
- A range of physical activities, especially gardening and walking
- Participation in noisy activities such as carpentry
- Opportunities to socialise.

The largest barriers to people with dementia utilising gardens spaces and outside areas are staff and families concerned with falls, other hazards and “escapes” (Brawley, 1997; Davis et al., 2007).

People with dementia can be supported outside in a similar way to the indoor environment by (Pollock, 2001):

- Increasing the visibility for staff/carers to the outdoor area
- Appropriately designed furniture
- Appropriately placed furniture and hand rails
- Walking paths that are level and hazard-free
- Surfaces with reduced glare
- Orientation and way-finding cues, including the use of colour and scent

Appropriate plants and greenery; that is, remove poisonous plants and allow non-toxic and edible plants.

Activity

Assessing the workplace environment

*What about the outside environment in your workplace or facility?*

- 1. Is it readily accessible/ easy to find?*
- 2. Does it have orientation cues/ is it easy to get back inside the building?*
- 3. Is walking around the outside area a difficult activity?*

Bennett, K. 2006. Designing for walking: creating rich environments. In M. Marshall (Ed.), *Dementia: walking not wandering*. London: Hawker Publications.

Finally, the benefits to the person with dementia maintaining good access to the outside environment may include: a decrease in agitated and aggressive behaviour (Tyson, 2002); memory recall and self-identity (Brawley, 2004); independence and autonomy; as well orientation to seasonal change and connections to the natural environment (Tyson, 2002).

Environmental Audit Tool

The Environmental Audit Tool (EAT) was first published in *Adapting the Ward for people with dementia*, a manual written in 2003 for the NSW Department of Health to assist staff in regional and rural hospitals who were caring for large numbers of elderly people with dementia awaiting placement in residential care. The availability of a thorough and extensive review of the environmental design literature undertaken for the Primary Dementia Collaborative Research Centre (Fleming, Crookes et al., 2008) has prompted some small revisions to the original tool while providing considerable support for the utility of the principles and examples contained in it.

<http://www.dementiaresearch.org.au/images/dcrc/output-files/146-a-review-of-the-empirical-literature-on-the-design-of-physical-environments-for-people-with-dementia.pdf>

The EAT is available from the Victorian Government Health Department and is available at

[http://www.health.vic.gov.au/agedcare/services/resi\\_audit\\_tool.htm](http://www.health.vic.gov.au/agedcare/services/resi_audit_tool.htm)

The EAT is also available in the form of an application for mobile devices. (See Alzheimer's Australia - Dementia Care Environment Audit Tools in Resources section).

The EAT comprises 72 items that have been selected to exemplify a set of design principles first used in the development of the units for the confused and disturbed elderly (CADE) built by the NSW Department of Health in the late 1980s and early 1990s.

This scale was extended, as described in the Department's Adapting the Ward manual

[http://www0.health.nsw.gov.au/pubs/2003/pdf/adapting\\_the\\_ward.pdf](http://www0.health.nsw.gov.au/pubs/2003/pdf/adapting_the_ward.pdf)

The items are grouped by the 10 principles in which the environment should:

1. Be safe and secure
2. Be small
3. Be simple with good visual access
4. Have unnecessary stimulation reduced
5. Have helpful stimuli highlighted
6. Provide for planned wandering
7. Be familiar
8. Provide opportunities for a range of private to communal social interactions
9. Encourage links with the community
10. Be domestic in nature, providing opportunities for engagement in the ordinary tasks of daily living.

In this tool the items are not uniformly spread across the groups. The principle of smallness is covered by a single question on size while the largest group of questions deals with safety and security features. The majority of questions are answered either 'yes' or 'no'; some have a 'not applicable' option; and some provide for extra points in certain circumstances (for example, if the safety feature is unobtrusive). Each principle is considered to be a subscale with a score expressed as a percentage of the available score to ensure that all subscales have equal weight. The total score is the mean of the subscale scores.

<http://www.worldhealthdesign.com/Dementia-Care-Determining-an-environmental-audit-tool.aspx>



Case study

Genevieve's experience

Take a moment to reflect on Genevieve's experience of starting the day in the residential care facility in which she now lives...

*Snuggled up in her pale yellow thick and fluffy robe, the staff find Genevieve sitting in her comfy armchair by the bedroom window most mornings when they bring in her coffee and toast. For fifty-three years her husband brought her coffee and toast in bed every morning when he got back from early morning milking. Very seldom did she have to help with the morning milking—she would sit in bed or in the chair by the window and listen to the morning news on the radio and finish her coffee and toast, then she would make breakfast and get the children ready for school. Staff knew how Genevieve liked to start her day. Coffee and toast at the window watching the birds and looking at the garden. Then a quick shower—water is a precious thing, she would say every time. Only Sunday morning before church service was a bath on Genevieve's agenda. Then she would get dressed and make her way to the kitchen to help wash up the dishes and then often out for a wander round the garden. Staff would slip into the bathroom and get it ready while Genevieve was picking out her clothes. She had a bit of difficulty lately so they had taken to putting only a couple of distinct selections in the front section of the wardrobe—a dress, a cardigan, a blouse, a skirt, one set of underwear and so on. The bathroom was ready...lemon eucalyptus scent her daughter said reminds her of the farm, the towel rack warmer on for the pale yellow towels with tiny embroidered roses in the corner so they were nicely warmed when Genevieve stepped out of the shower.*

Activity

**Genevieve's take on the experience ...**

There is that nice girl that comes and gives me a hand with that new-fangled shower. I must have my shower now - umm...that sweet smell of the lemon eucalypt coming through on the wind...must be a southwest wind this morning. My towel...there it is - nice and warm. I must sort out that garden today so I'd better have my cardi first thing. I'll sit here - can you brush my hair? Well there's a surprise - look who is here in the mirror - Nanna? Have you met my Nanna? Yes she is lovely, you're quite right. Is the back of my hair all right?

**Consider the following questions:**

1. *How do staff fit into Genevieve's 'starting the day' routine?*
2. *How does the social environment (philosophy of care) support Genevieve's experience?*
3. *How does the physical environment support Genevieve's experience?*

What components of the environment might have to change to better support Genevieve as her dementia progresses further?

**Current controversies and issues**

Risk management culture "safety" more important than "quality of life".  
Assisting or invading privacy - ethical issues and assistive technology.

The evidence surrounding the built dementia-friendly environment focuses very much on principles relating to residential aged care settings. The literature also takes a very 'middle class' and western culture approach to creating a good built environment. This approach is also reflected in how 'a home-like environment' is defined. Whilst the above principles can be applied for people of all cultures it must be remembered that an appropriate environment will be different for each person with dementia and the challenge to develop individualised environments remains.

A few resources are available for advice on creating appropriate environments for CALD and ATSI populations:

Bennett (2006) focuses on a facility for ATSI populations in Alice Springs.

***Bennett, K (2006). Designing for walking: creating rich environments. In M. Marshall (Ed.), Dementia, walking not wandering. London: Hawker Publications.***

***[http://www.adhc.nsw.gov.au/\\_data/assets/file/0011/228746/at\\_home\\_with\\_dementia\\_web.pdf](http://www.adhc.nsw.gov.au/_data/assets/file/0011/228746/at_home_with_dementia_web.pdf)***

## Summary

People with dementia are often seen as existing outside the social world, with all functional difficulties and emotional states attributed to brain damage. The social world in which the person with dementia lives is often discounted or overlooked completely (Cheston and Bender, 2004). Clinicians need to see beyond the 'condition' of dementia and enter the 'experience' of dementia to create the kind of enriched environments essential for quality of life and quality of care for people with dementia (Davis et al., 2009)

## Resources

Alzheimer's Australia

[www.fightdementia.org.au/](http://www.fightdementia.org.au/)

Alzheimer's Australia - Dementia Care Environment Audit Tools Available from:

<http://www.enablingenvironments.com.au/Resources/AuditTools.aspx>

Dementia Enabling Environments website

<http://www.enablingenvironments.com.au/>

Innovative designs in environments for an ageing society (Margaret Calkins) <http://www.ideasconsultinginc.com>

Open University UK - Designing Space for Dementia Care

<http://www.open.edu/openlearn/health-sports-psychology/social-care/designing-space-dementia-care/content-section-0>

University of Stirling (Mary Marshall)

<http://www.dementiashop.co.uk/products/dementia-design-checklist>

## References

- Bennett, K. (2006). Designing for walking: creating rich environments. In M. Marshall (Ed.), *Dementia: walking not wandering*. London: Hawker Publications.
- Brawley, E., (1997). *Designing for Alzheimer's Disease: Strategies for Creating Better Care Environments*. Brisbane: John Wiley and Sons.
- Brawley, E. (2004). Gardens of memories. *Alzheimer's Care Quarterly*, 5(2), 154-164.
- Brawley, E. (2006). *Design innovations for ageing and Alzheimer's: creating caring environments*. New Jersey: John Wiley and Sons.
- Briller, S., Proffitt, M., Perez, K., & Calkins, M. (2001a). *Understanding the environment through aging senses*. (Vol. 1). Sydney: Health Professions Press.
- Briller, S., Proffitt, M., Perez, K., Calkins, M., & Marsden, J. (2001b). *Maximizing cognitive and functional abilities* (Vol. 2). Sydney: Health Professions Press.
- Calkins, M. (2002a). Environments that make a difference. *Alzheimer's Care Quarterly*, 3(1), v-vii.
- Calkins, M. (2002b). What is your building saying? *Alzheimer's Care Quarterly*, 3(2), 179-180.
- Calkins, M., & Marsden, J. *Home is where the heart is: designing home-like settings: Innovative Designs in Environments for an Ageing Society (IDEAS)*
- Retrieved August 2014 from  
[http://www.ideasconsultinginc.com/articles\\_021103\\_c.asp](http://www.ideasconsultinginc.com/articles_021103_c.asp)
- Cernin, P., Keller, B., & Stoner, J. (2003). Colour vision in Alzheimer's patients: can we improve object recognition with colour cues? *Aging Neuropsychology and Cognition*, 10(4), 255-267.
- Cheston, R. & Bender, M., (2004). *Understanding Dementia: The Man With The Worried Eyes*. London: Jessica Kingsley Publishers.
- Davis, S., Byers, S., Nay, R., Koch, S., & Andrews, G. (2007). *Creating dementia friendly physical and social environments for residential and respite care*. Melbourne: Department of Human Services.
- Davis, S., Byers, S., Nay, R., & Koch, S. (2009). Guiding design of dementia-friendly environments in residential care settings: Considering the living experiences *Dementia*, 8, 185. Accessed August 2014 at: <http://dem.sagepub.com/content/8/2/185.full.pdf>

Day, K., Carreon, D., & Stump, C. (2000). The therapeutic design of environments for people with dementia: a review of the empirical evidence. *The Gerontologist*, 40(4), 397.

Downs, M. (1997). The emergence of the person in dementia research. *Ageing and Society* (17), 597-607.

Fleming, R., Crookes, P. A., & Sum, S. (2008). A Review of the Empirical Literature on the Design of Physical Environments for People with Dementia.

The report is available at Research Online:

<http://ro.uow.edu.au/hbspapers/2874/>

Fleming, R. (2012). *Making the best of a bad job: improving acute care environments used by people with dementia*, Collaborations & Innovations in Aged Dementia and Psychogeriatric Care, Symposium presentation, Professor Richard Fleming, Director, NSW/ACT Dementia Training Study Centre, University of Wollongong, Australia. Accessed online August 2014 at:

<http://www.pgna.org.au/events.html>

Fleming, R., Forbes, I., & Bennett, K. (2003). *Adapting the ward for people with dementia*. Sydney: NSW, Department of Health;

Mackay, K., & Marshall, M. (2006). Thinking about taps: reflections on dementia and disability. *Alzheimer's Care Quarterly*, 7(3), 203.

Marsden, J., Briller, S., Calkins, M., & Proffitt, M. (2001). *Enhancing identity and sense of home*. (Vol. 4). Sydney: Health Professionals Press.

Noell-Waggoner, E. (2002). Light: an essential intervention for Alzheimer's disease. *Alzheimer's Care Quarterly*, 3(4), 343-352.

Perez, K., Proffitt, M., & Calkins, M. (2001). *Minimizing disruptive behaviours - creating successful dementia care settings*. (Vol. 3). Sydney: Health Professions Press.

Pollock, A. (2001). *Designing gardens for people with dementia*. Stirling: Dementia Services Development Centre, University of Stirling.

Pollock, R. (2003). *Design of interiors, fixtures and fittings for people with dementia*. Stirling: Dementia Services Development Centre, University of Stirling.

Stewart, S., & Page, A. (1999). *Making design dementia friendly* Stirling: Dementia Services Development Centre, University of Stirling.

Tyson, M. (2002). Treatment gardens: naturally mapped environments and independence. *Alzheimer's Care Quarterly*, 3(1), 55-60.

Wolfmaier, T. (1999). *Designing for the colour-challenged: a challenge*.