Art-based Technologies delivering Therapy for Aged Care Residents living with Cognitive Decline

Sharron T MIDA[1] Gregor Poole BScPH BScHP[2] A/Prof Klaus Veil FHL7 FACHI LMHL7Au[3]

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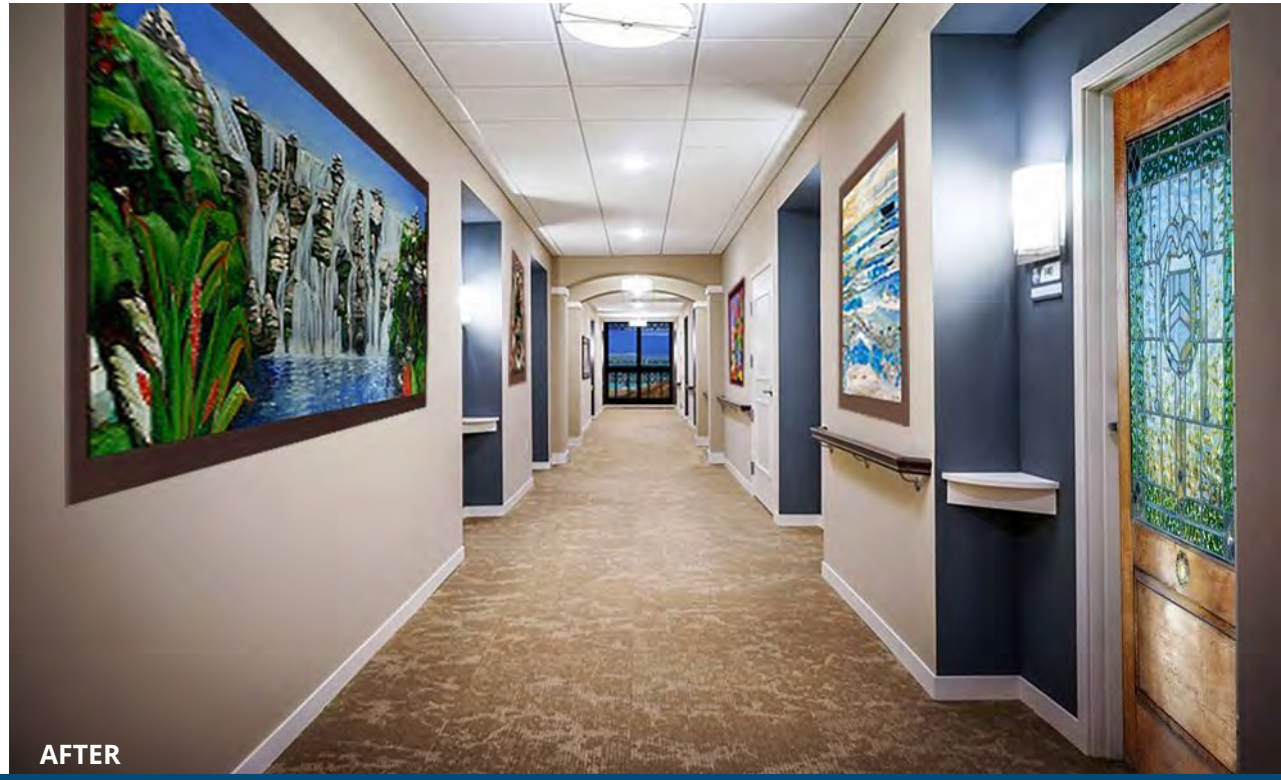
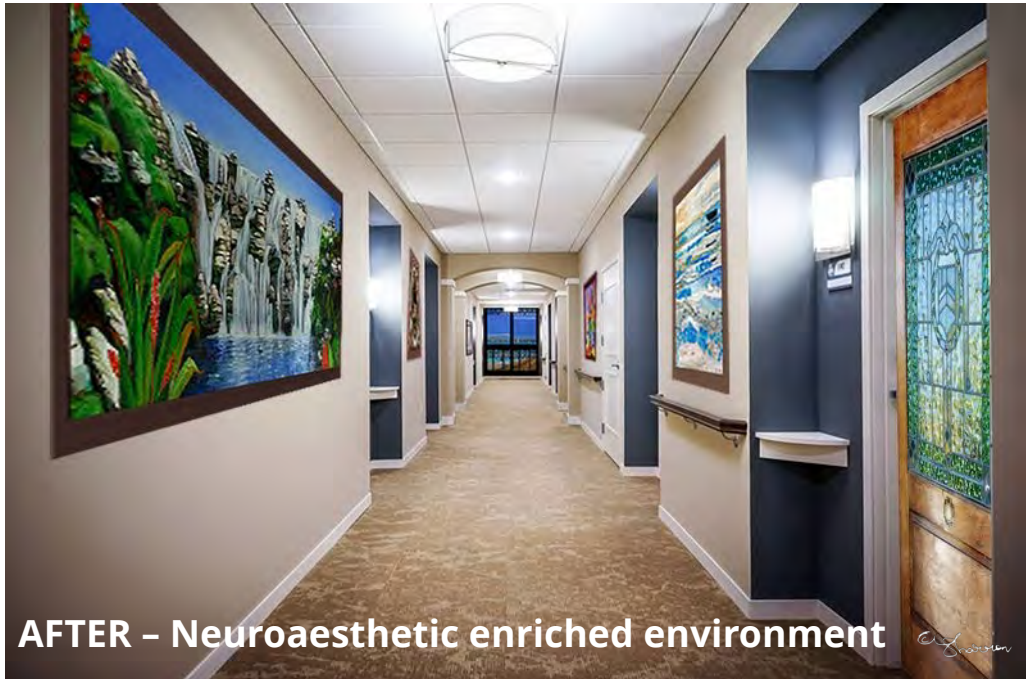


...because Tailored Art Works!

Presentation Overview (20m + 5m Q&A)

1. The Dementia Challenge
2. Enriched Environments vs Deprived Environments
3. Neuroaesthetic Mechanisms in the Brain
4. Art-Based Technologies (ABTs) as Environmental Interventions
5. The Aesthetic Triad
6. Cognitive Pathway Linking Environmental Design to Wayfinding Behaviour
7. Design Elements Supporting Attention, Orientation and De-cluttering
8. Saliency, Aesthetic Engagement and Wayfinding
9. Intuitive Signage
10. Environmental Design for Safety and Harm Minimisation
11. Therapeutic Benefits of Art-based Environmental Design
12. Case Studies: Corridor Transformation, Resident Door Identification and
13. Communal Spaces Engagement
14. Policy Context: Strengthened Aged Care Standards
15. Implications for Dementia Care
16. Conclusions
17. References / Author Contact



The Dementia Challenge

• Dementia currently affects over 57 million people worldwide, with numbers projected to triple by 2050

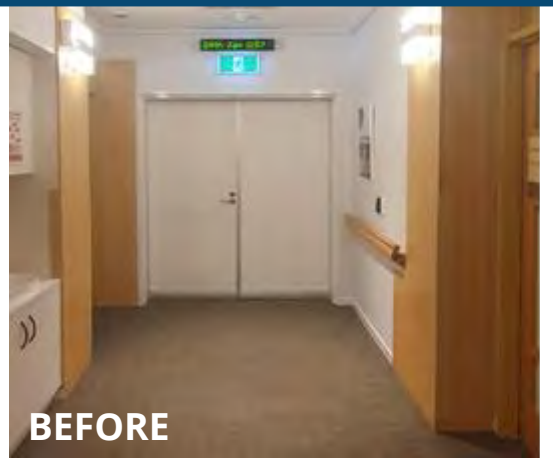
• Residents in long-term aged care frequently experience Behavioural and Psychological Symptoms of Dementia (BPSD) such as:

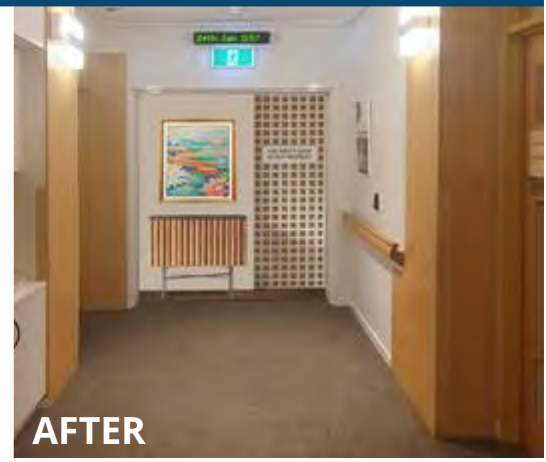
– agitation
– anxiety
– wandering
– disorientation
– sleep disturbance

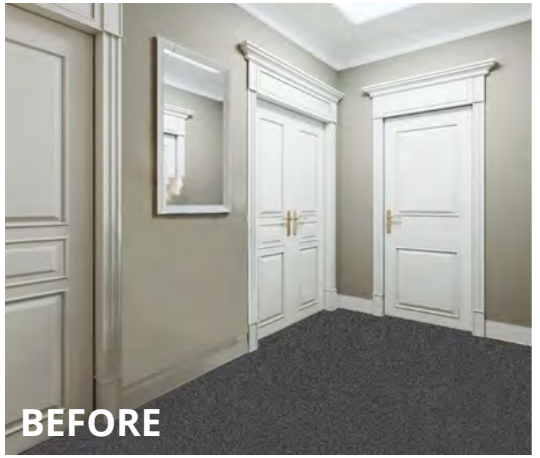
• Up to 90% of people living with dementia experience BPSD during the course of the disease

• Many behavioural expressions may reflect environmental stressors rather than disease pathology alone

• Improving the design of care environments may therefore help reduce distress and improve well-being







Key References: *World Health Organization. Dementia Fact Sheet. 2025*

Enriched Environments vs Deprived Environments

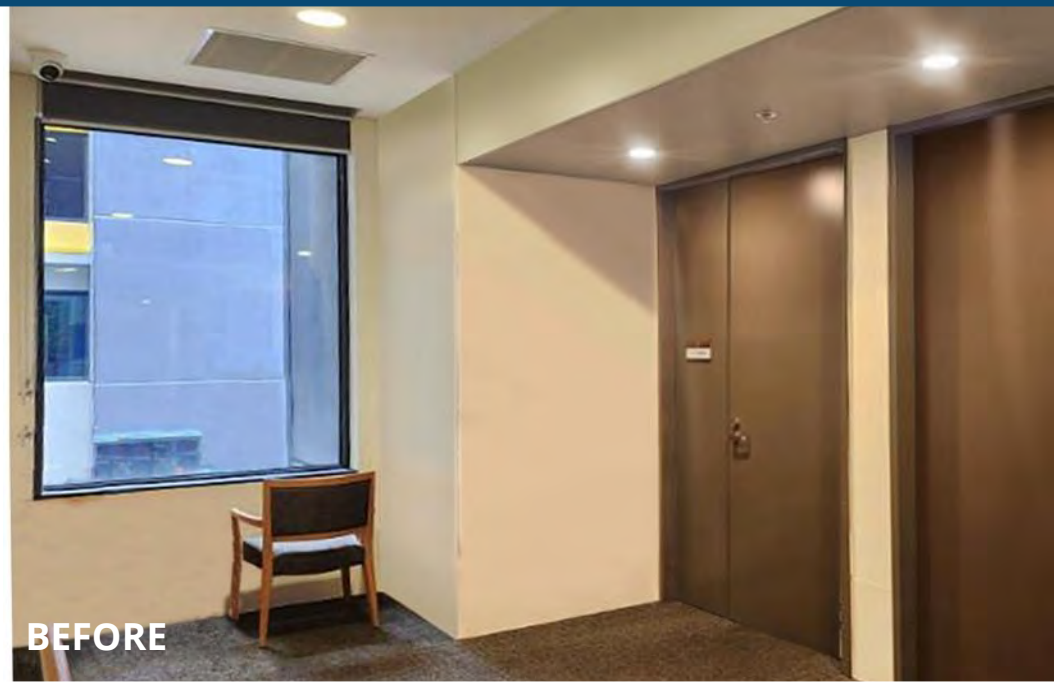
• Neuroscience research demonstrates that environmental conditions influence cognitive functioning across the lifespan

• Enriched environments provide sensory, cognitive and social stimulation that supports brain activity and engagement

• In contrast, impoverished environments may contribute to reduced cognitive stimulation and functional decline

• Many institutional care environments unintentionally provide limited environmental stimulation

• Environmental enrichment may therefore help support cognition, behaviour and well-being in people living with dementia



Key References: *Volkers, K. M., & Scherder, E. J. A. (2011, pp. 259–266); Diamond, M. C. (2001)*

Neuroaesthetic Mechanisms in the Brain

Neurodegenerative diseases affect many cognitive functions. However, some perceptual and attentional responses remain relatively preserved because the brain compensates:

Around age 65 the brain relies more strongly on:

- contrast
- spatial structure
- visual detail

Environments with clearer visual organisation may be easier to interpret and engage with.

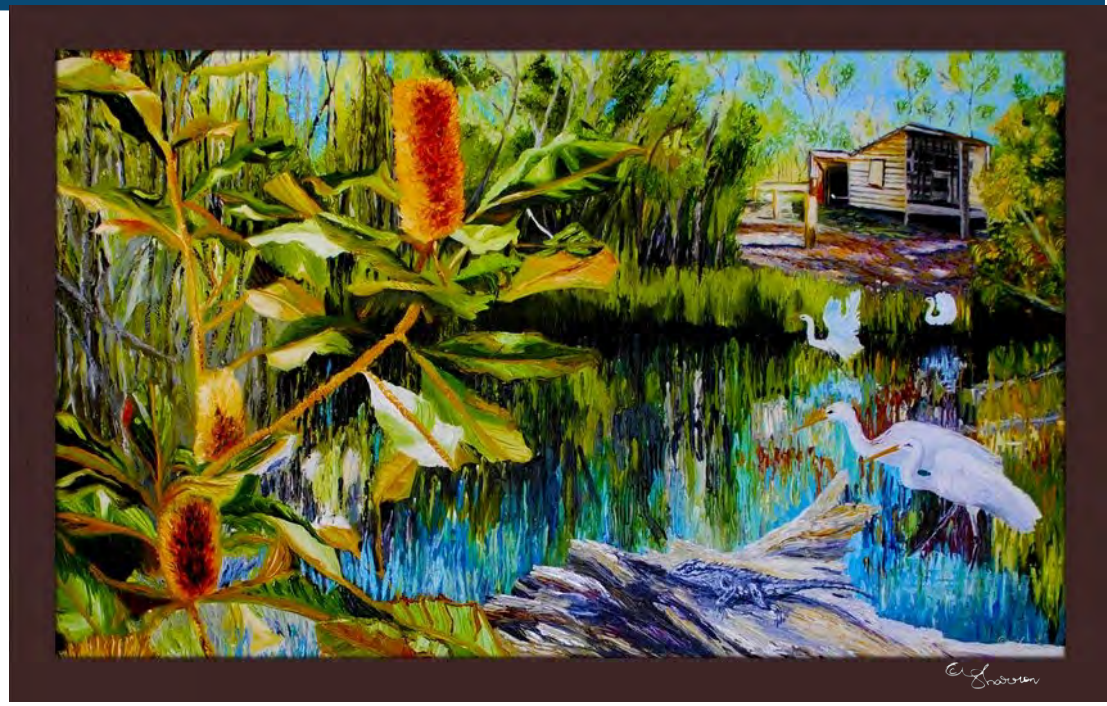
Neuroaesthetics is the study of how the brain:

- perceives
- evaluates
- responds to visual and sensory experiences, including:

- contrast
- structure
- aesthetic qualities i.e. beauty and coherence to influence attention, engagement, and emotional response

ABTs are designed around these principles.
Connecting these mechanisms to spatial memory and navigation, can help us understand how structured visual environments may support orientation in dementia care.

Key References: *Zanto & Gazzaley (2014, pp. 927–971); Magsamen & Ross (2023)*



Art-based Technologies (ABTs) as Environmental Interventions

ABTs are integrated visual systems embedded across a facility, forming a continuous wayfinding and engagement network.

They are not individual artworks. They are coordinated environmental interventions that operate passively throughout everyday environments.

In practice, ABTs include:
- intuitive signage
- large-scale “Artful Outlooks”
- personalised room doors
- clinical disguises
- service and exit door disguises
- themed communal and transitional spaces
- window, ceiling and outdoor artworks

they are
- embedded into the environment
- function continuously

A WHO review shows that arts engagement supports health and well-being. So, how can we use how the brain perceives art to affect orientation and behaviour?

Key References: WHO (2019); K. Veil, Sharron T MIDA, & G. Poole, (2025)

The Aesthetic Triad Diagram

Before we look at the cognitive pathway, it's important to understand how the brain processes aesthetic experience.

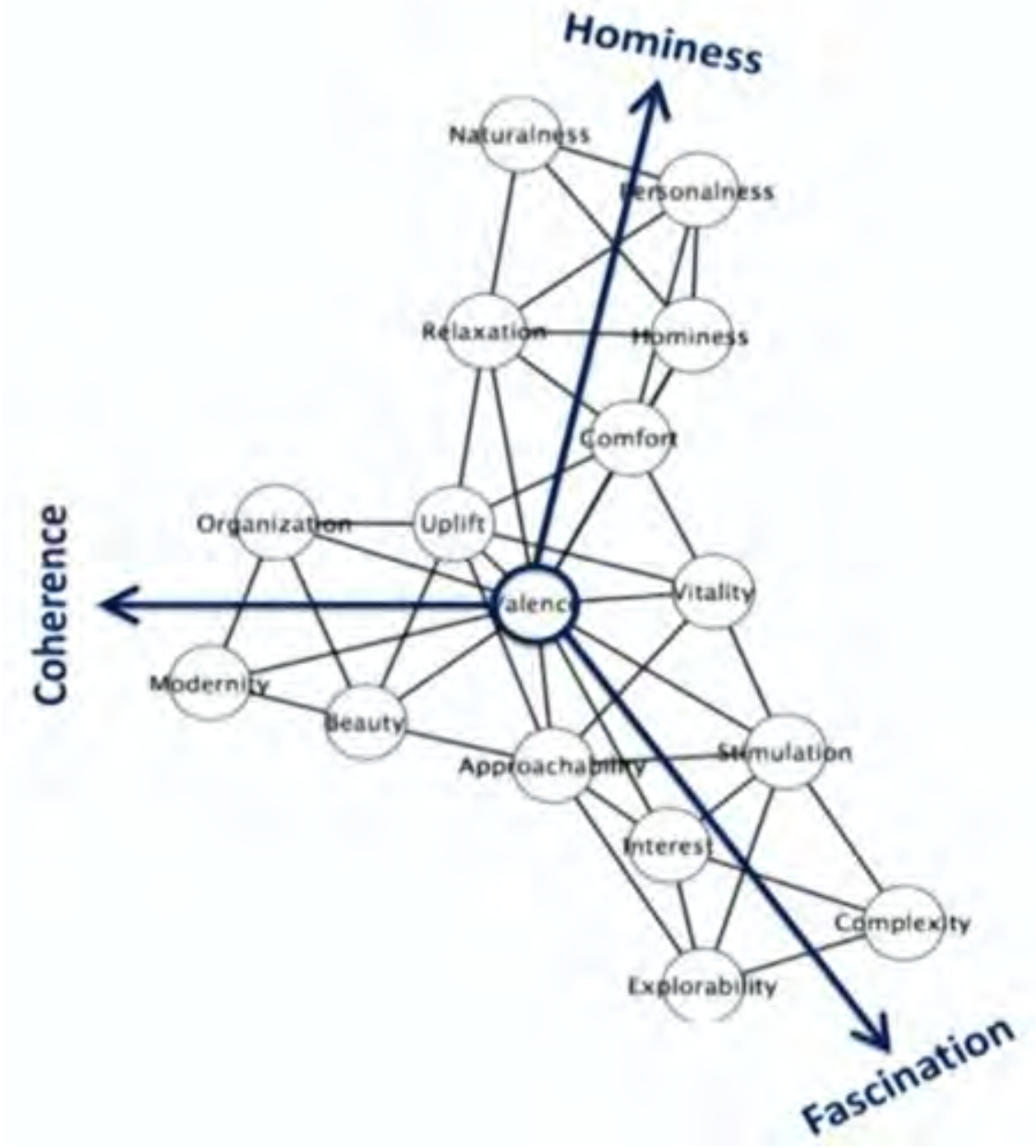
The Aesthetic Triad shows how visual input is perceived, evaluated and interpreted through:

- Sensory processing
- Emotional valuation
- Meaning-making systems

In built environments, this evaluation process is shaped by qualities such as coherence, hominess, and fascination which together influences valence. Poor valence is:

- Harder to interpret
- A less engaging emotional response
- Less comforting & orientating = Behavioural reactions

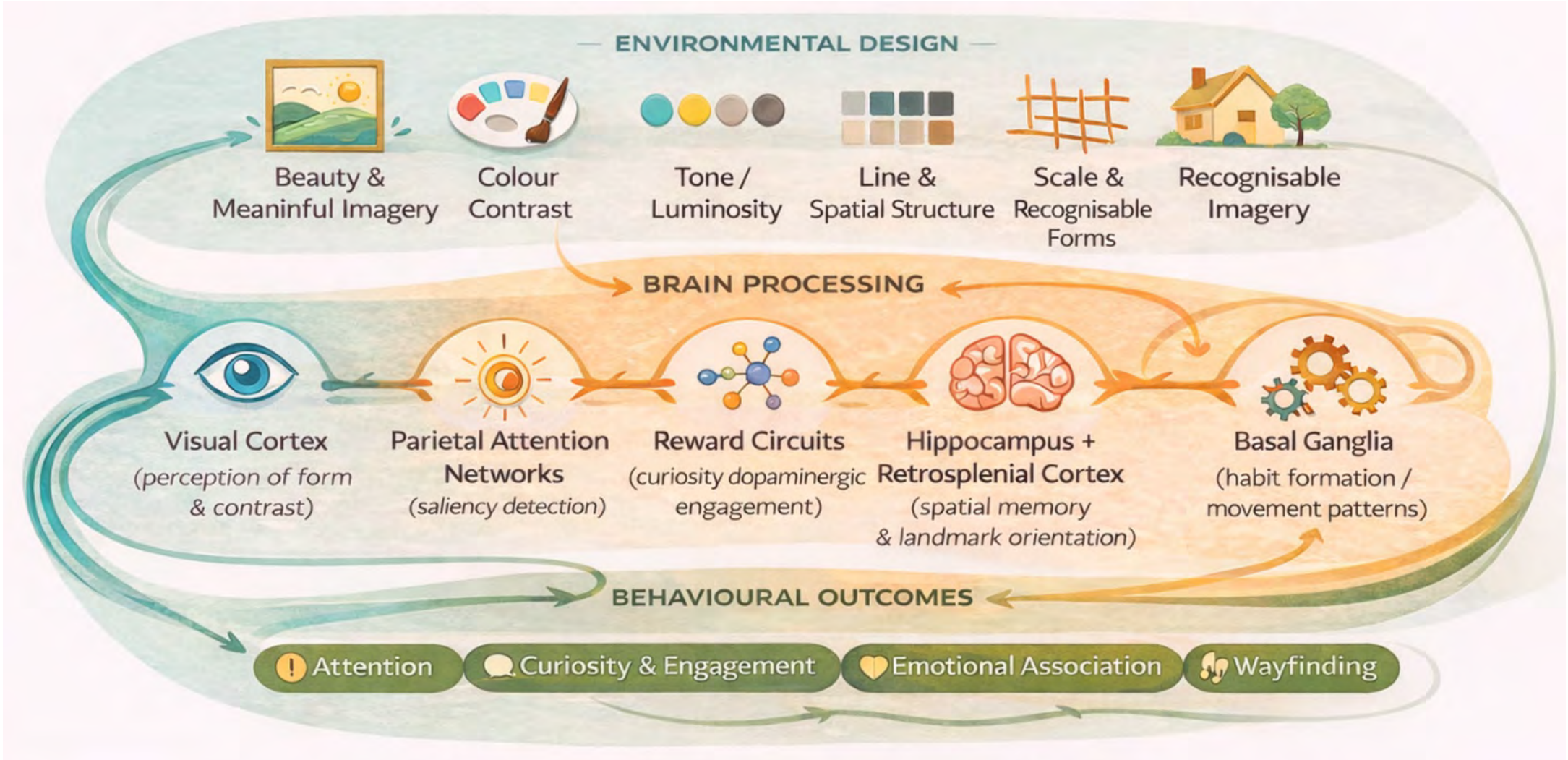
This helps explain why some environments feel calming, engaging, or confusing — and why aesthetic design is not decorative, but functionally important to how the brain understands space.



Key Reference & Diagram Attribution: *Chatterjee & Vartanian (2016, pp. 172-194), Chatterjee (2014)*

Cognitive Pathway Linking Environmental Design to Wayfinding Behaviour

Structured visual elements capture attention, connect with spatial memory and develop into environmental landmarks that support navigation. Aesthetic engagement is associated with dopaminergic reward processes linked to motivation, mood, and movement (relevant to Parkinson's disease).



Key References: *Zanto & Gazzaley (2014, pp. 927–971) ; Field, D. J., et al. (1993, pp. 173–193); Epstein & Vass (2014, Art. 20120533); Epstein (2008, pp. 388–396)*

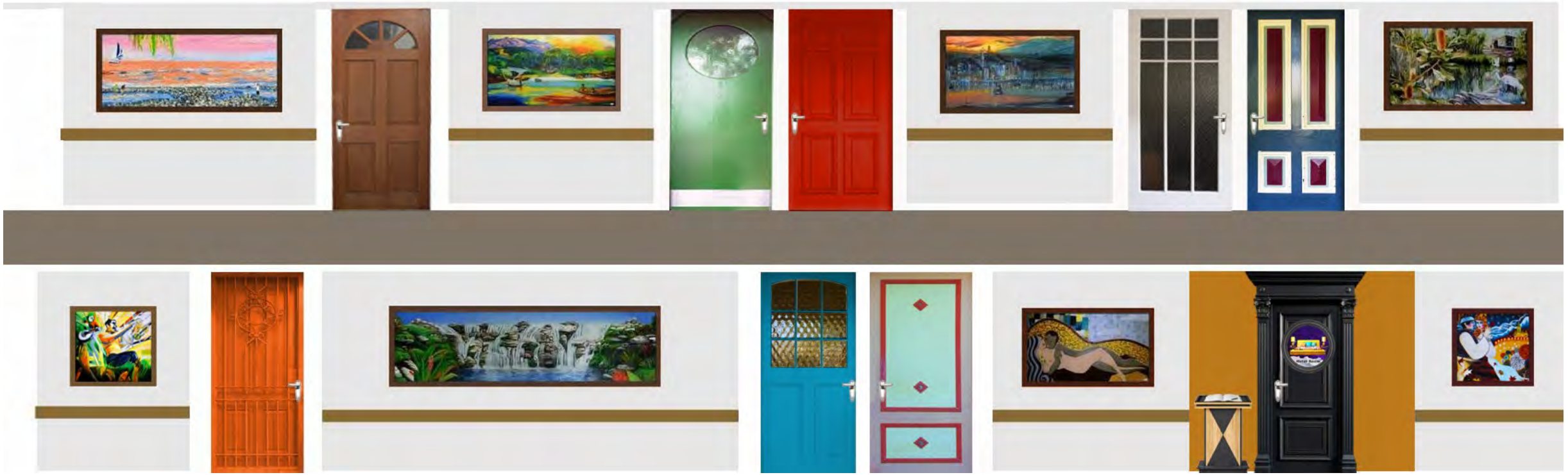
Design Elements Supporting Attention, Orientation and De-cluttering

Hope through art: Studies suggest that natural Impressionist style and beautiful light-filled scenes can evoke positive feelings

Universal themes: Art-Based Technologies often feature familiar environmental themes such as water, nature, light, love and travel

Artful Outlooks: High contrast and clear edge differentiation through collinearity support visual perception

Artful Room Doors: Differentiation through colour, tone, shape, and style



Key References: *Magsamen & Ross (2023); Field, Hayes & Hess (1993, pp. 173–193);* ***Battaglini et al. (2025,*** *Sci Rep 15, 11877)*

Saliency, Aesthetic Engagement and Wayfinding

Saliency (n): Perceptually distinctive features of an environment that capture attention and are therefore more likely to be recognised, encoded in memory and used as navigation landmarks.

Way-finding studies show: Cues work across populations, and residents with and without dementia orient more easily when environmental landmarks are:

- Large and frequent
- Meaningfully placed
- Naturally coloured and bright over black and white
- Contrasting
- Easy to understand
- Associated with familiar, novel, beauty, awe or meaningful themes
- Figurative or culturally recognisable over abstract
- Textured
- Stable

***Key Reference**: Davis, R. & Weisbeck, C. (2016, pp.36–45); Itti & Koch (2001, pp. 194–203)*

Intuitive Signage

• **Circular forms attract attention** – strong contrast against linear architectural elements

• **Decorative frames reinforce shape** – creating recognisable landmarks within corridors

• **Textured visual cues** – 'Artful Signage' icons with intuitive backgrounds or culturally styled imagery

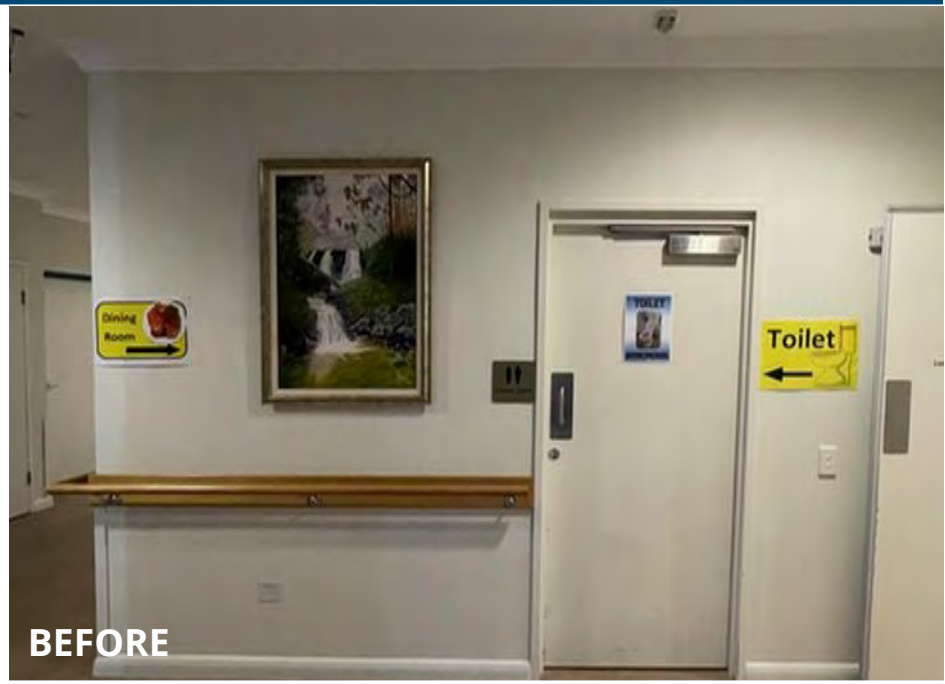
• **Cultural variety** – differentiation supports recognition and spatial orientation

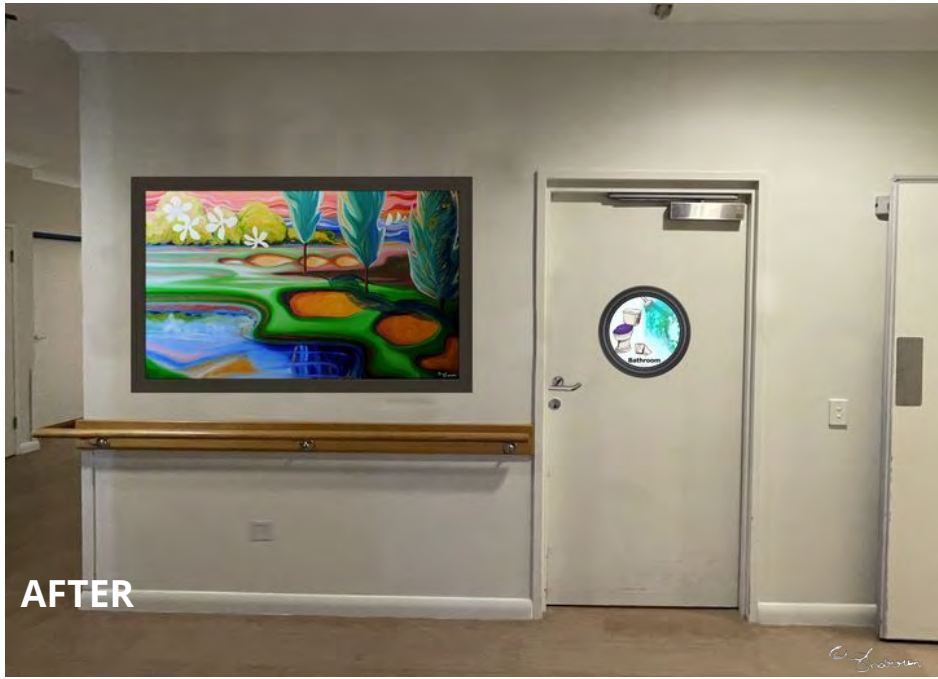
• **Light-hearted imagery** – creates a welcoming homely vibe

• **Clear wording** – simple fonts reinforce meaning but remain optional for non-readers

• **Facility-wide visual system** – Art-Based Technologies support navigation, reduce cognitive fatigue and may lower fall risk

***Key Reference**: Davis, R. & Weisbeck, C. (2016, pp. 36–45)*





Environmental Design for Safety and Harm Minimisation

Dementia studies suggest that residents are generally accepting of benign environmental cues when these help maintain safety and well-being.

ABTs support harm minimisation by:

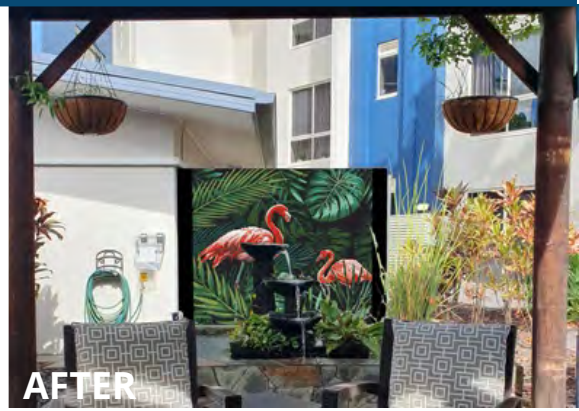
- Avoiding written instruction or rules
- Suggesting visual access without physical access
- Guiding behaviour through cues that naturally attract or avert attention
- Aligning with architectural structure to read as part of the environment rather than a doorway or passage
- Redirecting attention away from clinical or restricted areas
- Reducing environmental clutter

ABTs support staff and therapists by reducing resident stress and falls which creates more time for other activities.

***Key Reference**: Davis, R. & Weisbeck, C. (2016, pp. 36–45); Ulrich (1984, pp. 420–421)*

Therapeutic Benefits of Art-based Environmental Design

- Reducing environmental stress
- Increasing orientation and independence
- Reducing fall risk from confusion
- Increasing passive engagement through visual stimulation and emotional connection
- Increasing active engagement by prompting conversation, memories and social interaction
- Increasing emotional well-being through beauty, meaning and culture
- Enabling cognitive reserve through enriched environments



Key References: *Fancourt & Finn (2019); Magsamen & Ross (2023), Stern (2012, pp. 1006–1012), Diamond (2001), Volkers & Scherder (2011, pp. 259–266)*

Case Study: Corridor Transformation

Perceptual organisation through environmental design

• Corridors with blank walls create visually deprived environments that offer few orientation cues

• The visual system naturally groups aligned elements into continuous contours (collinearity), helping the brain organise complex scenes

• Large-scale imagery and structured placement introduce visual rhythm and perceptual coherence, while reducing environmental clutter

• Clear landmarks support spatial orientation and wayfinding

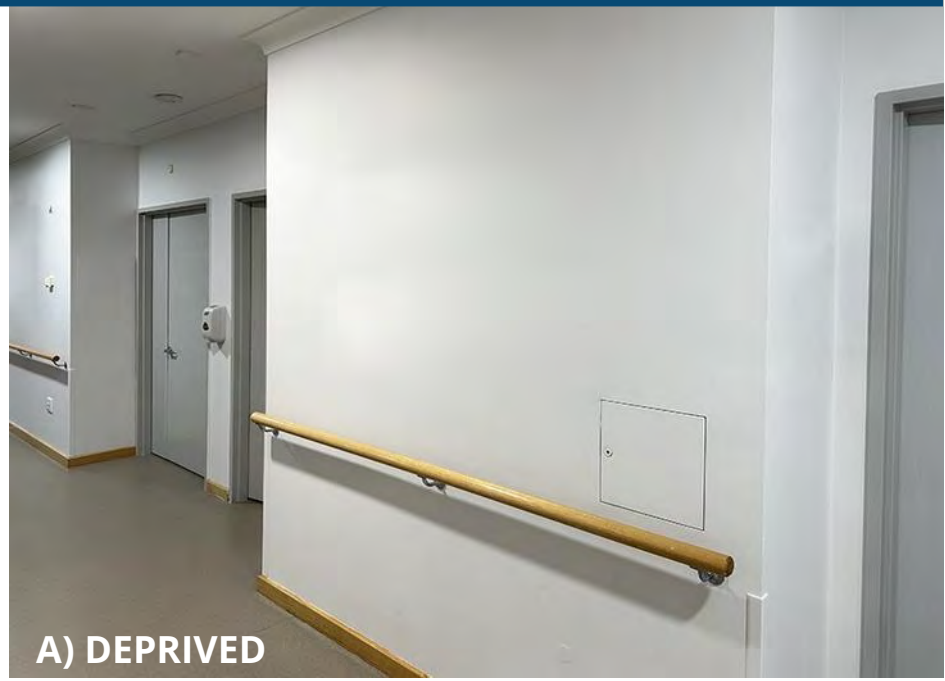
• Flat ABT art avoids glare and reflection triggers to reduce falls- and breakages

Environmental enrichment benefits

• Clearer spatial interpretation

• Reduced resident stress and fatigue

• Fewer navigation errors and falls

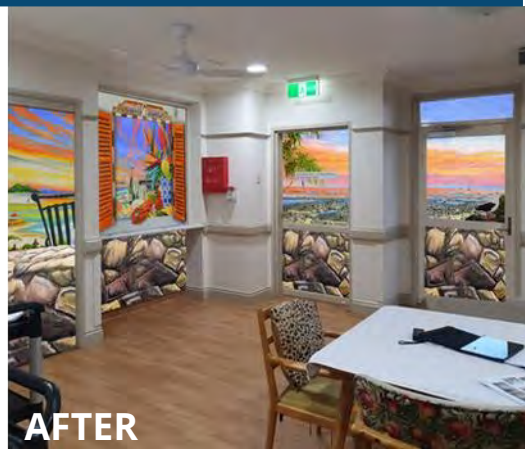


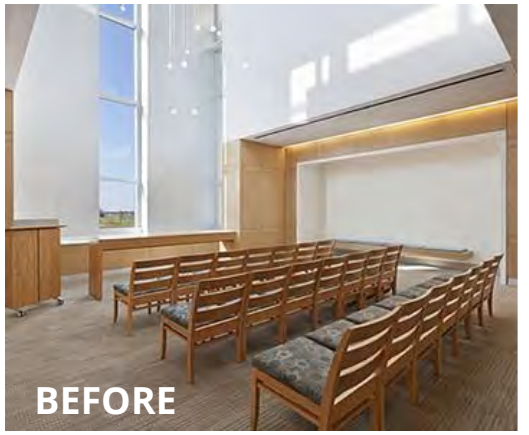
Key References: *Field, Hayes & Hess (1993, pp. 173–193); Epstein & Vass (2014, Art. 20120533); Hess, R. F., Hayes, A., & Field, D. J. (2003, pp. 105–119)*

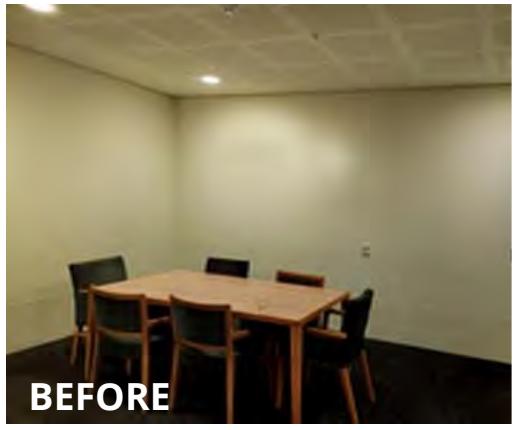
Case Study: Communal Space

Contextual and universal imagery in Art-Based Technologies

- Community scenes are designed to align with the architecture, location and resident demographic
- Imagery reflects what the community already recognises and accepts
- Research suggests artistic environments should balance private identity in rooms and shared cultural notions of home in community spaces (Dahlin-Ivanoff, 2017)
- ABTs commonly use universal themes: water, nature, light, love and travel
- In reflective spaces, imagery may be designed to evoke beauty and awe, supporting well-being and social connection



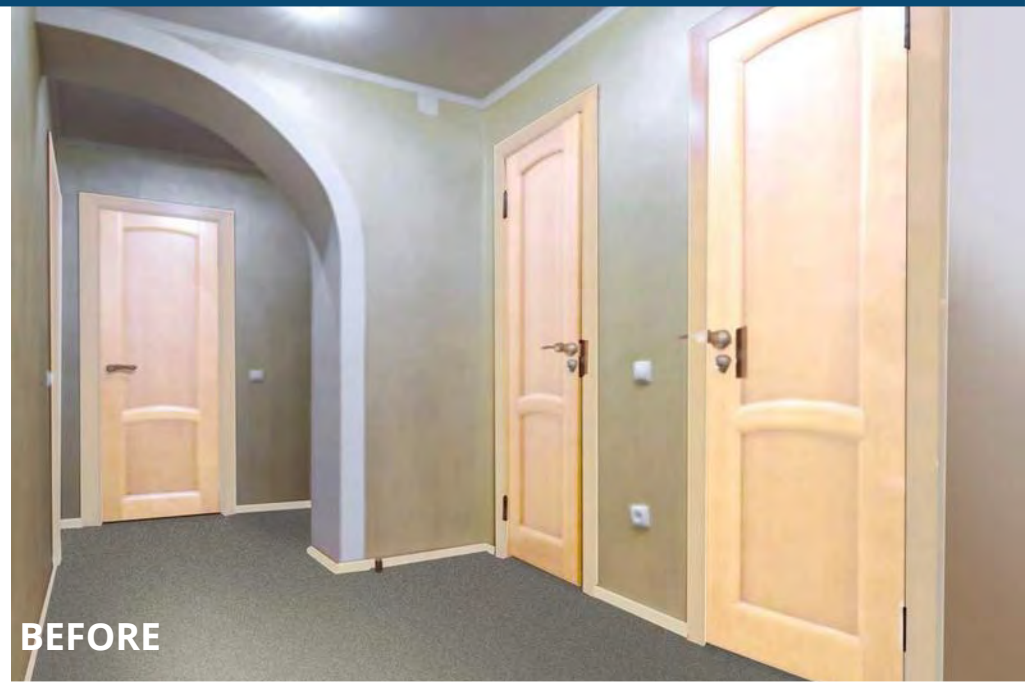




Key References: *Ulrich, R. S. (1984, pp. 420–421); Dahlin-Ivanoff, S. (2017, pp 115), Magsamen, S., & Ross, I. (2023); Monroy, M., & Keltner, D. (2023, pp. 309-320)*

Case Study: Resident Room Door Personalisations

- Identical corridor doors can be difficult for residents with dementia to recognise
- Feature wall colours, artwork and signage are spatially designed to floor-plans.
- Door designs reflecting the building style and resident demographic create a familiar “street-like” environment
- Stable door identities support saliency — frequent redesign disrupts wayfinding and increases stress and operational costs
- Landmarks guide residents to their door, recognised by its distinctive design
- Residents then confirm their room through personal belongings



Key References: *Davis, R., & Weisbeck, C. (2016, pp. 36–45)*

Policy: The Strengthened Aged Care Quality Standards (Australia)

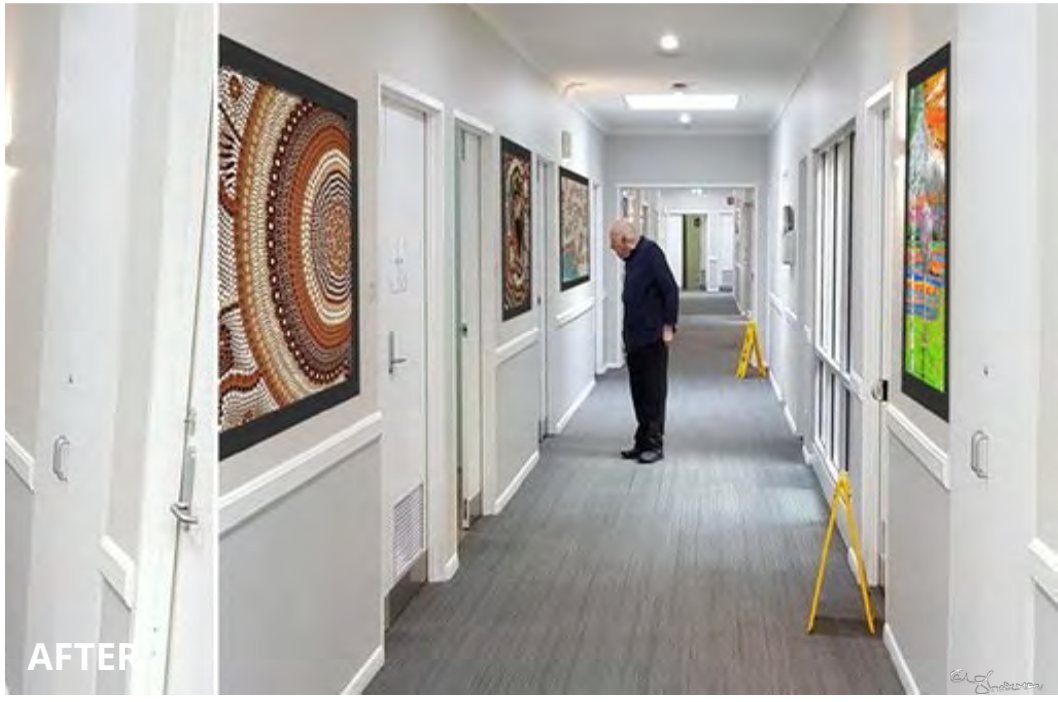
Residential aged care environments should support:

- Dignity, independence and autonomy
- Safe and supportive environments
- Meaningful engagement and social connection
- Person-centred care
- Person-hood, dignity and independence
- Privacy and home-like environments

Art-Based Technologies contribute by:

- Creating recognisable and navigable environments
- Supporting emotional well-being and engagement
- Reducing environmental stressors
- Supporting independence in everyday movement

Key Reference: *Australian Government (2023) Design Principles*
Australian Government (2024) Quality Standards



Implications for Dementia Care

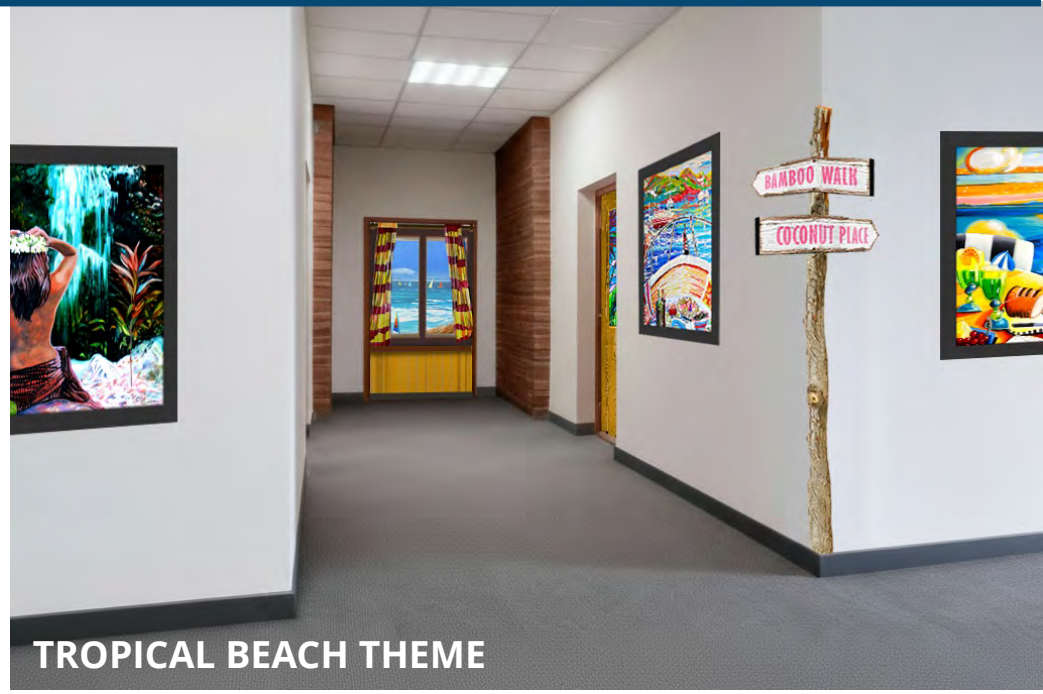
Australian Aged Care Design Principles and Guidelines recommends environments that:

- Promote culture
- Reduce clutter and excessive signage through objects and art
- Use tonal contrast and distinctive landmarks to support navigation
- Conceal service doors, fire exits and operational areas

Art-Based Technologies support these goals by

- Enabling correct room identification, supporting independence and privacy
- Reducing institutional features through integrated environmental design
- Providing facility-wide landmark systems that improve orientation and well-being

Key Reference: *Australian Government (2023) Design Principles*
Australian Government (2024) Quality Standards



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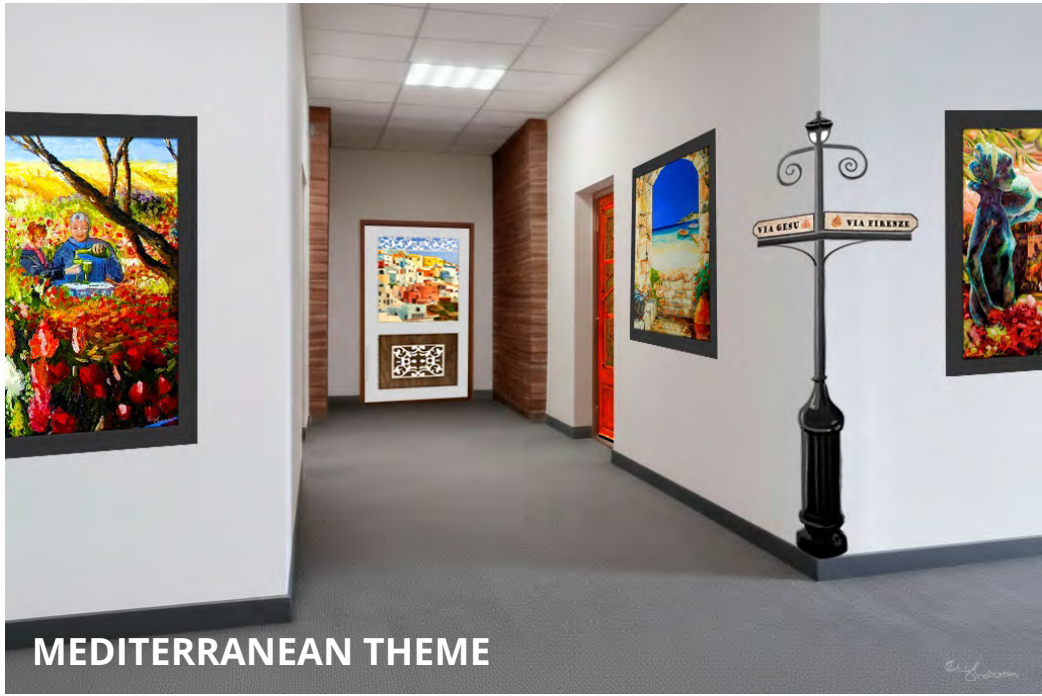

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In Conclusion...

Art-Based Technologies deliver measurable therapeutic value within dementia care environments.

This work shows that behaviours are not only about disease, but also a:

- response to the environment
- the brain struggles to interpret difficult environments
- The brain functions more effectively when environments are:

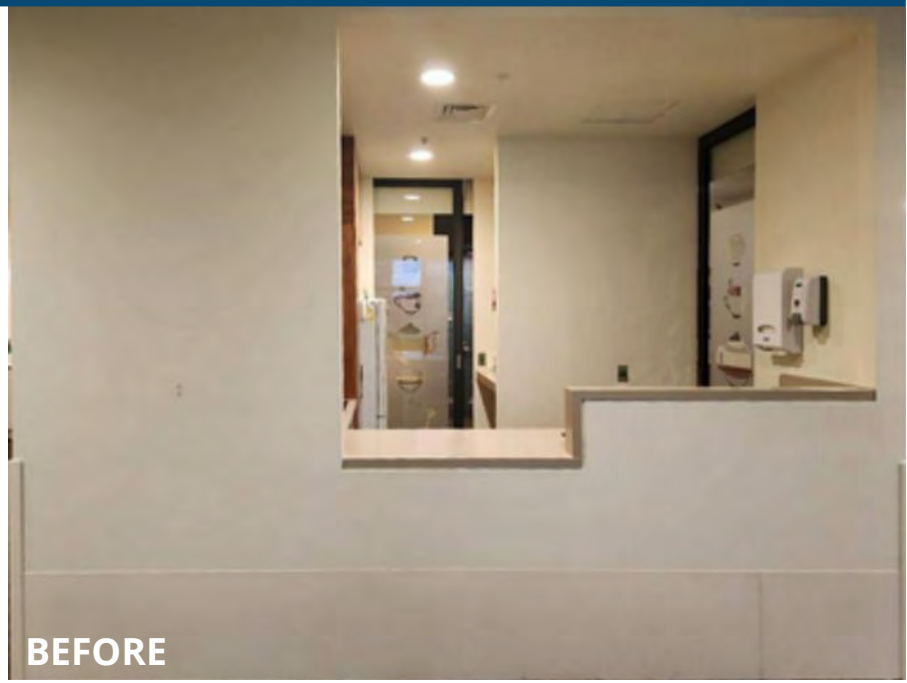
    - structured
    - meaningful
    - engaging

Art-Based Technologies are not decoration, but a way of organising space so the brain can perceive it, evaluate it and navigate it.

This shifts us from managing behaviours, to designing environments that reduce the triggers that cause them. In that sense, the environment itself becomes a strategy for delivering therapy for Aged Care Residents living with Cognitive decline.

And that is a design problem we can solve.

Edward O. Wilson, Consilience:
"The greatest enterprise of the human mind has always been the attempted linkage of the sciences and humanities."



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Thank You!

Sharron T MIDA is an Australian industrial artist and pioneer of Art-based Technologies with over two decades of experience. Dyslexia enhances her unique ability to notice patterns from detail, visualise problems in three dimensions and create innovative solutions. Renowned for her global insights and meticulous research, she collaborates with governments, universities, and providers. Sharron connects neuroscience, neuroaesthetics, and health research, becoming a thought leader in creating dementia-friendly environments. Her work transforms healthcare and aged-care settings, demonstrating how evidence-based art can improve health outcomes.

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Gregor Poole BScPH BScHP is a seasoned health and aged care professional with over a decade of experience fostering inclusion and well-being. As a Community Development Manager with leading Australian aged care providers, he has spearheaded programs like volunteer initiatives, intergenerational projects, and respite services that empower residents. With a Bachelor of Public Health and Health Promotion and currently pursuing a Master of Social Work, Gregor is committed to advancing evidence-based, person-centered care in aged care communities.

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A/Prof Klaus Veil FACHI FHL7 LMHL7Au is an economist, medical data standards creator and healthcare policy expert with a distinguished international career as CIO of Australia largest private healthcare provider, director of the Health Level 7 global healthcare data standards organisation and longest-serving president of the Australasian peak body of professional organisations. Klaus specialises in healthcare policy, business development and health data interoperability.

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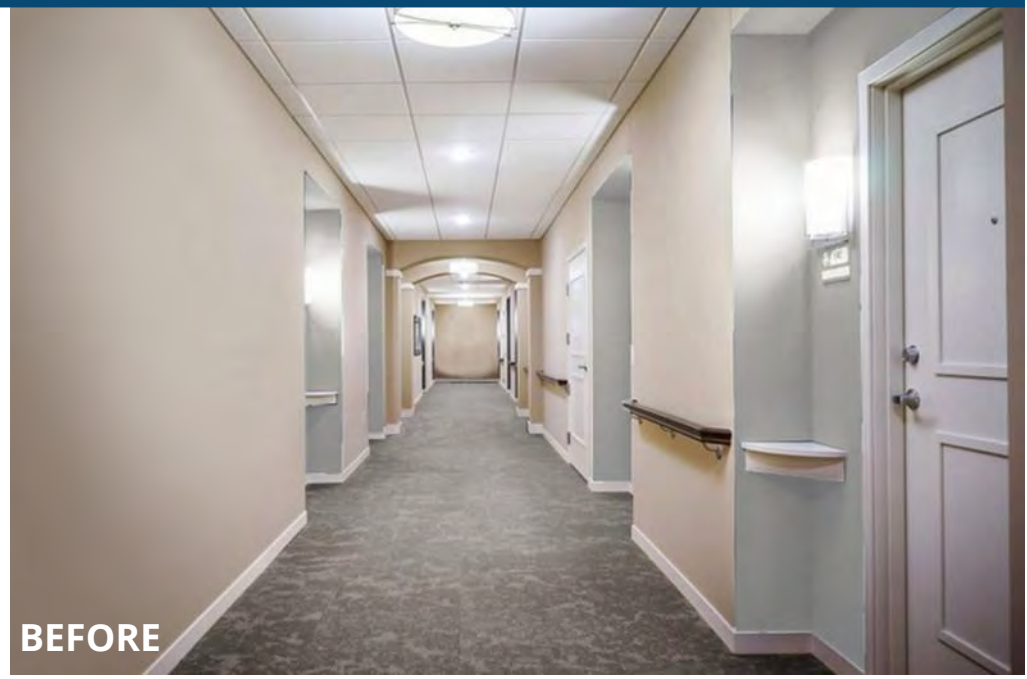

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...because Tailored Art Works!

Hi, my name is Sharron. I'm Australian industrial artist and pioneer of Art-based Technologies with over two decades of experience in designing art to remove triggers from dementia care home environments.

Many behaviours we attribute to dementia may actually be responses to environments that the brain can no longer easily interpret.

(PAUSE FOR 2 SECS)

Today I will explore how carefully structured visual environments can help reduce that confusion and support orientation, engagement as therapeutic strategies in residential aged care.

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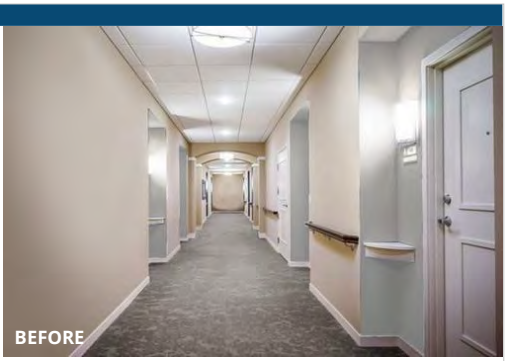
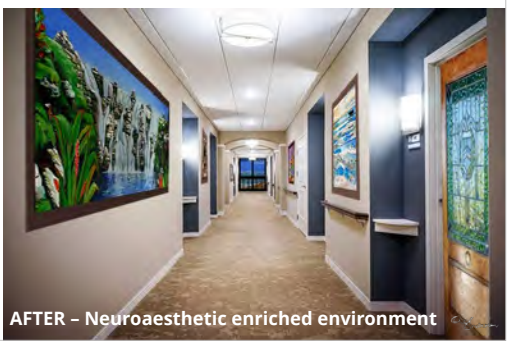




Let's look at the challenges. Enrichment vs Deprivation. Policy, neuroaesthetics and the brain, what are ABTs and their c0Cognitive pathway map. Designing for attention and orientation and wayfinding, saliency, engagement and wayfinding. About Intuitive Signage, safety and therapeutic benefits.
Fianlly a few Case Studies and conclusions.

The Dementia Challenge

• Dementia currently affects over 57 million people worldwide, with numbers projected to triple by 2050

• Residents in long-term aged care frequently experience Behavioural and Psychological Symptoms of Dementia (BPSD) such as:

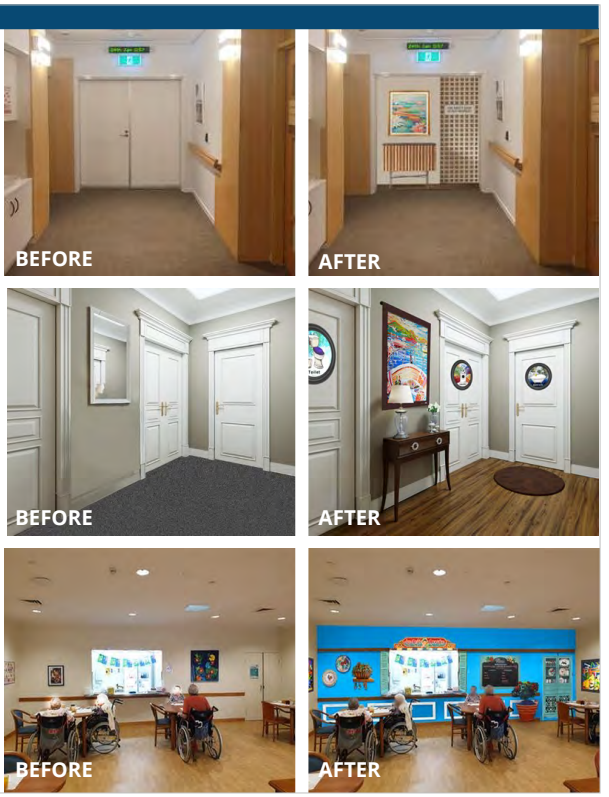
– agitation
– anxiety
– wandering
– disorientation
– sleep disturbance

• Up to 90% of people living with dementia experience BPSD during the course of the disease

• Many behavioural expressions may reflect environmental stressors rather than disease pathology alone

• Improving the design of care environments may therefore help reduce distress and improve well-being

Key References: *World Health Organization. Dementia Fact Sheet. 2025*



Today Dementia affects about 55 million people worldwide, with numbers projected to triple by 2050.

Many residents in long-term care experience behavioural and psychological symptoms such as agitation, wandering and disorientation.

Increasingly, research suggests that these behaviours are not only related to disease pathology but may also reflect environmental stressors.

Enriched Environments vs Deprived Environments

• Neuroscience research demonstrates that environmental conditions influence cognitive functioning across the lifespan

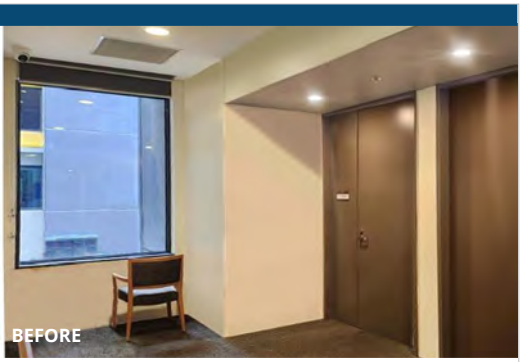
• Enriched environments provide sensory, cognitive and social stimulation that supports brain activity and engagement

• In contrast, impoverished environments may contribute to reduced cognitive stimulation and functional decline

• Many institutional care environments unintentionally provide limited environmental stimulation

• Environmental enrichment may therefore help support cognition, behaviour and well-being in people living with dementia

Key References: *Volkers, K. M., & Scherder, E. J. A. (2011, pp. 259–266); Diamond, M. C. (2001)*



Research in neuroscience shows that environmental conditions can influence cognitive functioning across the lifespan.

Enriched environments provide sensory, cognitive and social stimulation, while impoverished environments can reduce engagement and may contribute to cognitive decline.

Unfortunately, many institutional aged-care environments are low-stimulation environments.

So, how can care environments provide continuous environmental enrichment for people living with dementia?

Neuroaesthetic Mechanisms in the Brain

Neurodegenerative diseases affect many cognitive functions. However, some perceptual and attentional responses remain relatively preserved because the brain compensates:

Around age 65 the brain relies more strongly on:

- contrast
- spatial structure
- visual detail

Environments with clearer visual organisation may be easier to interpret and engage with.

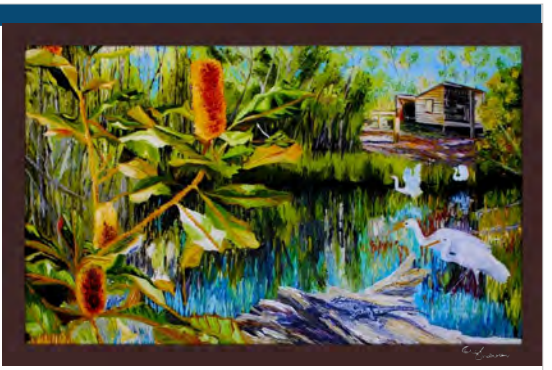
Neuroaesthetics is the study of how the brain:

- perceives
- evaluates
- responds to visual and sensory experiences, including:

- contrast
- structure
- aesthetic qualities i.e. beauty and coherence to influence attention, engagement, and emotional response

ABTs are designed around these principles.
Connecting these mechanisms to spatial memory and navigation, can help us understand how structured visual environments may support orientation in dementia care.

Key References: *Zanto & Gazzaley (2014, pp. 927–971); Magsamen & Ross (2023)*



Although neurodegenerative diseases affect many cognitive functions, some perceptual and attentional responses remain relatively preserved.

Research suggests that ageing brains rely more strongly on perceptual cues such as contrast, spatial structure and distinctive visual features when directing attention.

In other words, environments with clearer visual structure and stronger contrast may be easier for older adults to interpret and engage with.

At the same time, careful environmental design also reduces sensory triggers by minimising glare, reflections and unnecessary visual clutter or large visually intrusive elements such as canvas and frame edges.

Art-Based Technologies are therefore designed around these perceptual principles, using elements such as scale, luminosity, contrast and recognisable imagery to capture attention while maintaining clear, low-stress visual environments.

Art-based Technologies (ABTs) as Environmental Interventions

ABTs are integrated visual systems embedded across a facility, forming a continuous wayfinding and engagement network.

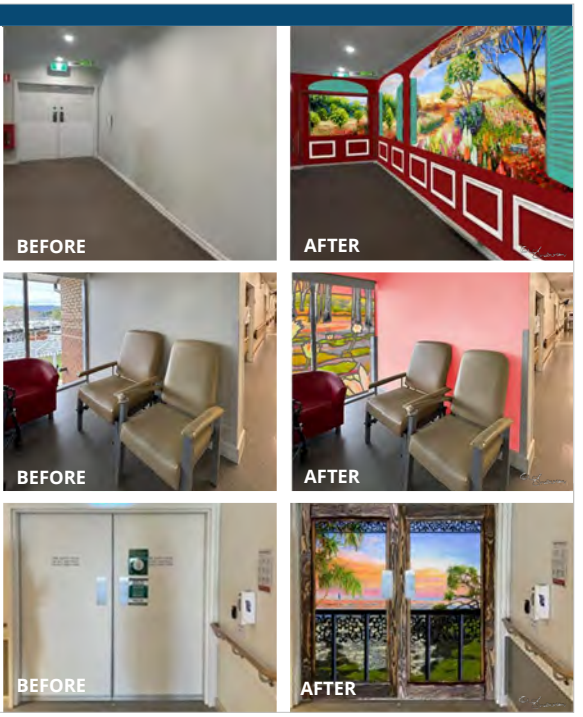
They are not individual artworks. They are coordinated environmental interventions that operate passively throughout everyday environments.

In practice, ABTs include:
- intuitive signage
- large-scale "Artful Outlooks"
- personalised room doors
- clinical disguises
- service and exit door disguises
- themed communal and transitional spaces
- window, ceiling and outdoor artworks

they are
- embedded into the environment
- function continuously

A WHO review shows that arts engagement supports health and well-being. So, how can we use how the brain perceives art to affect orientation and behaviour?

Key References: WHO (2019); K. Veil, Sharron T MIDA, & G. Poole, (2025)



This brings us to what we describe as Art-Based Technologies, or ABTs.

ABTs are integrated visual systems embedded within the built environment, forming complete environmental wayfinding networks.

Unlike decorative artwork, which people may notice occasionally, ABTs are designed to operate continuously as passive environmental supports.

Their purpose is to support attention, perceptual engagement, and spatial orientation, helping residents recognise and interpret their surroundings as they move through everyday spaces.

ABTs apply principles from neuroaesthetics and perceptual science, using elements such as large-scale imagery, spatial landmarks, contrast, luminosity and recognisable scenes.

These visual cues help the brain identify meaningful features in

The Aesthetic Triad Diagram

Before we look at the cognitive pathway, it's important to understand how the brain processes aesthetic experience.

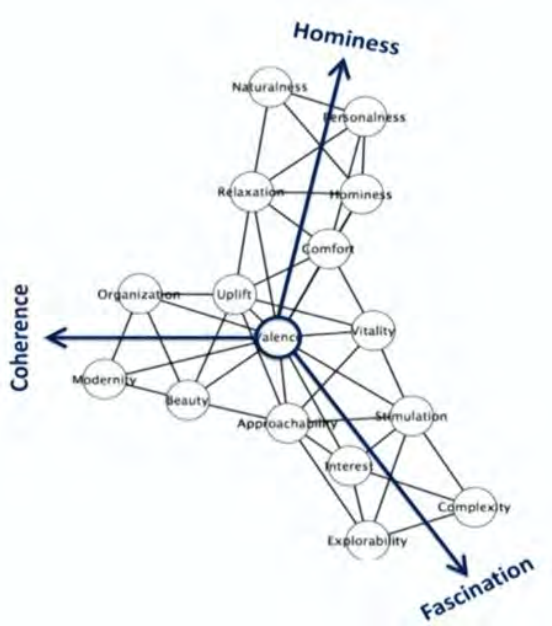
The Aesthetic Triad shows how visual input is perceived, evaluated and interpreted through:

- Sensory processing
- Emotional valuation
- Meaning-making systems

In built environments, this evaluation process is shaped by qualities such as coherence, hominess, and fascination which together influences valence. Poor valence is:

- Harder to interpret
- A less engaging emotional response
- Less comforting & orientating = Behavioural reactions

This helps explain why some environments feel calming, engaging, or confusing — and why aesthetic design is not decorative, but functionally important to how the brain understands space.



Key Reference & Diagram Attribution: *Chatterjee & Vartanian (2016, pp. 172-194), Chatterjee (2014)*

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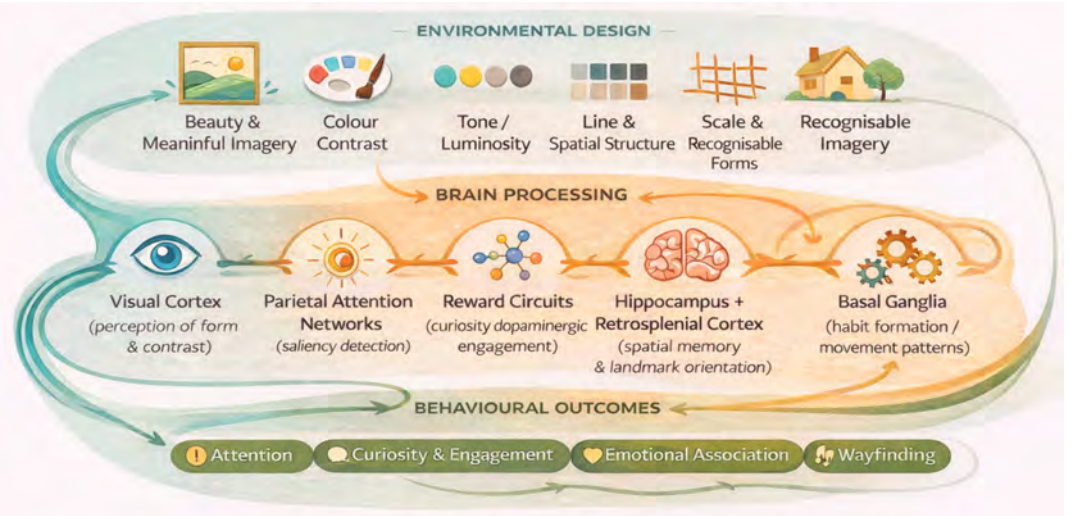
Cognitive Pathway Linking Environmental Design to Wayfinding Behaviour

Structured visual elements capture attention, connect with spatial memory and develop into environmental landmarks that support navigation. Aesthetic engagement is associated with dopaminergic reward processes linked to motivation, mood, and movement (relevant to Parkinson's disease).



Key References: *Zanto & Gazzaley (2014, pp. 927–971) ; Field, D. J., et al. (1993, pp. 173–193); Epstein & Vass (2014, Art. 20120533); Epstein (2008, pp. 388–396)*

This model draws on research in attention, environmental enrichment and spatial navigation.

Structured visual features such as colour contrast, spatial structure and meaningful imagery are first processed by the visual cortex.

These features can create perceptual saliency, which captures attention through parietal attention networks.

When the stimuli are aesthetically engaging they may also activate reward circuits associated with curiosity and exploration.

Over time these cues become associated with place through hippocampal spatial memory systems, and the retrosplenial cortex helps link landmarks to spatial orientation.

With repeated exposure, navigation patterns can become reinforced through basal ganglia systems, allowing these cues to function as stable landmarks that support wayfinding.

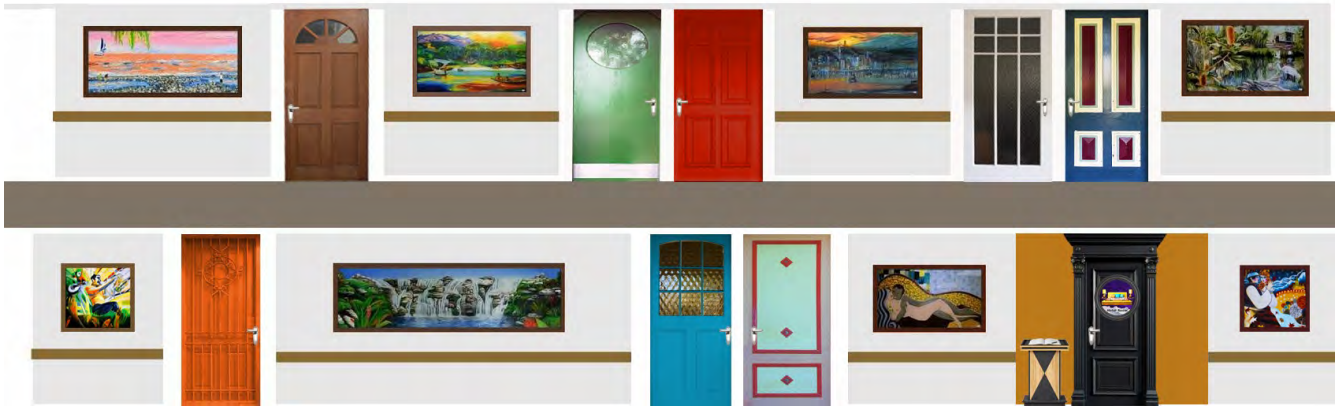
Design Elements Supporting Attention, Orientation and De-cluttering

Hope through art: Studies suggest that natural Impressionist style and beautiful light-filled scenes can evoke positive feelings

Universal themes: Art-Based Technologies often feature familiar environmental themes such as water, nature, light, love and travel

Artful Outlooks: High contrast and clear edge differentiation through collinearity support visual perception

Artful Room Doors: Differentiation through colour, tone, shape, and style



Key References: *Magsamen & Ross (2023); Field, Hayes & Hess (1993, pp. 173–193); Battaglini et al. (2025, Sci Rep 15, 11877)*

These examples show how Art-Based Technologies translate neuroaesthetic principles into environmental design.

Many of the artworks use natural scenes and light-filled landscapes. Research suggests these types of images can evoke positive emotional responses such as calm and hope.

In later life the brain may rely more strongly on clear visual cues such as contrast, pattern and spatial structure when interpreting environments.

For example, the artworks use strong edge differentiation and visual alignment. This principle, known as collinearity, helps the brain recognise structure and orientation within a scene.

Similar principles are used in room doors, where differentiation through colour, tone and shape helps residents recognise their own rooms while reducing visual clutter in the corridor.

Saliency, Aesthetic Engagement and Wayfinding

Saliency (n): Perceptually distinctive features of an environment that capture attention and are therefore more likely to be recognised, encoded in memory and used as navigation landmarks.

Way-finding studies show: Cues work across populations, and residents with and without dementia orient more easily when environmental landmarks are:

- Large and frequent
- Meaningfully placed
- Naturally coloured and bright over black and white
- Contrasting
- Easy to understand
- Associated with familiar, novel, beauty, awe or meaningful themes
- Figurative or culturally recognisable over abstract
- Textured
- Stable

***Key Reference**: Davis, R. & Weisbeck, C. (2016, pp.36–45); Itti & Koch (2001, pp. 194–203)*

Salient visual features first capture attention through contrast, colour or spatial structure.

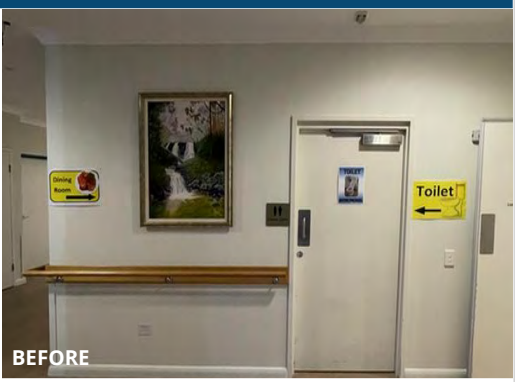
When those features are also aesthetically engaging — for example through beauty, curiosity or meaningful imagery — they may sustain attention long enough for residents to form associations with place.

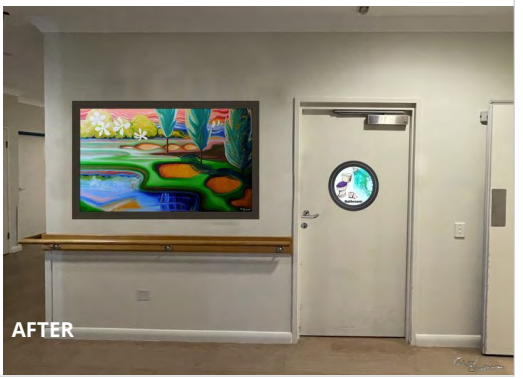
Repeated exposure then allows these features to function as stable landmarks that support spatial memory and navigation.

Intuitive Signage

- **Circular forms attract attention** – strong contrast against linear architectural elements
- **Decorative frames reinforce shape** – creating recognisable landmarks within corridors
- **Textured visual cues** – 'Artful Signage' icons with intuitive backgrounds or culturally styled imagery
- **Cultural variety** – differentiation supports recognition and spatial orientation
- **Light-hearted imagery** – creates a welcoming homely vibe
- **Clear wording** – simple fonts reinforce meaning but remain optional for non-readers
- **Facility-wide visual system** – Art-Based Technologies support navigation, reduce cognitive fatigue and may lower fall risk

***Key Reference**: Davis, R. & Weisbeck, C. (2016, pp. 36–45)*





Another component of Art-Based Technologies is intuitive signage.

Many care environments rely on small printed signs that are easily missed or require reading ability.

In contrast, intuitive signage uses visual cues that naturally attract attention and are easy to recognise.

Circular forms stand out against the straight lines of architecture, while decorative frames help create visual landmarks within corridors.

Icons can incorporate textured backgrounds or culturally meaningful imagery, helping residents recognise spaces such as bathrooms, dining areas or communal rooms.

When these cues are applied consistently across the facility, they form a visual navigation system that supports orientation, reduces cognitive effort and may help reduce fall risk.

Environmental Design for Safety and Harm Minimisation

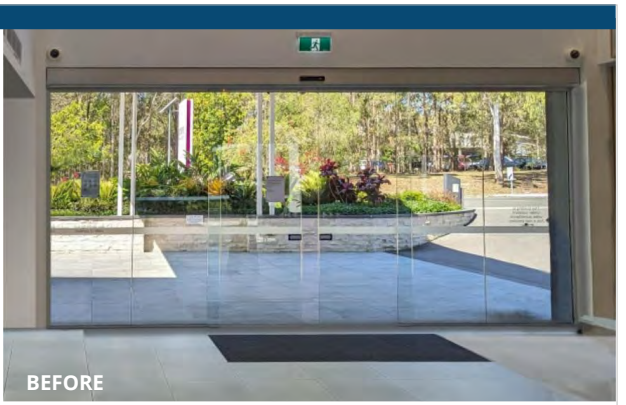
Dementia studies suggest that residents are generally accepting of benign environmental cues when these help maintain safety and well-being.

ABTs support harm minimisation by:

- Avoiding written instruction or rules
- Suggesting visual access without physical access
- Guiding behaviour through cues that naturally attract or avert attention
- Aligning with architectural structure to read as part of the environment rather than a doorway or passage
- Redirecting attention away from clinical or restricted areas
- Reducing environmental clutter

ABTs support staff and therapists by reducing resident stress and falls which creates more time for other activities.

***Key Reference**: Davis, R. & Weisbeck, C. (2016, pp. 36–45); Ulrich (1984, pp. 420–421)*



Environmental design can also play an important role in harm minimisation.

People living with dementia often respond to environmental cues rather than written instructions or rules.

Art-Based Technologies can guide behaviour by integrating visual cues directly into the built environment.

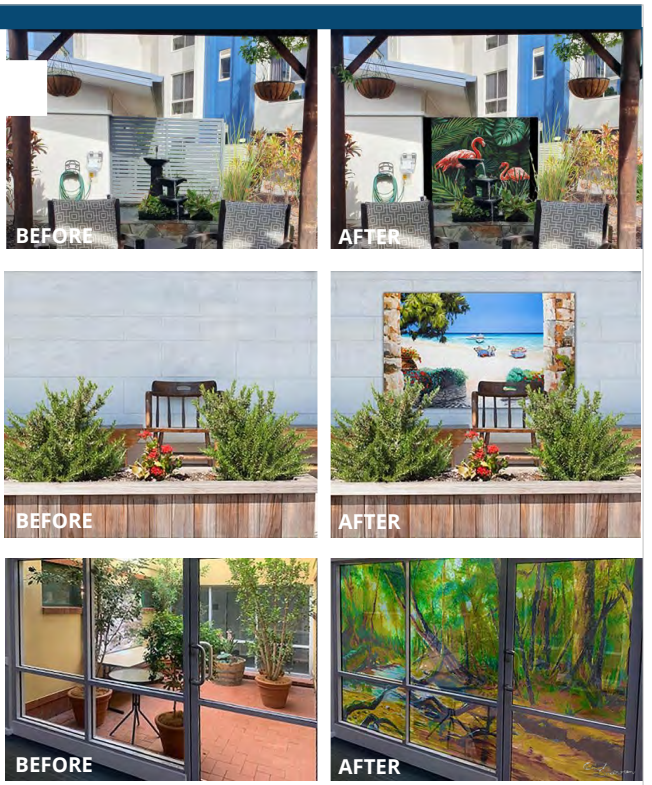
For example, artwork can redirect attention away from restricted areas or clinical features such as service doors or exits.

When imagery aligns with architectural lines and spatial structure, residents recognise it as part of the environment rather than a passageway.

In this way, visual environments can help reduce confusion, support safer movement and lower environmental stress.

Therapeutic Benefits of Art-based Environmental Design

- Reducing environmental stress
- Increasing orientation and independence
- Reducing fall risk from confusion
- Increasing passive engagement through visual stimulation and emotional connection
- Increasing active engagement by prompting conversation, memories and social interaction
- Increasing emotional well-being through beauty, meaning and culture
- Enabling cognitive reserve through enriched environments



Key References: *Fancourt & Finn (2019); Magsamen & Ross (2023), Stern (2012, pp. 1006–1012), Diamond (2001), Volkers & Scherder (2011, pp. 259–266)*

While much of the discussion around art in aged care focuses on activities such as art therapy sessions or gallery visits, Art-Based Technologies function somewhat differently.

They operate as therapeutic environmental supports embedded within everyday spaces.

By creating clearer visual structure and recognisable cues, these environments can reduce environmental stress and support orientation.

Residents often navigate spaces with greater confidence, which may help maintain independence and potentially reduce fall risk.

Because these visual cues are encountered continuously throughout the day, they also provide passive engagement, while meaningful imagery can stimulate conversation, memories and social interaction.

In this context, the environment itself becomes a continuous therapeutic medium rather than a place where therapy occasionally occurs.

Case Study: Corridor Transformation

Perceptual organisation through environmental design

• Corridors with blank walls create visually deprived environments that offer few orientation cues

• The visual system naturally groups aligned elements into continuous contours (collinearity), helping the brain organise complex scenes

• Large-scale imagery and structured placement introduce visual rhythm and perceptual coherence, while reducing environmental clutter

• Clear landmarks support spatial orientation and wayfinding

• Flat ABT art avoids glare and reflection triggers to reduce falls- and breakages

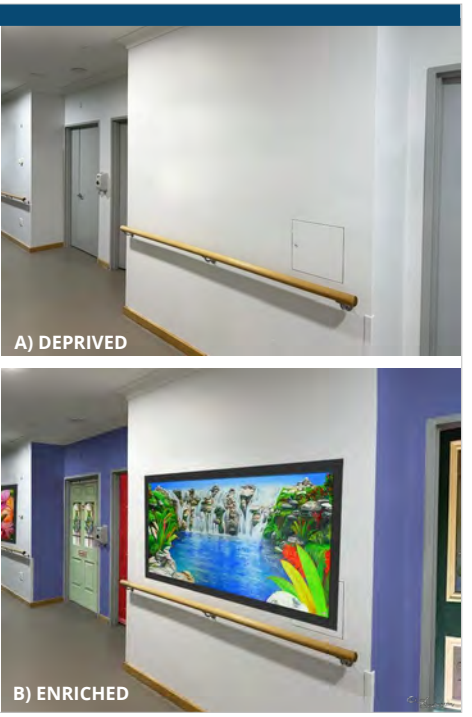
Environmental enrichment benefits

• Clearer spatial interpretation

• Reduced resident stress and fatigue

• Fewer navigation errors and falls

Key References: *Field, Hayes & Hess (1993, pp. 173–193); Epstein & Vass (2014, Art. 20120533); Hess, R. F., Hayes, A., & Field, D. J. (2003, pp. 105–119)*



This case example illustrates how environmental design can support perception and orientation in dementia care environments.

Many aged care corridors are visually deprived spaces. Blank walls, repeated doors and flat surfaces provide very little information for the brain to interpret.

Visual neuroscience shows that the brain naturally organises visual information through a principle known as collinearity. When elements align along a common direction, the visual system groups them into coherent contours. This makes complex scenes easier to interpret.

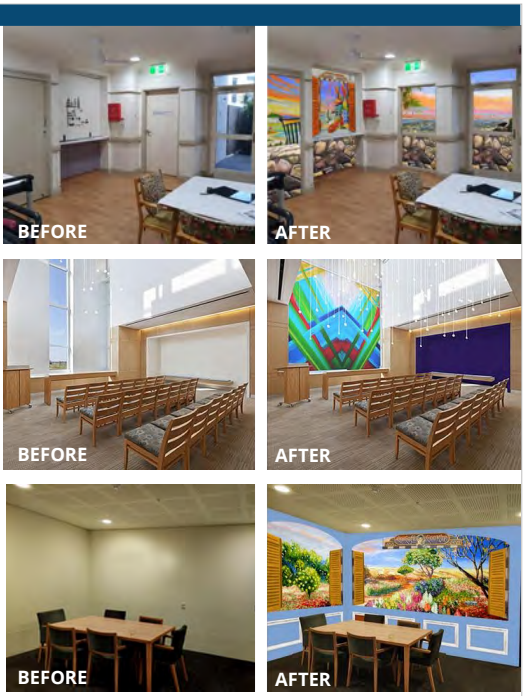
In this example, large-scale imagery introduces visual rhythm and perceptual structure along the corridor. Instead of a long sequence of identical surfaces, residents encounter meaningful landmarks that anchor the environment.

These landmarks help link visual perception with spatial memory, allowing residents to orient themselves more easily

Case Study: Communal Space

Contextual and universal imagery in Art-Based Technologies

- Community scenes are designed to align with the architecture, location and resident demographic
- Imagery reflects what the community already recognises and accepts
- Research suggests artistic environments should balance private identity in rooms and shared cultural notions of home in community spaces (Dahlin-Ivanoff, 2017)
- ABTs commonly use universal themes: water, nature, light, love and travel
- In reflective spaces, imagery may be designed to evoke beauty and awe, supporting well-being and social connection



Key References: *Ulrich, R. S. (1984, pp. 420–421); Dahlin-Ivanoff, S. (2017, pp 115), Magsamen, S., & Ross, I. (2023); Monroy, M., & Keltner, D. (2023, pp. 309-320)*

because Tailored Art Works!

Communal environments are important spaces for social interaction and shared activity in residential aged care.

Art-Based Technologies are designed to align with the architectural style of the facility, its geographic location and the cultural background of the residents. In this way, the imagery sits comfortably within what the community already recognises and accepts.

Research by Dahlin-Ivanoff suggests that artistic environments in residential care should balance private identity with shared cultural notions of home. In other words, environments should feel familiar and meaningful not only to individuals but also to the community living there.

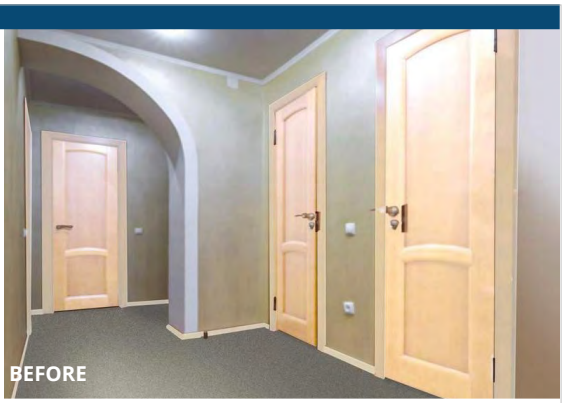
Across different settings, ABTs frequently draw on universal themes such as water, nature, light, love and travel, which tend to resonate across cultures.

In reflective spaces, imagery may also be designed to evoke beauty or awe. Experiences of awe have been associated with greater social connection, a sense of meaning and

Case Study: Resident Room Door Personalisations

- Identical corridor doors can be difficult for residents with dementia to recognise
- Feature wall colours, artwork and signage are spatially designed to floor-plans.
- Door designs reflecting the building style and resident demographic create a familiar “street-like” environment
- Stable door identities support saliency — frequent redesign disrupts wayfinding and increases stress and operational costs
- Landmarks guide residents to their door, recognised by its distinctive design
- Residents then confirm their room through personal belongings

Key References: *Davis, R., & Weisbeck, C. (2016, pp. 36–45)*



Identical corridor doors can be difficult for residents living with dementia to recognise, particularly in long corridors where many doors appear the same.

In an Art-Based Technology system, navigation cues are integrated across the building. Floor-plan design, feature wall colours, artwork and signage work together to guide residents through the environment.

Door designs are curated to reflect the architectural style of the building and the cultural background of the residents, creating a familiar environment similar to a street of houses.

Stable door identities are important for saliency. Frequent redesign of doors for each new resident may appear person-centred, but it can disrupt wayfinding cues while also increasing resident stress and operational costs.

Environmental landmarks guide residents along corridors to their door, which they recognise by its distinctive design.

Policy: The Strengthened Aged Care Quality Standards (Australia)

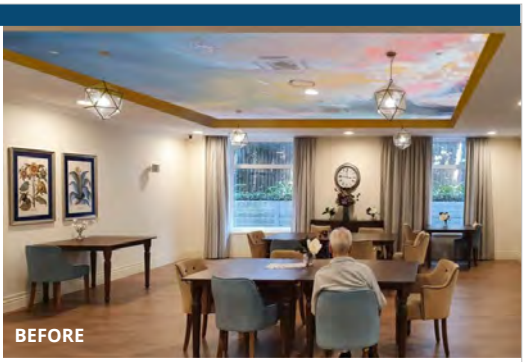
Residential aged care environments should support:

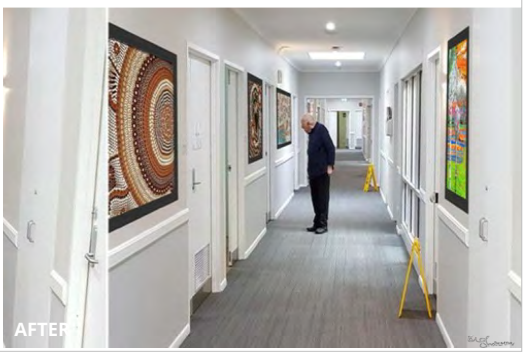
- Dignity, independence and autonomy
- Safe and supportive environments
- Meaningful engagement and social connection
- Person-centred care
- Person-hood, dignity and independence
- Privacy and home-like environments

Art-Based Technologies contribute by:

- Creating recognisable and navigable environments
- Supporting emotional well-being and engagement
- Reducing environmental stressors
- Supporting independence in everyday movement

Key Reference: *Australian Government (2023) Design Principles*
Australian Government (2024) Quality Standards





Recent reforms in Australian aged care emphasise the importance of environments that support dignity, independence and meaningful engagement.

The Strengthened Aged Care Quality Standards recognise that the design of care environments can significantly influence well-being and safety.

However, many facilities still provide visually impoverished environments that can contribute to confusion and distress.

The approach presented here explores how structured visual environments can help address these challenges.

Implications for Dementia Care

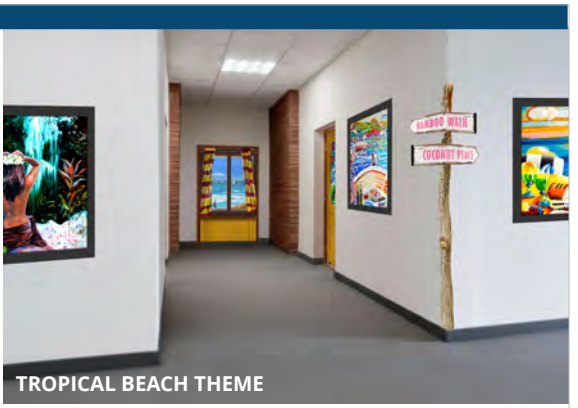
Australian Aged Care Design Principles and Guidelines recommends environments that:

- Promote culture
- Reduce clutter and excessive signage through objects and art
- Use tonal contrast and distinctive landmarks to support navigation
- Conceal service doors, fire exits and operational areas

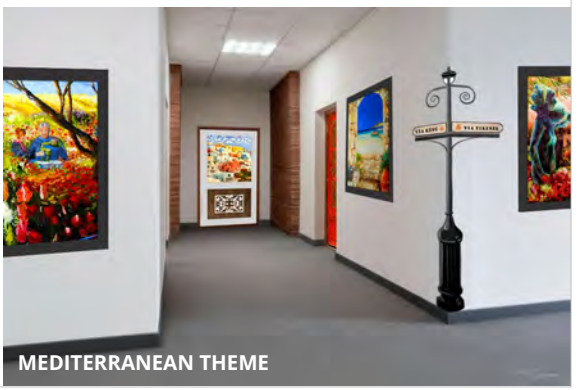
Art-Based Technologies support these goals by

- Enabling correct room identification, supporting independence and privacy
- Reducing institutional features through integrated environmental design
- Providing facility-wide landmark systems that improve orientation and well-being

Key Reference: *Australian Government (2023) Design Principles*
Australian Government (2024) Quality Standards



TROPICAL BEACH THEME


MEDITERRANEAN THEME

These examples also have implications at a policy level.

The Australian Aged Care Design Principles and Guidelines recommend environments that promote culture and meaningful engagement, reduce clutter and excessive signage, and use tonal contrast and distinctive landmarks to support navigation.

They also encourage concealing service doors, fire exits and operational areas to create more homelike environments.

The new Strengthened Aged Care Quality Standards go further by emphasising personhood, dignity, independence and privacy.

Art-Based Technologies align closely with these policy goals. For example, correct room door identification can support residents in locating their own rooms independently, which reinforces both privacy and autonomy.

Similarly, disguising institutional features such as nurses stations can reduce the clinical feel of environments and create spaces that feel more like home.

In Conclusion...

Art-Based Technologies deliver measurable therapeutic value within dementia care environments.

This work shows that behaviours are not only about disease, but also a:

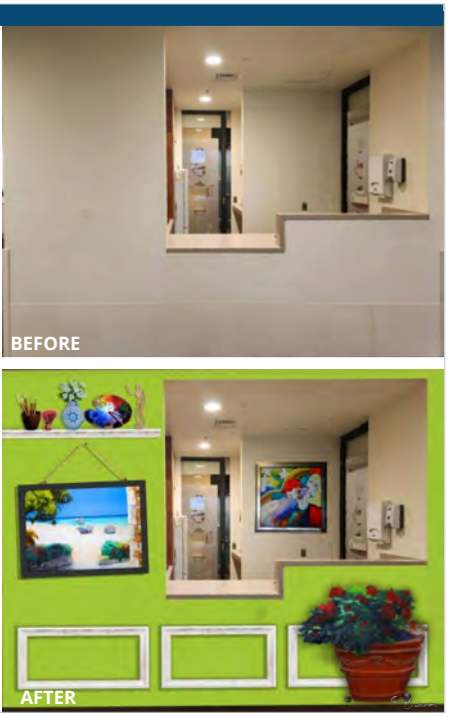
- response to the environment
- the brain struggles to interpret difficult environments
- The brain functions more effectively when environments are:
  - structured
  - meaningful
  - engaging

Art-Based Technologies are not decoration, but a way of organising space so the brain can perceive it, evaluate it and navigate it.

This shifts us from managing behaviours, to designing environments that reduce the triggers that cause them. In that sense, the environment itself becomes a strategy for delivering therapy for Aged Care Residents living with Cognitive decline.

And that is a design problem we can solve.

Edward O. Wilson, Consilience:
"The greatest enterprise of the human mind has always been the attempted linkage of the sciences and humanities."



In conclusion, Art-Based Technologies can deliver strategic therapeutic benefits within dementia care environments.

By capturing attention through beauty and perceptual saliency, these environments help residents orient themselves and navigate spaces more independently.

They can reduce environmental stress and behavioural triggers while also supporting opportunities for both passive and active engagement throughout everyday life.

These enriched environments can encourage social connection and emotional well-being for residents.

In this way, ABTs function as continuous non-pharmacological therapeutic environments embedded within residential aged care.

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Neuroaesthetics and Aesthetic Experience

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Thank You!

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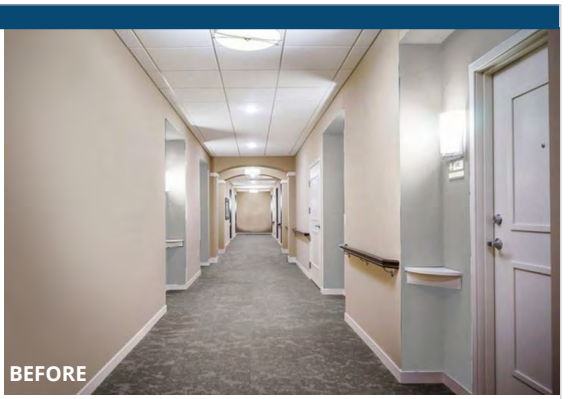

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