

Dementia Garden Design: A Framework for Facilitating Kaplans' A.R.T. in Environments of Care

Judy G. Burch, M.L.A. Candidate, Kansas State University, April 12, 2012

Committee: Tim Keane, Chair; Katie Kingery-Page; and Susanne Siepl-Coates

Kaplans' Attention Restoration Theory

Ulrich's Theory of Supportive Gardens

Cooper Marcus' Alzheimer's Garden Audit Tool

Zeisel's Process: Image, Present, Test

Moore's Exemplary Dementia Gardens

Schowalter Villa's 'My Garden'



..."I remember being protected from spring rains as we enjoyed the sounds of thunderstorms and the smell of a wet garden..."
Schowalter Resident



Directed Attention:

“the central construct is that of focus, of supporting difficult mental activity in the face of potential distraction” (S. Kaplan, 1995). The mechanisms that support Directed Attention can become fatigued. Spending time in a restorative environment can restore the ability to process information.

Attention Restoration Theory

4 Components of a Person-Environment Interaction:

- Extent
- Fascination
- Being Away
- Compatibility





Roger Ulrich's Theory of Supportive Gardens:

The capability of the garden environment to facilitate stress coping and restoration is the basic premise underlying the conceptual framework.



Restoration becomes stress reduction, or “a shift toward a more positively-toned emotional state; positive changes in physiological activity levels; and sustained attention intake, Ulrich, 1991).

Stress is defined as the “process of responding to events and environmental features that are challenging, demanding or threatening to well-being.

----Sense of Control and Access to Privacy

----Social Support

----Physical Movement and Exercise

----Access to Nature and Other Positive Distractions



THEORY



Cooper Marcus' Alzheimer's Garden Audit Tool:

A comprehensive list of do's and don'ts-- design elements and qualities

necessary for a successful therapeutic garden for dementia patients

Location and entry to garden

Layout and pathways

Planting

Seating

Overall design & details

Maintenance & amenities

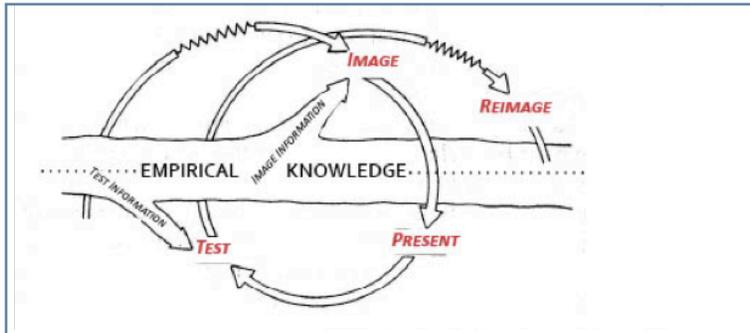
Gardens that fail:

---- are designed with apparently little regard for what is known about use of the outdoors by Alzheimer's patients

----were off limits to residents because of staff policy, even though they were thoughtfully designed

--- are gardens with good qualities containing problems or omissions, making it difficult for caregivers to encourage use by residents

PROGRAM ELEMENTS



John Zeisel's Process:

Knowledge drives image formation which is then graphically presented. Testing then occurs through presentation of graphic images to the client. The client, also familiar with the needs of dementia patients, provides feedback. Feedback expands knowledge and a new cycle of reimage and present occurs.

IMAGE:

Designers start with an image of how the users see the world.

SIX IMPORTANT PHYSIOLOGICAL CHANGES IN DEMENTIA PATIENTS:

1. *Loss of complex sequencing executive functioning*
2. *Difficulty creating and embedding new cognitive mapping.*
3. *Damaged supra-chiasmatic (timekeeping) nuclei*
4. *Compromised hippocampal "event tagging"*
5. *Limited thalamus, orbito-frontal cortex control*
6. *Limited hippocampal impulse control*

Zeisel, J. (2007)

Creating a therapeutic garden that works for people living with Alzheimer's, *Journal of Housing for the Elderly*, 21:1, 13-33.

ENVIRONMENTAL DESIGN CONSTRUCTS THAT COMPENSATE FOR THESE PHYSIOLOGICAL CHANGES:

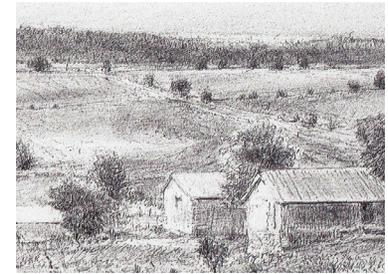
1. *Natural mapping (objects that need no explanation)*
2. *Temporal support (plantings that reinforce seasonal change)*
3. *Learning Support (repetition and routine).*
4. *Landmarking: clear and evident landmarks connected by clear and evident pathways. Pathways involve little or no decision making and always lead to places of safety. Entrances should look alike and be easily recognizable from all parts of the garden.*

**PUT A PARK
IN THE
GARDEN**

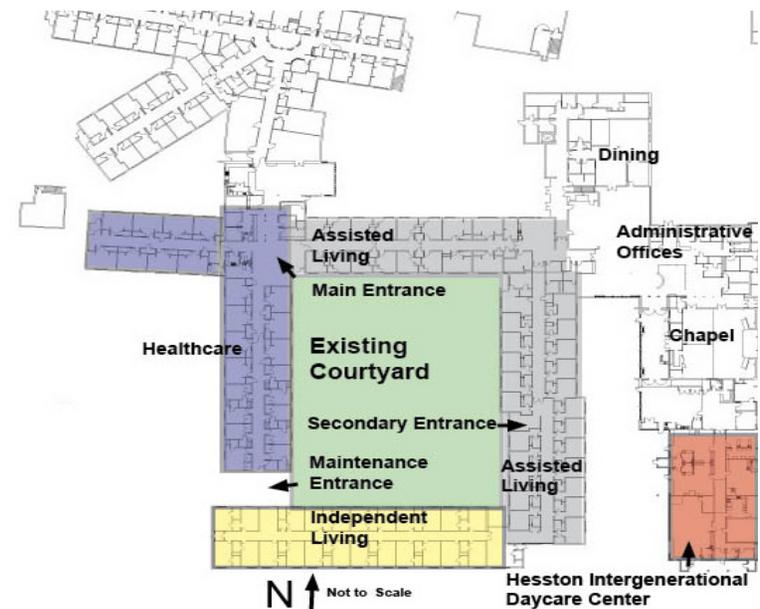
IMAGE/PRESENT/TEST = PROCESS



Mennonite Board of
Mission & Charities
Hesston, Kansas
'My Garden, My Home'



Program Requirements: large open area; patio space for 20-30 diners; outdoor cooking; perennial gardens; water feature without the pond; clear pedestrian circulation; universal design/ADA compliance; combination of passive and active recreation; therapeutic, restorative environment, secure/safe; community feedback during design; no increase in current maintenance requirements.



*.....I would like to have the opportunity to get outside a little bit everyday.....
If there was a fence I could go all around and no one would have to watch me...
Schowalter Resident*

PROGRAM

Anticipated Health Outcomes for Schowalter:

reduced anxiety and fatigue; reduced frequency and severity of depression; pain reduction from sunlight exposure; increased or improved physical functioning, strength and endurance; increased attention span and ability to concentrate; and improved socialization. Other health outcomes include increased compliance and improved quality of sleep.



The literature on what constitutes the ideal prosthetic outdoor space is both intuitive and prescriptive, offering checklists for administrators as they plan what these spaces should look like, and what should happen inside them. Unfortunately, the advice is often confusing (Cohen-Mansfield, J., 2007, p. 37).

CONFUSION



FRONTPORCH: *The area in the northwest corner takes on the designation of Frontporch--a place to be seen and to observe the activities of others. A place to enjoy the weather, share a cup of coffee or a meal. A place to relax and socialize with guests or other residents--a "together place."*

Design Characteristics: *The most formal and public area. Plantings will have year-round structure with opportunities for seasonal color to reinforce temporal patterns and access memories.*



BACKYARD: *The backyard is where the work is done and where more solitude and privacy are to be found. The vegetable garden is here, as are the raised planters and the tool shed. Here one can be out of the public eye or be in a "together place" when gardening with friends.*

Design Characteristics: *Flexible, informal, messy, seasonal, sunny.*



BACKPORCH: *The Backporch is more intimate than the Frontporch. This is where residents might slip out in the morning for a cup of coffee, check on the garden, or watch the birds gather at the feeder.*

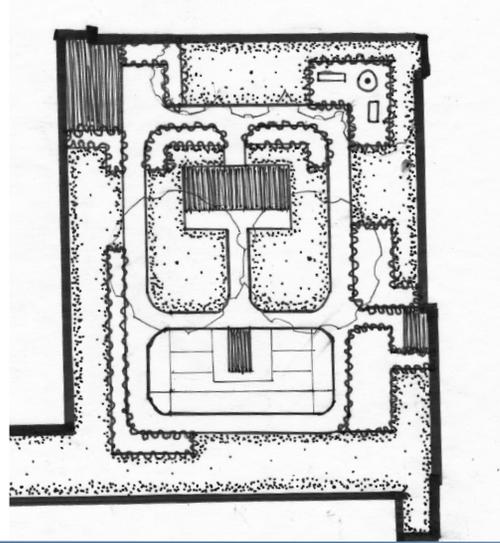
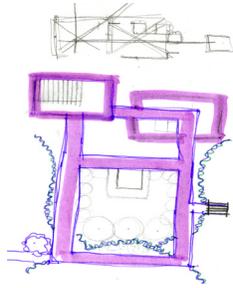
Design Characteristics: *Flexible, informal private, a "takeover" area.*



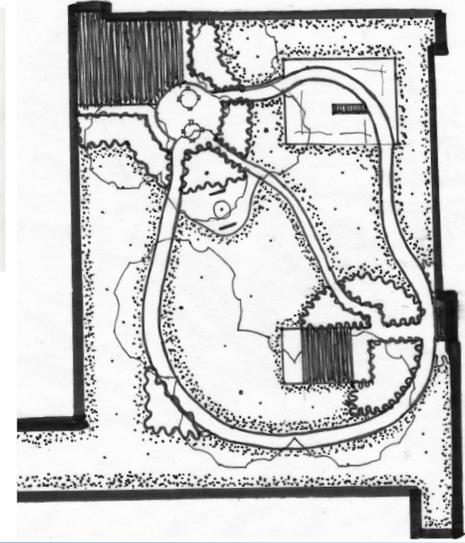
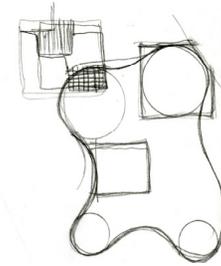
PARK: *The Park will be a large, open area for large gatherings and barbecues. Park benches will be provided for sitting alone or with others and for watching the children from the Hessston Intergenerational Daycare Center on their occasional treks into the park. The park area will provide pleasant views into the area from residential rooms and the other three areas of the courtyard.*

Design Characteristics: *Simple, open, restorative, solitary, fascinating.*

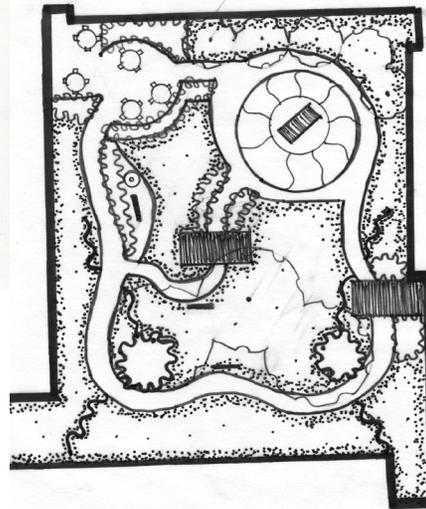
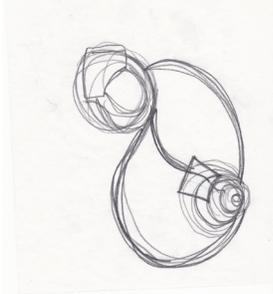
'My Garden': The Heart of the Green



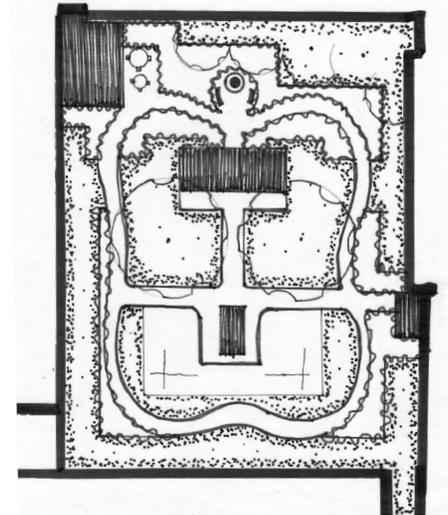
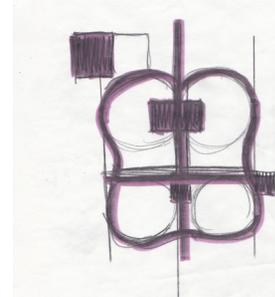
'My Garden': In the Park



'My Garden': Raingarden Ribbons



'My Garden': Encore





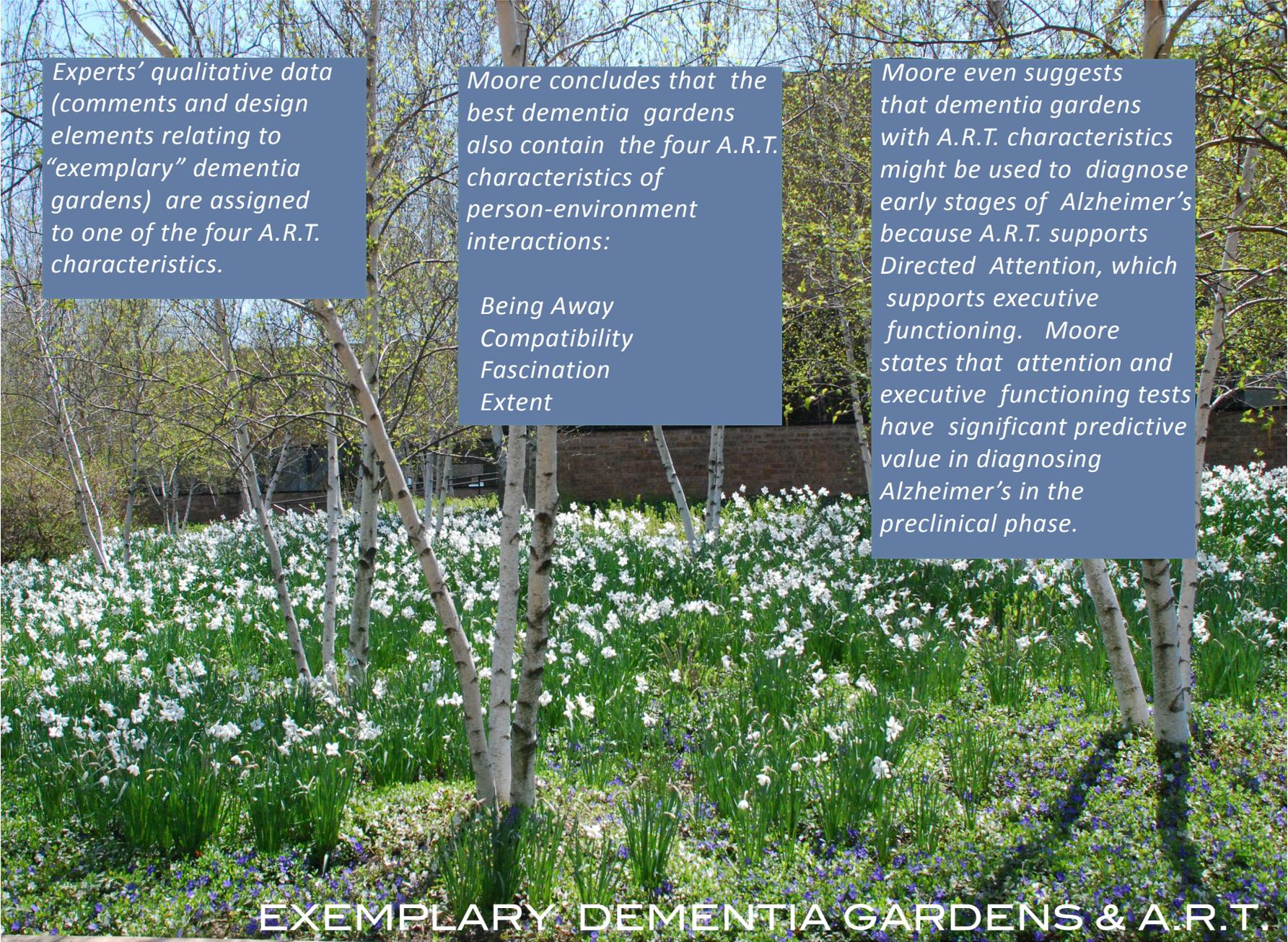
Scopelliti, M. & Giuliani, M.V. (2004). Choosing restorative environments across the lifespan; a matter of place experience. *Journal of Environmental Psychology*, 24, 423-437.

Scopelliti & Giuliani identified environmental features fostering restoration that can be included in guidelines for designing healthier environments.

Moore, K. (2007). Restorative dementia gardens: exploring how design may ameliorate attention fatigue. *Journal of Housing for the Elderly*, 21:1, 73-88. Moore (Assistant Dean at the KU School of Architecture) established a correlation between exemplary dementia gardens and ART characteristics. His interpretation theoretically linked five garden design concepts with the four ART characteristics, "to raise awareness of ART and its potential implications for designing garden environments and horticultural therapies for people experiencing dementia" (Moore, p. 73).



A.R.T. IN ENVIRONMENTS OF CARE

A photograph of a dementia garden. The foreground is filled with a dense carpet of white flowers, likely snowdrops, interspersed with green grass and some purple flowers. Several birch trees with characteristic white bark and thin trunks are scattered throughout the garden. In the background, there are more trees and a brick wall. The sky is blue with some light clouds.

Experts' qualitative data (comments and design elements relating to "exemplary" dementia gardens) are assigned to one of the four A.R.T. characteristics.

Moore concludes that the best dementia gardens also contain the four A.R.T. characteristics of person-environment interactions:

*Being Away
Compatibility
Fascination
Extent*

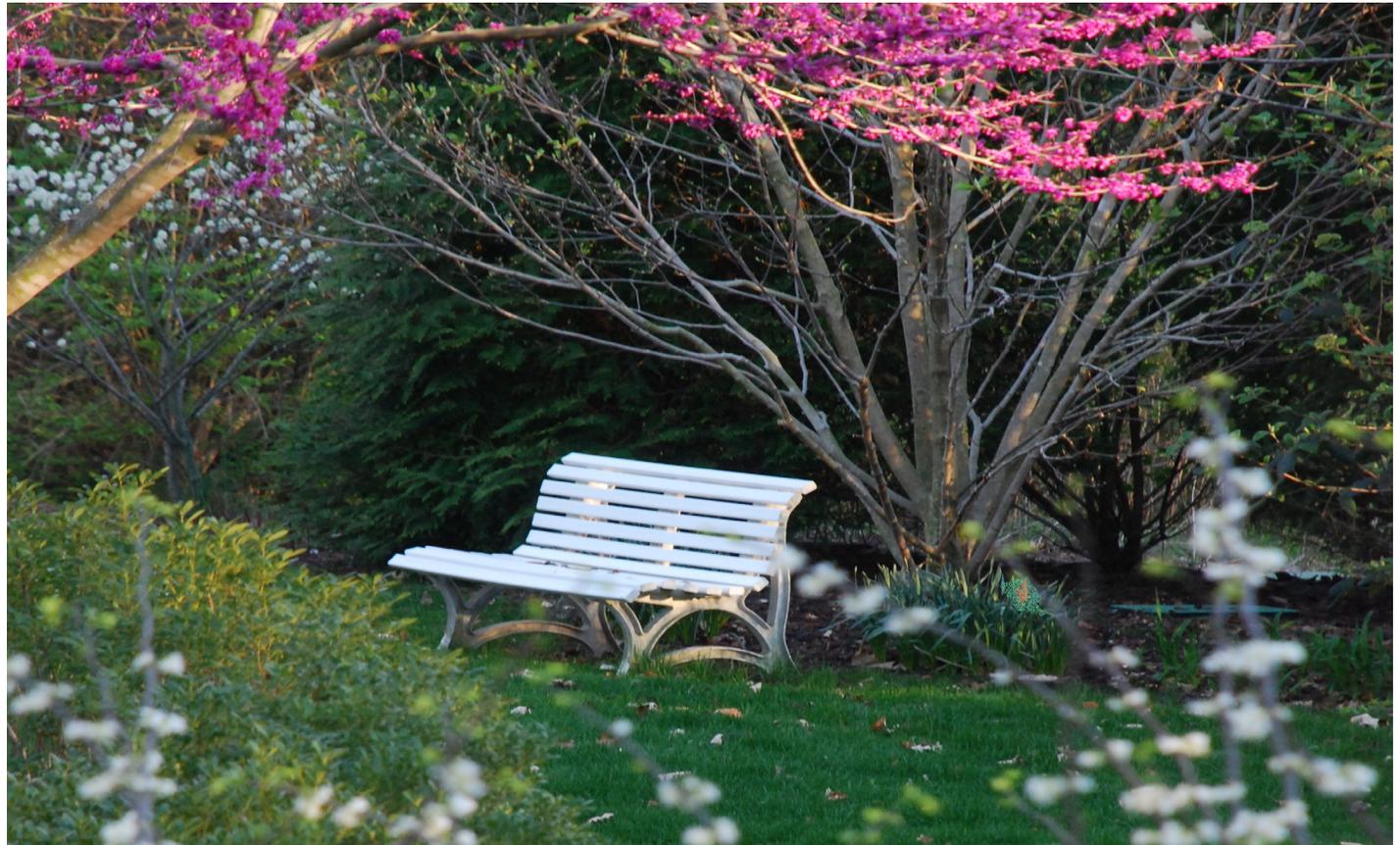
Moore even suggests that dementia gardens with A.R.T. characteristics might be used to diagnose early stages of Alzheimer's because A.R.T. supports Directed Attention, which supports executive functioning. Moore states that attention and executive functioning tests have significant predictive value in diagnosing Alzheimer's in the preclinical phase.

EXEMPLARY DEMENTIA GARDENS & A.R.T.

BEING AWAY

Being Away frees one from mental activity that requires directed attention, Kaplan, 1995, p. 173). The Kaplans have identified three kinds of escape from an informational viewpoint: escape from distraction (which fatigues directed attention); escape from a particular content; and escape from certain purposes (S. & R. Kaplan, 1989, p. 183).

*In Moore's use of the concept of Being Away, **contrast** and enclosure become necessary to create the feeling of Being Away. Enclosure becomes more like spatial definition, and by defining one space in the garden, other space is excluded, creating a sense of enclosure. Change of pavement texture or elevation and shrub massing, which interferes with visibility, cannot be used.*

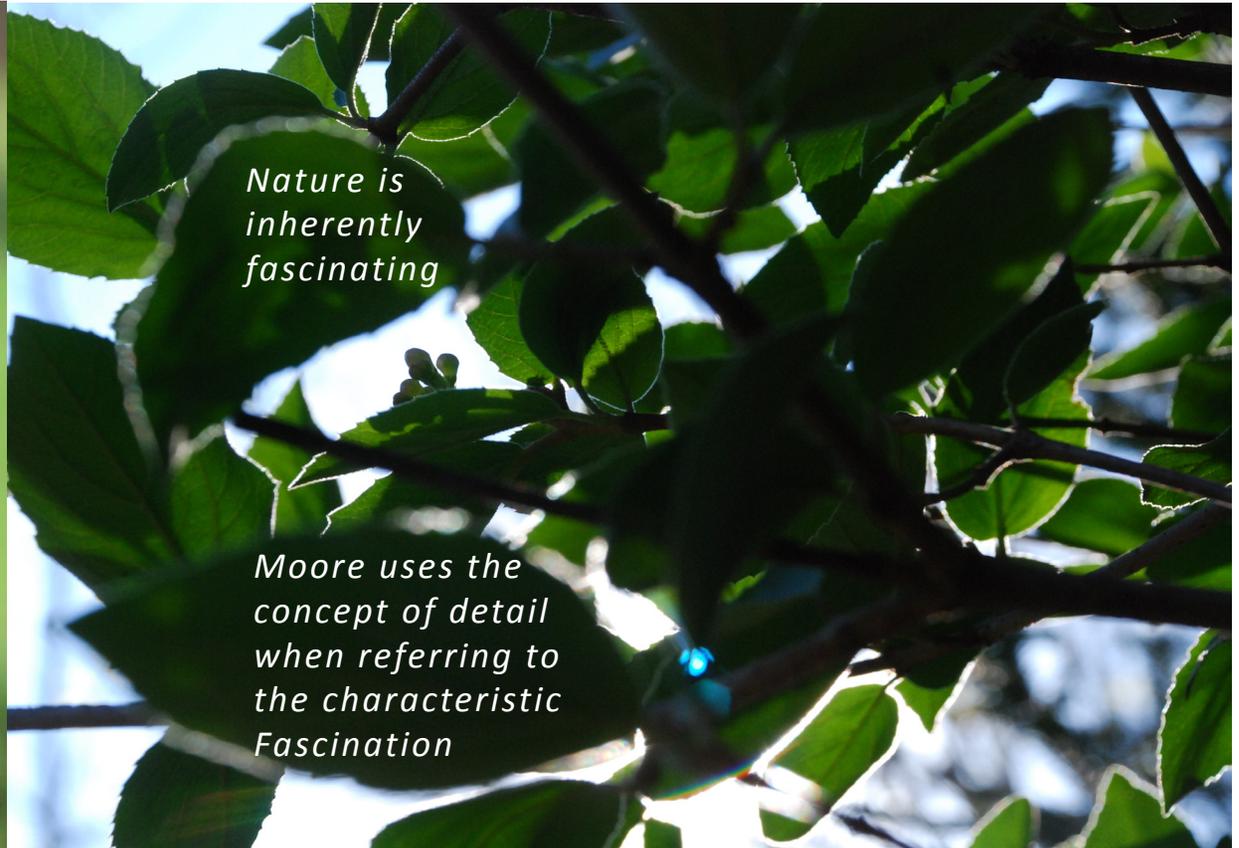


MOORE

A.R.T. IN ENVIRONMENTS OF CARE

FASCINATION

Objects or processes can invoke fascination. A scene possessing the quality of Fascination will provide two distinct cognitive benefits. First, it will engage the viewer and keep them from becoming bored. Second, it will allow the mechanisms involved in directed attention to rest. Fascinating process can be guided by understanding that is already possessed, and lead to further understanding of a bigger picture.



*Nature is
inherently
fascinating*

*Moore uses the
concept of detail
when referring to
the characteristic
Fascination*

A.R.T. IN ENVIRONMENTS OF CARE

COMPATIBILITY

For a setting to possess the restorative characteristic of Compatibility, there must be agreement between the participant's purposes, the environmental patterns and constraints and the actions required by the environment. "In order for an environment to exhibit Compatibility, the environment must provide needed information, eliminating the need to second-guess. Prompt and useful feedback from the environment aids in achieving the purpose for being there (S. Kaplan, 1995, p. 173).

Moore emphasizes fit and support and the physical components that create the garden.

PHYSICAL COMPONENTS:

wide, level, non-glare paving, high ratio of softscape to hardscape

SENSORY PROPERTIES:

deal with glare and contrast

SPATIAL PROPERTIES:

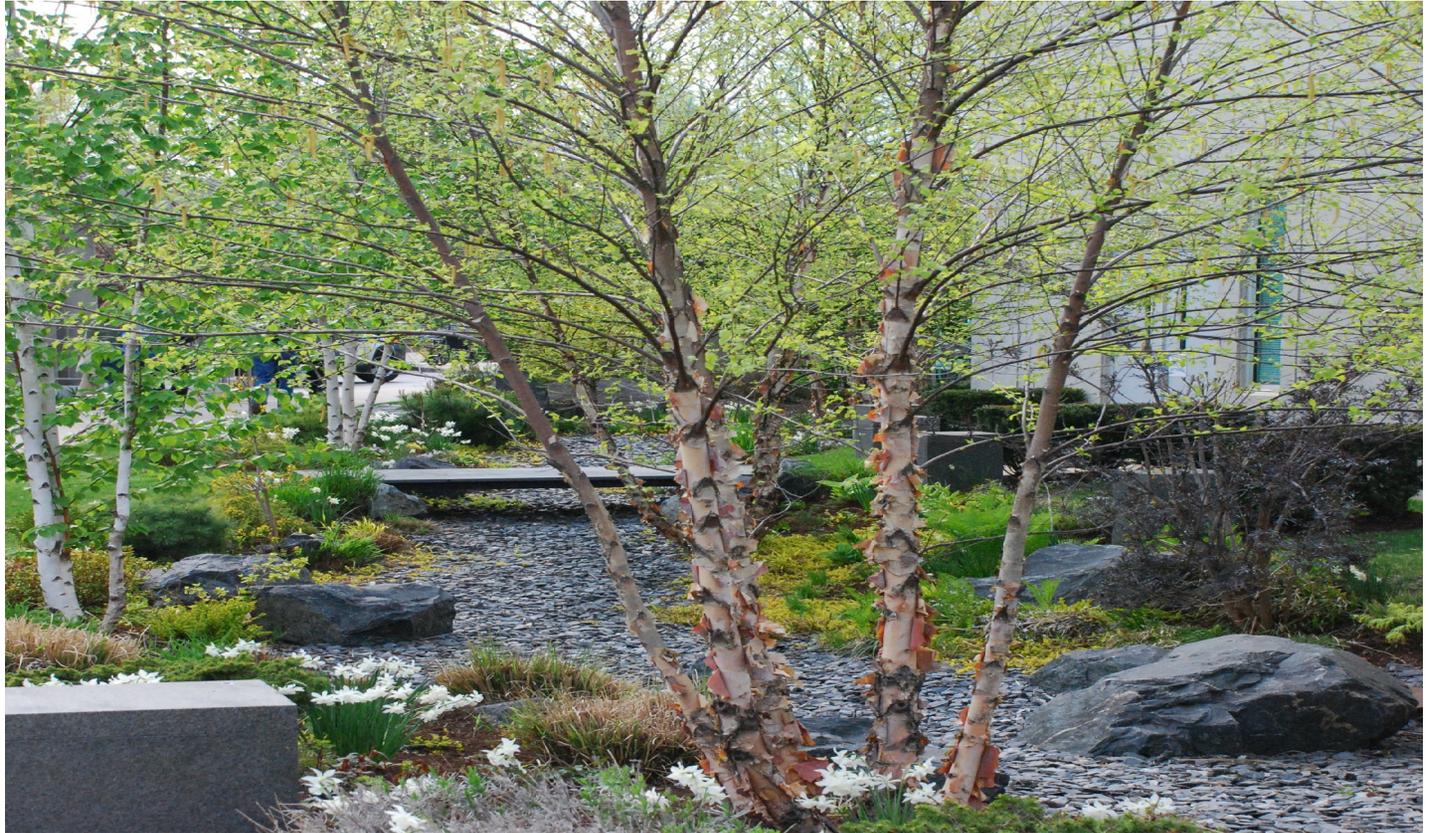
choice to interact alone or in groups



EXTENT

Connectedness and scope together define the concept of Extent. The Kaplans' description of Extent is informed by their early work in cognitive mapping. A scene must have enough connectedness to enable building a cognitive map and enough scope to justify making the effort to construct the cognitive map. The parts of the scene make sense, they are connected, and their connectedness and scope can provide a bridge between what one is experiencing in the present, and "what they know about the world as a whole" (S. & R. Kaplan, 19889, p. 184).

Moore adapts the Kaplans' definition of Extent to become a more inward-looking sensory experience in keeping with the physical and neurological limitations of dementia patients. The true focus is on the haptic system "that involves the integration of many senses, such as touch, positional awareness, balance, sound, movement and the memory of previous experiences" (Moore, 2007, p. 81).



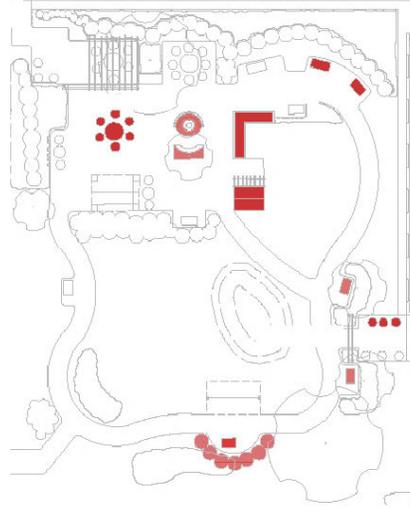


“And, finally, nearby nature and gardens deserve far more standing than they are usually accorded. Viewed as an amenity, nature may be replaced by some greater technological achievement. Viewed as an essential bond between humans and other living things, the natural environment has no substitutes”

S. & R. Kaplan, 1989, p. 203-204.

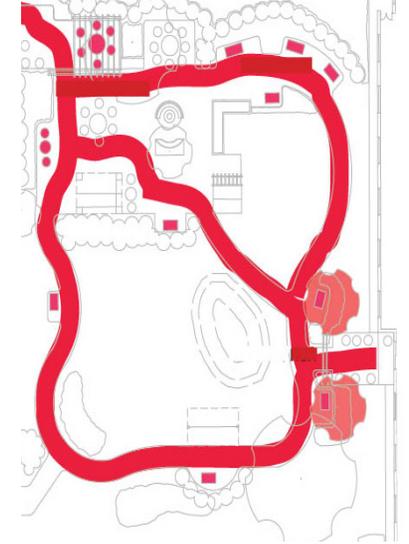
BEING AWAY:

Textures/choices are “distinct from the quotidian”, offering a break from the routines, smells, noises of indoor life. Stone potting shed is the ultimate example of Being Away.



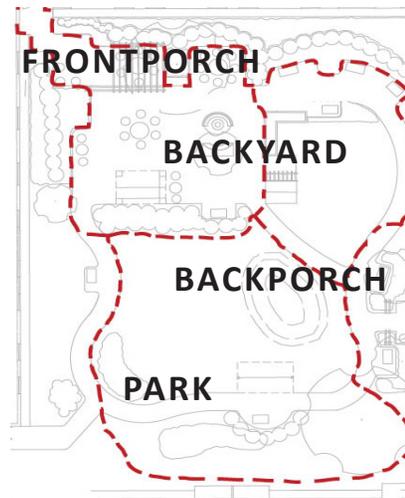
COMPATIBILITY:

Most dominant feature is the 6.5’ walking path, wide enough for 2 wheelchairs. Flexible seating--sun or shade/ alone or in groups--is also a Compatibility characteristic.



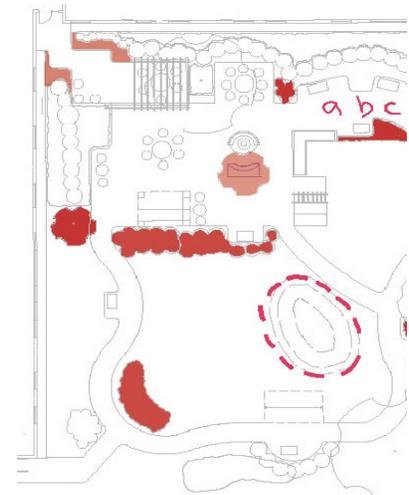
EXTENT:

The four areas provide scope and extent by invoking the residents’ prior experiences and knowledge and by providing activity choices that they understand.



FASCINATION:

Many opportunities here: listening to and watching the water feature; daycare children chalking on the sidewalk; birds, squirrels, butterflies, gardeners, sunlight filtered through leaves.



Cooper Marcus' Alzheimer's Garden Audit Tool

Moore's Exemplary Dementia Gardens

Clare Cooper Marcus 185

6. Provision of shaded entry patio with seating just outside the door for those who want to come outdoors but cannot venture further.

7. Attractive garden view from entry patio since this space may get used more than garden itself.

8. Entry patio is large enough to accommodate several people in wheelchairs, together with tables and chairs for programmed group activities.

9. In regions with significant bug problems in summer, entry patio is screened and lit at night.

Score:

10. Location of entry patio/screened porch to receive late afternoon sun, thus avoiding long shadows that accompany increased agitation at that time of day ("sundowning").

11. Provision of a conservatory or solarium with plants, birds in cages, etc., looking over garden where residents can enjoy a semi-outdoor experience year-round. Bright, natural light beneficial to health.

12. A single entry door to garden, designed as a "landmark" so that those using garden can easily see where they have to return to get back indoors.

13. The whole garden can be viewed from inside the building by staff going about their daily activities or from a nurse's station (if there is one).

B. LAYOUT AND PATHWAYS

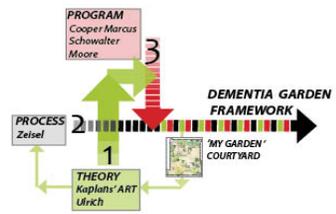
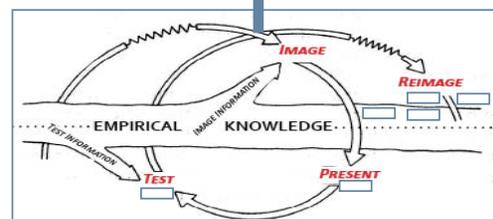
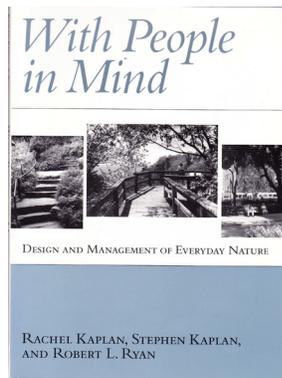
BEING AWAY
 FASCINATION
 EXTENT
 COMPATIBILITY



Ulrich's Theory of Supportive Gardens

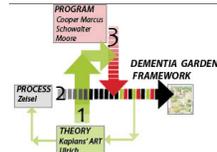


With People in Mind. Rachel Kaplan, Steve Kaplan & Robert Ryan, 1998.



DEVELOPMENT OF THE FRAMEWORK

DEMENTIA GARDEN DESIGN: A Framework to Facilitate Kaplans' ART in Environments of Care



SOURCE KEY

- CM:** Cooper Marcus, C., 2007. Alzheimer's Garden Audit Tool. *Journal of Housing for the Elderly*, Vol. 21, Nos. 1 & 2, pp. 179-191.
- K:** Kaplan, S. & R., & Ryan, R.L., 1998. *With People in Mind: design and management of everyday nature*. Washington, D.C.: Island Press.
Kaplan, S. & R., 1989. The restorative benefits of nature: toward an integrative framework. *Journal of Environmental Psychology*, 15, 169-182.
Kaplan, S. & R. 1989. *The experience of nature: a psychological perspective*. Melbourne: University of Cambridge.
- M:** Moore, K.D. Restorative dementia gardens: exploring how design may ameliorate attention fatigue. *Journal of Housing for the Elderly*, Vol. 21, Nos. 1 & 2, pp. 73-88.
- U:** Ulrich, R.S., 1999. Effects of gardens on health outcomes: theory and research. In C. Cooper Marcus and M. Barnes, *Healing gardens*. New York: John Wiley and Sons, pp. 27-86.
Theory of Supportive Gardens:
Nature: Access to Nature
Control: Sense of Control
Exercise: Physical Movement & Exercise
Privacy: Privacy
Support: Social Support
- Z:** Zeisel, J. 2007. Creating a therapeutic garden that works for people living with Alzheimer's. *Journal of Housing for the Elderly*, 21: 1, 13-33.

ART CHARACTERISTICS

Being Away: Recovering from mental fatigue requires that one be away from the source of the fatigue. Being away can be physical or conceptual. Escape from distraction; escape from a particular content; and escape from certain purposes. "Distinct from the quotidian," (M, p. 80).

Extent: Being in a whole different world that is physically different with its own rules and properties, or mentally different, or in your mind and impacted by both knowledge and fantasy. Goes beyond richness in stimuli to coherence in stimuli to the degree that the experience engages a substantial portion of one's mind, (M, p. 81). True focus on the "haptic system which involves the integration of many senses, such as touch, positional awareness, balance, sound, movement, and the memory of previous experiences, (M, p. 82). Sense of extension in time and space, (K, 1998, p. 71).

Compatibility: Compatibility between one's inclinations and environmental circumstances: both what the setting requires from the individual and what it offers in terms of information and opportunities.

Fascination: Central to resting fatigued attention, deriving from thinking, doing, wondering. People are fascinated from thinking things out. There are objects of fascination in flora, fauna, water and endless play of light. "Quiet fascinations do not totally dominate one's thoughts. They permit reflection; they make it possible to find out what is on one's mind," (K, 1998, p. 69)

Extent

Design Detail

Source

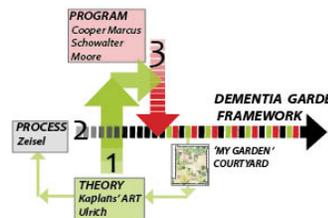
Solarium adjacent to garden where residents can enjoy a semi-outdoor experience year round.	C, U-Nature
Simple, looped pathway system that permits walking alone.	C, U/Exercise
Appropriate destination points (gazebo, seating arbor, large shade tree that can be used for programmed activities).	C, U-Support
High ratio of green to hardscape.	C, U-Nature
Provision of a flat lawn area large enough for an informal grouping of moveable chairs, a game of croquet, or for young residents to sit or lie on.	C, U-Exercise/Nature
Vegetation introduced in a variety of ways: raised beds; vine-covered arbors and trellises; perennial borders; tubs of annuals; trees; hedges, etc.	C, U-Nature
Provision of a rich, multisensory experience (vision, touch, hearing, smell) to activate senses.	C, M
An area specifically designed for supervised gardening activity program (raised beds, potting shed, tool shed, various large containers, gathering area, access to drinking fountain.	C, U-Support/Nature
Memory plants.	C, M, Z
Seating options for a person alone or couples	C, M, U-Support
Seating for groups larger than two to sit and easily converse.	C, M, U-Support
Choice of seating in sun/shade throughout most of day/year.	C, M, U-Control, Z
Small scale design changes so that a person moving slowly would have a variety of visual experiences (enclosed, open, shaded, varied plant materials, etc.)	C, M
Educational interpretive material that might be of interest to visitors or residents (plant labels, plan of garden, etc.)	C
Garden is very attractive, well-maintained and rich with amenities.	C, M
Provision of markers or landmarks along the pathway.	C, M, U-Exercise/Control
	Z
Potential to observe wildlife.	C, M, U-Nature
Distinct gardens with coherent articulation of the purpose of each place.	M, Z
Range of activity levels.	M, U-Exercise
Activity stimulation.	M, Z
Details of nature.	K, M, U-Nature
Circuitous pathways that create the sense of a larger area.	K
Views placed so that entire garden can't be seen from one place.	K
Fine textures and darker colors in background.	K
Bolder textures and lighter colors in foreground.	K

C: Cooper Marcus...K: Kaplans...M: Moore...U: Ulrich...Z: Zeisel
Privacy/Control/Nature/Exercise/Support

DEVELOPMENT OF THE FRAMEWORK



...“I am a person that needs sunshine and fresh air, and I miss the outdoors....”
Schowalter Resident



TRITE AND SIMPLISTIC, OR ENGAGING ?
SCHOWALTER COURTYARD, OCT, 2011