MonIA - project

Diverse and integrated living solutions for persons with memory decline

*Professor Laura Arpiainen – Aalto University Finland
March 2023 – EUHPN Copenhagen*

MonIA

Monimuotoista integroitua asumista muistisairaille

AALTO UNIVERSITY

15 minutes west of Helsinki city center
17,500 students, 4000 staff

23.3.2023

A?

Aalto University
School of Arts, Design
and Architecture

Professor of Health and Wellbeing Architecture

laura.arpiainen@aalto.fi
+358 50 465-2065

Why are we looking at Memory Decline?

- Memory Decline is increasing steadily

- Finland has a rapidly aging population -> more cases overall

- Residential Care is not the best solution socially or economically

- Finland is facing a funding and staffing shortage in the field

- The pandemic also proved that Residential Care was a very dangerous environment wrt infection prevention and control

- Some people categorically avoid residential care

Aalto-yliopisto
Taiteiden ja suunnittelun
korkeakoulu

MonIA
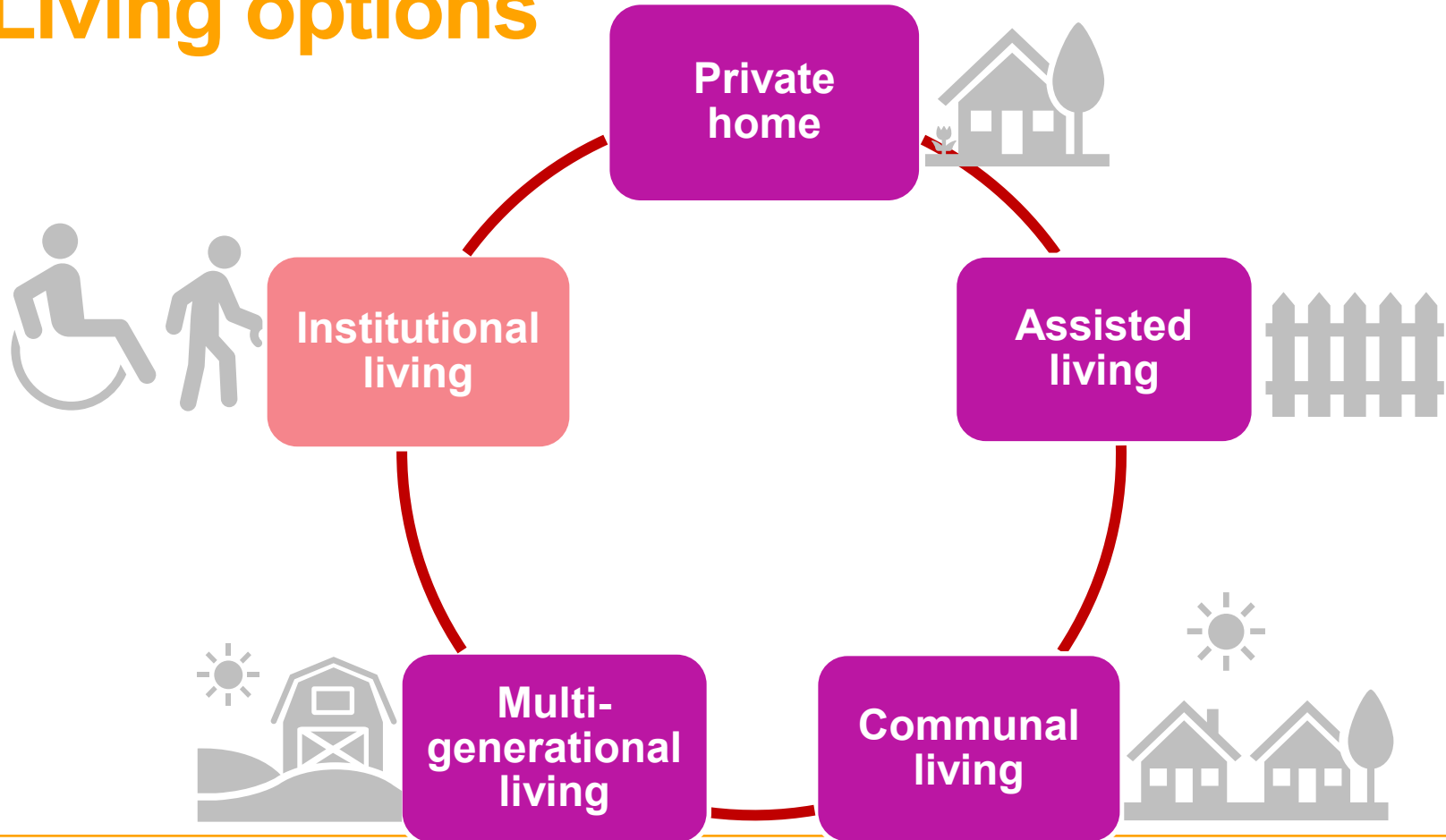Monimuotoista integroitua asumista muistisairaille

Research questions

- **what kind of development solutions** of the living environment are needed to support people with memory decline to manage their activities of daily living and support their wellbeing as part of a community?

- In which ways can **multigenerational living environments and communal solutions** support people with memory decline in day-to-day life, and increase their participation in their community?

- How can living solutions for memory care **best be jointly developed** with the future user and resident groups?
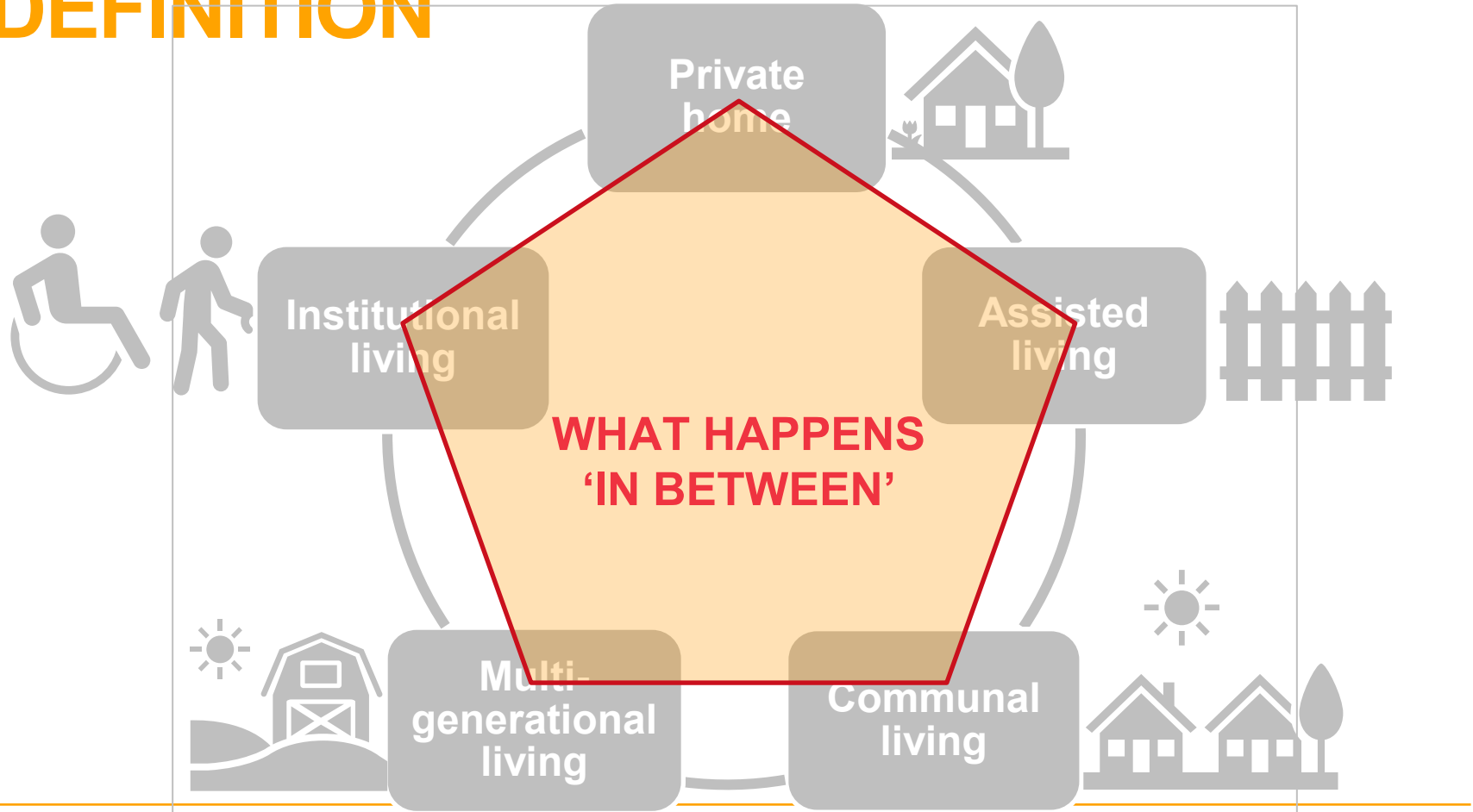
What were our objectives?

- Find solutions '**in between**' home and 24/7 care

- Promote self-reliance and independence

- Increase social integration

- Strengthen community-building strategies (counter loneliness)

- Advocate for multi-generational and diverse solutions

- Promote deeply inclusive design processes

- To promote diversity and empathy in society in general

Living options

Aalto-yliopisto
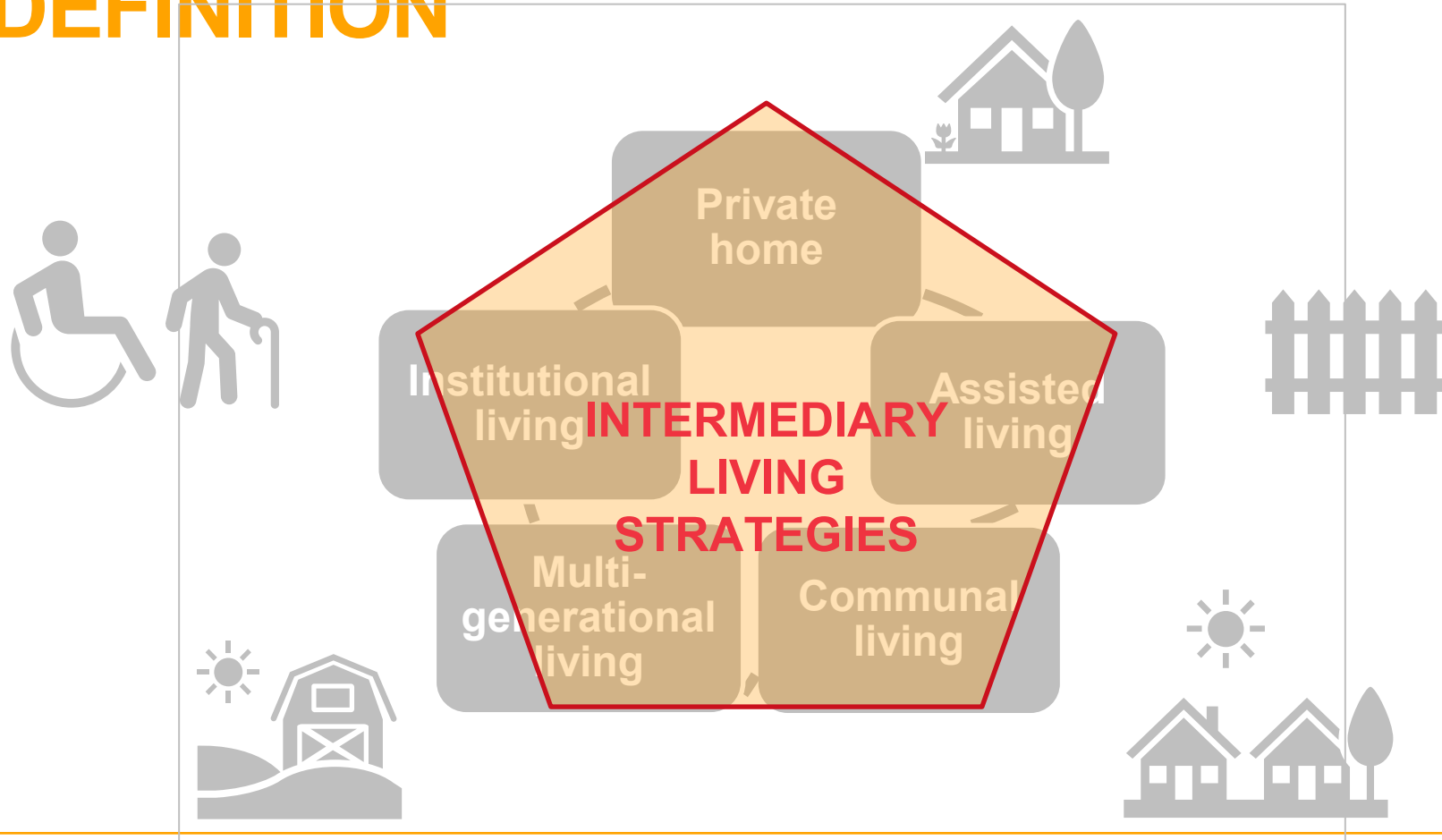Taiteiden ja suunnittelun
korkeakoulu

MonIA
Monimuotoista integroitua asumista muistisairaille

DEFINITION

- Private home
- Assisted living
- Communal living
- Multi-generational living
- Institutional living

WHAT HAPPENS 'IN BETWEEN'

DEFINITION

Private home

Institutional living

INTERMEDIARY LIVING STRATEGIES

Assisted living

Multi-generational living

Communal living

Aalto-yliopisto
Taiteiden ja suunnittelun
korkeakoulu

MonIA

Monimuotoista integroitua asumista muistisairaille

research findings

- *creating solutions that promote community-building*
- *importance of experience, user-involved processes*
- *several strategies and check-lists for designers*

our definition

*INTERMEDIARY HOUSING STRATEGIES
between living alone at home and being institutionalized.*

*The objective of Intermediary Housing is to support independence
and reduce societal reliance on 24/7 residential care*

*It is a **strategy** that covers **different** living modalities*

MonIA   Monimuotoista integroitua asumista muistisairaille

Our 8 theses

NEW BUILDING
INTERIOR DESIGN
RENOVATIONS
SERVICE DESIGN

OUTDOOR AREAS
COMMUNITY CENTERS
IT ASSISTED EXTERIORS
SENSORY ENVIRONMENTS

Documents are free to download from Aaltodocs

A?

**Aalto University
School of Arts, Design
and Architecture**

1. NEW HOUSING

Thesis by Outi Kiikkilä

In this work, key design principles and factors of memory-friendly living environments are recognized and applied. Memory-friendly and communal living environments can support the activities and quality of life of people with memory problems.   (Thesis in Finnish only)

Julkisivu etelään 1:300   0 1 2   5   10 m
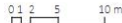
Julkisivu pohjoiseen 1:300   0 1 2   5   10 m

...isivu länteen 1:300   0 1 2   5   10 m

Research questions – new design

- What architectural features and elements make residential environments memory-friendly?

- How can architectural solutions contribute to community building?

- What kinds of architectural design solutions promote independence and self management and enable persons with memory decline to live at home for as long as possible?

Aalto-yliopisto
Taiteiden ja suunnittelun
korkeakoulu

Monimuotoista integroitua asumista muistisairaille

Design – memory community

Pori
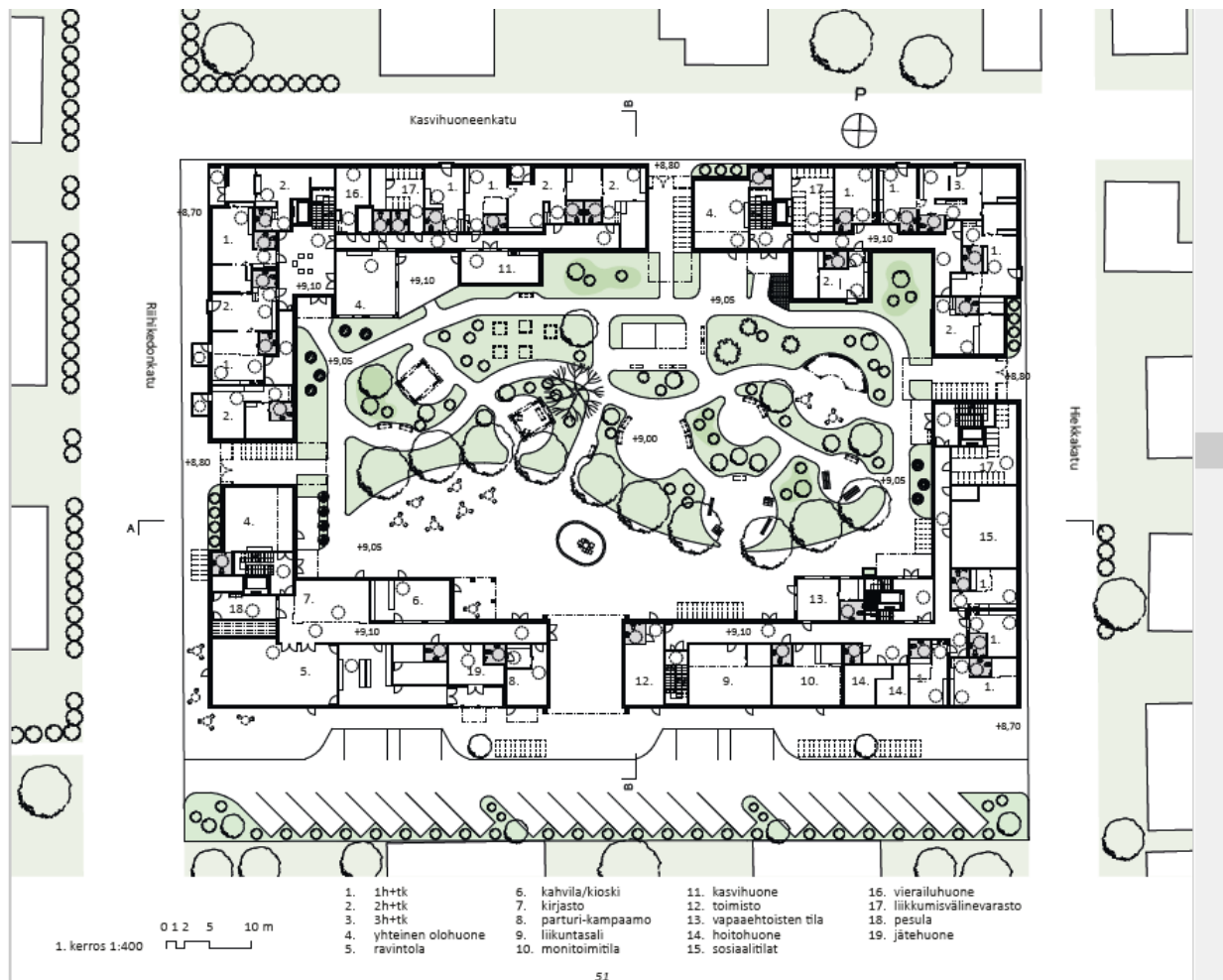## Finland

Aalto-yliopisto
Taiteiden ja suunnittelun
korkeakoulu

MonIA
Monimuotoista integroitua asumista muistisairaille

Design – memory community

Private apartments
Group apartments
Supported apartments
Family apartments
Residential care
Café, restaurant
Sauna
Clinic spaces

1. 1h+tk	6. kahvila/kioski	11. kasvihuone	16. vierailuhuone
2. 2h+tk	7. kirjasto	12. toimisto	17. liikkumisvälinevarasto
3. 3h+tk	8. parturi-kampaamo	13. vapaaehtoisten tila	18. pesula
4. yhteinen olohuone	9. liikuntasali	14. hoitohuone	19. jätehuone
5. ravintola	10. monitoimitila	15. sosiaalitilat	

1. kerros 1:400

MonIA
Monimuotoista integroitua asumista muistisairaille

Findings: design fundamentals for memory-friendly residential environments

- Person centered, inclusive and participatory design

- Flexibility and adaptability

- Safety

- Accessibility

- Familiarity

- Comprehensibility and clarity of the environment

- Human scale

- Wayfinding and orientability

- Promoting personal abilities, mobility and exercise

- Access to outdoor areas and nature

- Community building and social interaction

- Cozy and homelike environments

Aalto-yliopisto
Taiteiden ja suunnittelun
korkeakoulu

MonIA
Monimuotoista integroitua asumista muistisairaille

A?

**Aalto University
School of Arts, Design
and Architecture**

2. INTERIOR DESIGN

Thesis by Luiza Sevele

People with memory decline are a social group with the highest institutionalization rate in society.
This thesis presents memory-friendly design solutions that support safe and independent aging in place.

PLANNING MEMORY-FRIENDLY RESIDENTIAL ENVIRONMENTS

Research questions – interior architecture

- How can the design of residential environments support independent living and aging in place for people with memory decline?

- How to create an adaptable residential environment that accounts for the changes people with memory decline experience when the condition progresses?

- What design features can help to enhance the sense of self and sense of community for people with memory decline?

Aalto-yliopisto
Taiteiden ja suunnittelun
korkeakoulu

MonIA
Monimuotoista integroitua asumista muistisairaille

March 2023
20

Main findings – 9 focus areas for design

1. Accessibility and circulation

2. Wayfinding and orientation

3. Regulation of sensory stimulation

4. Safety and security

5. Autonomy and control

6. Personalization and familiarity

7. Privacy and socialization

8. Meaningful activities
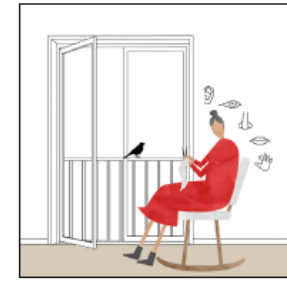
9. Flexibility and adaptability

9 focus areas for design
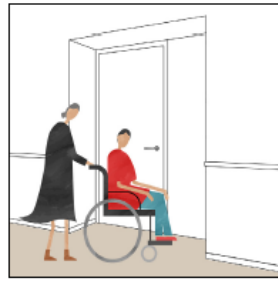
1 ACCESSIBILITY AND CIRCULATION

2 WAY-FINDING AND ORIENTATION
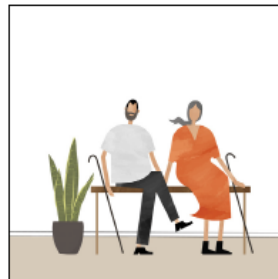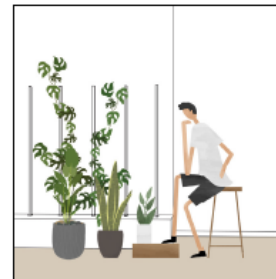
3 REGULATION OF SENSORY STIMULATION

4 SAFETY AND SECURITY

5 AUTONOMY AND CONTROL

6 PERSONALIZATION AND FAMILIARITY

7 PRIVACY AND SOCIALIZATION

8 MEANINGFUL ACTIVITIES

9 FLEXIBILITY AND ADAPTABILITY

Aalto-yliopisto
Taiteiden ja suunnittelun
korkeakoulu

MonIA
Monimuotoista integroitua asumista muistisairaille

March 2023

22

Importance of sensory design:

Clear and legible spaces that engage all our senses create a sense of orientation, security, and identity, which benefits and aids not only individuals with memory decline but also the society as a whole.

MonIA

Monimuotoista integroitua asumista muistisairaille

4. RENOVATIONS

Thesis by Zhuoying (Joy) Ren

A memory-friendly environment requires specific factors for supporting a quality of life. Building adaption for memory care should consider those qualities before implementation.
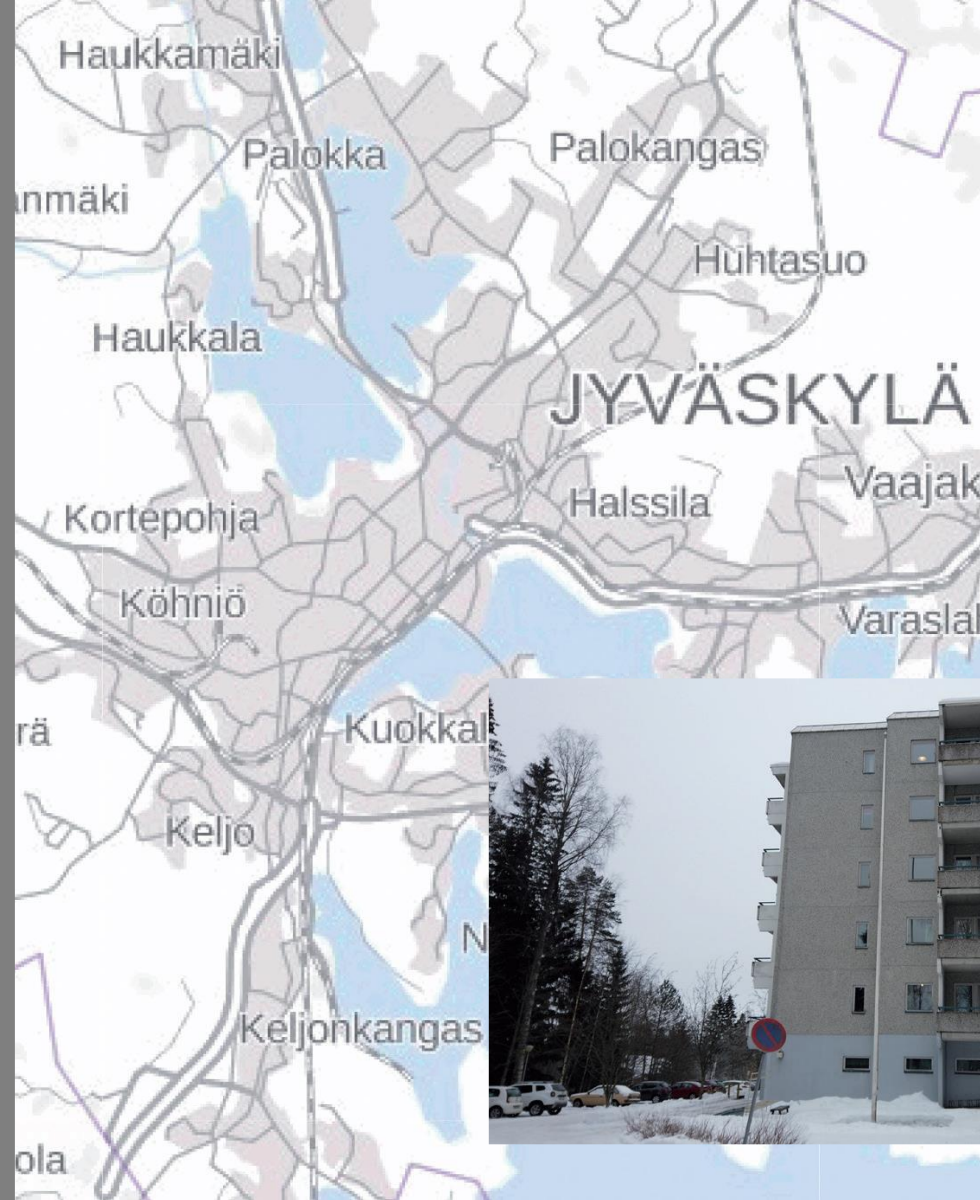
Suitability checklist for memory-friendly housing renovations

- A **flexible building structure** is important for building adaptation.
- **Accessibility** is one of the primary considerations to support independent living.
- A **safe environment** is crucial in dealing with wandering behavior from those with advanced memory impairment.
- An **open indoor and outdoor area** is significant for a memory-friendly environment.
- A **connection with the neighborhood** is important for social engagement.
- It is necessary to consider having **space for service providers** in some situations.

Evaluation structure for memory-friendly housing renovations
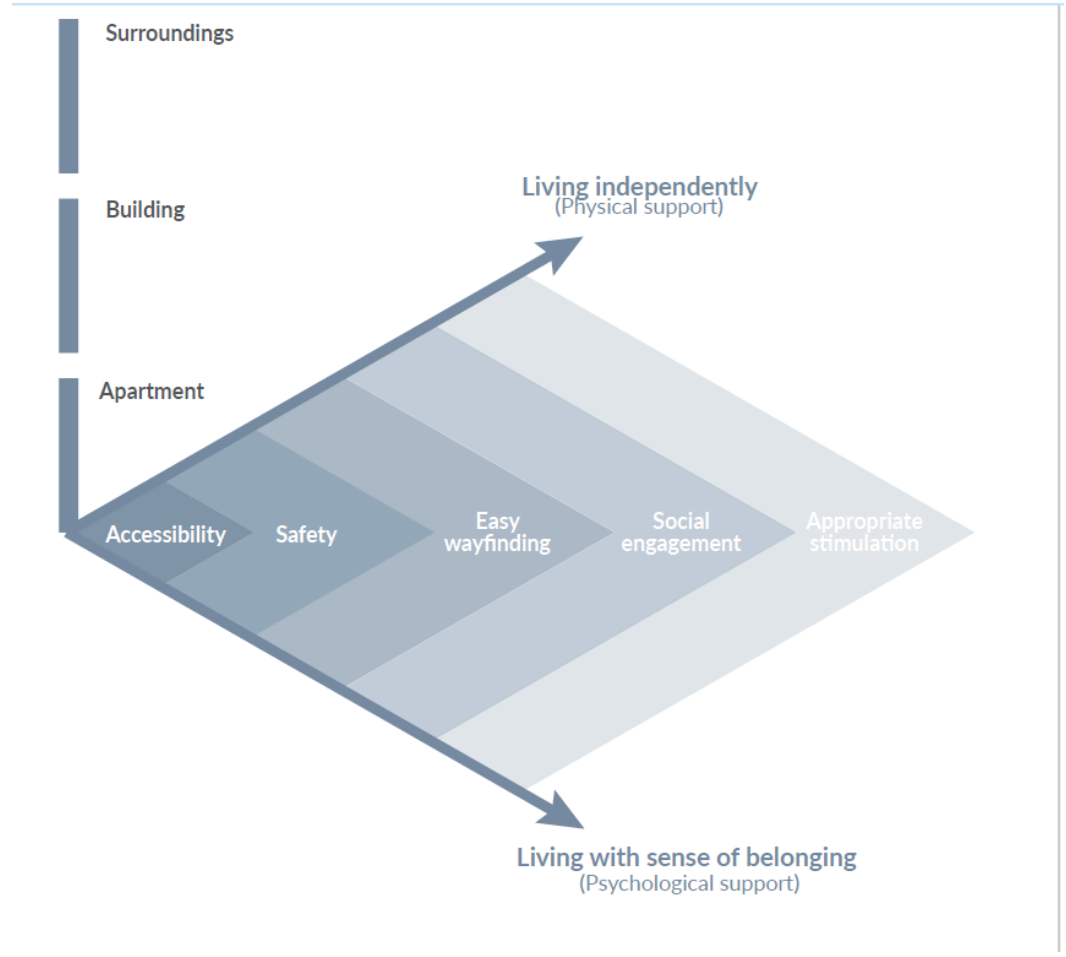
Example of checklists for memory-friendly housing renovations

Overview

Apartment Building Surrounding

Accessibility

Apartment
Y						
N	X	X	X	X	X	X
Pt.	2	1	1	4	1	1

Building
Y	●	●				
N			X	X	X	X
Pt.	5	5	1	1	4	1

Surrounding
Y			●			X
N	X	X		X	X	1
Pt.	1	1	5	0	···	

-Floor level difference between bathroom and other rooms;
-Limited space dimension (bathroom, kitchen, corridor)
-The high threshold between balcony and living room.

-Old-style lift requires manual operation, and it is difficult to change
-Entrance is narrow and dark
-Shared space is too tight

-There is steer slop on the main path and with a width less than 1200mm
-The distance is short between the building exit and other support amenities, but there is a slope/staircase that need to pass
-To reach the closest grocery store, residents need to cross the busy lane.

Safety

Apartment
Y			●	
N	X	X	X	
Pt.	1	1	···	5

Building
Y		●	●	●	
N	X			X	
Pt.	···	5	5	5	5

Surrounding
Y				●	X
N	X	X	X		···
Pt.	4	0	5		

-Apartment front door and elevator's doors are overlapped.

-Bathroom is too small to install supportive facilities.

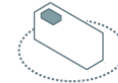-Building exist face to a car parking area
-In some places, floor changing is unexpected, for example, the door between the activity room and outside.

-There is a busy traffic lane next to the building and led by one of the major path;
-From building to trash place need to cross a car parking area;
-There is no enclosed outdoor area to support safe wandering;
-To reach public areas and other services, one needs to ...

Easy wayfinding

Apartment
Y	●	●	●	
N	X	X	X	
Pt.	4	···	1	

Building
Y	●	●		●	
N			X		X
Pt.	5	5	···	5	1

Surrounding
Y		●			●
N	X	X		X	
Pt.	···		4	5	···

-No distinguishment in apartments;
-The bathroom location is away from the other rooms, which is not encouraging for residents to use it.
-too many doors around the small corridor.

-Shared toilet is locked inside another space, which is neither easy to find nor easy to access.
- Share service like sauna and laundry room is behind another door, and the inside layout is confusing.

-The building is covered by arbors, which is not easy to identify from further distance
-The building entrance can be seen immediately;
- Both paths to the building are not clear.

Appropriate stimuations

Apartment
Y	●	●	●	●	●
N					
Pt.	5	5	5	5	5

Building
Y		●		●	
N	X		X		X
Pt.	1	5	···	1	

Surrounding
Y		●			●	●
N	X		X	X		
Pt.	···	5		···	5	5

/

-There is no open indoor space for group activities;
-Activity room is not built for supporting sensory control;
-The activity room connects with the outside, but the outside is rather busy.
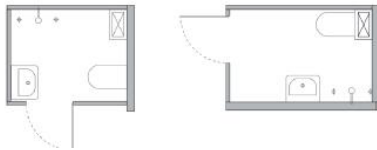
-The busy traffic lane might potentially produce noise;
-The outdoor area is tight and shared by vehicles;
-There is a lack of design on the daily walking path.

Outcome: Case study building was found <u>unsuitable</u> for suggested use

Figure 34. Bathroom with level-up floor
© Zhuoying Ren

Living room:

All the living room in the two-room apartment has two doorways. One leads to the apartment entry, and the other leads to the kitchen. The accessibility issue appears on the doorway which leads to the entrance; the space is too narrow to have a hinged door.

Kitchen:

The accessibility is concerned from the dimension of the kitchen.
The room size is only 2500mm* 2500mm, and after installing facilities on both sides, there is only 900mm left for operation. The space should be at least 1500mm wide for wheelchair users having free mobility in the kitchen.

Figure 36. Doorway in an apartment
© Zhuoying Ren

Figure 37. Kitchen in an apartment
© Zhuoying Ren

5. OUTDOOR ENVIRONMENTS

Thesis by Olga Juutistenaho

Well-designed neighbourhoods and public outdoor spaces can support independent living and ageing in place of citizens with memory decline, while also increasing the overall wellbeing of all residents.

Link: Making a neighbourhood memory-friendly – The case of Tammela in Tampere, Finland (aalto.fi)

MAKING A **NEIGHBOURHOOD** MEMORY-FRIENDLY
The case of Tammela in Tampere, Finland

Olga Juutistenaho
Master's Thesis | Landscape Architecture
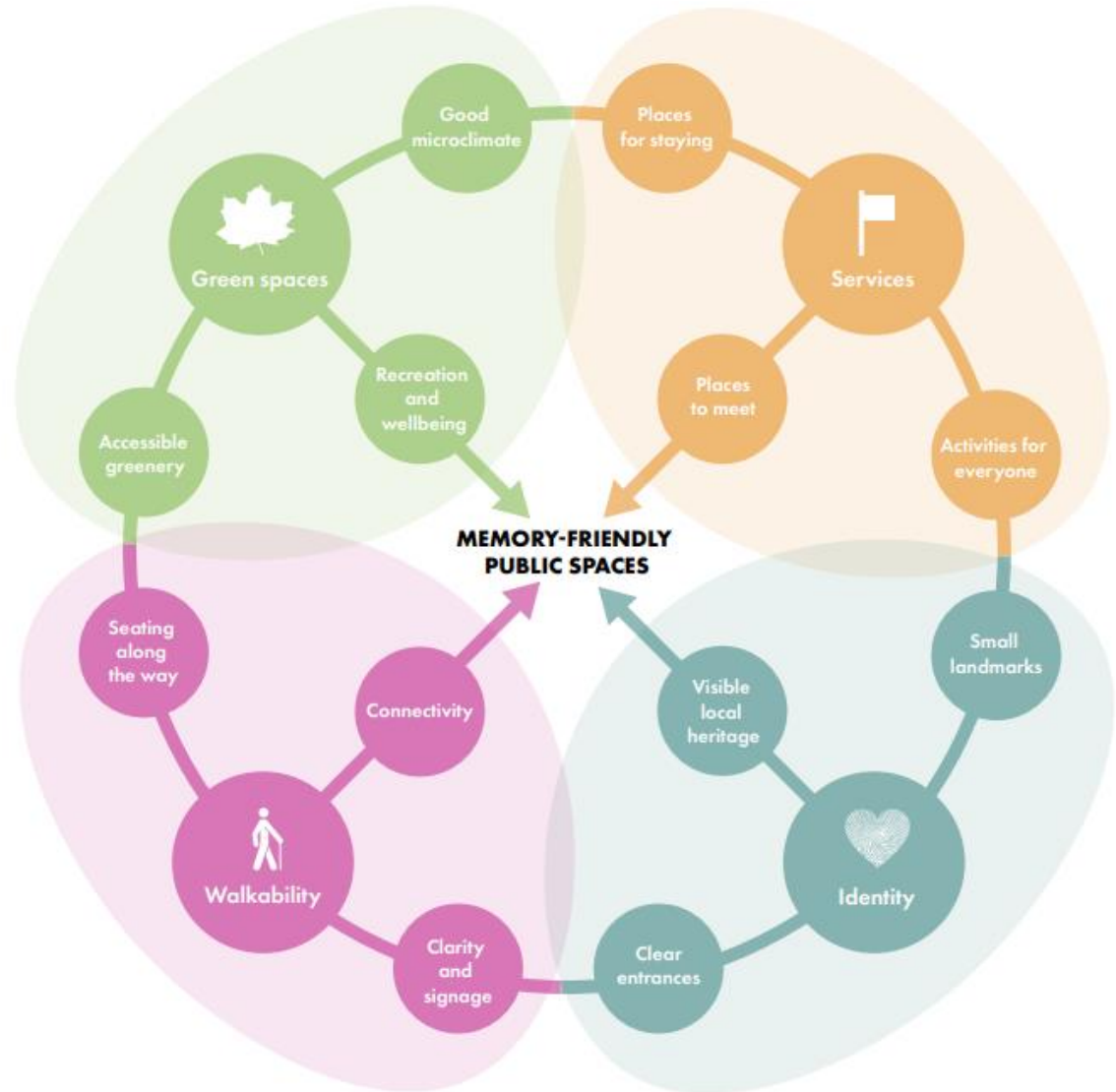Aalto University | School of Arts, Design and Architecture

Research questions – outdoor areas

- How can the urban living environment and public outdoor spaces in particular support independent living and ageing in place of individuals with memory decline?

- How can green and recreational spaces be improved and developed to increase the quality of life of individuals with memory decline?

- What type of shift in planning and design paradigms is needed to better accommodate the needs of design for diversity at the neighbourhood level?

**Aalto-yliopisto
Taiteiden ja suunnittelun
korkeakoulu**

MonIA Monimuotoista integroitua asumista muistisairaille

Main recommendations – outdoor areas

- **Green spaces:** recreation and wellbeing, accessible greenery, good microclimate

- **Services:** activities for everyone, places for staying, places to meet

- **Walkability:** connectivity, seating along the way, clarity and signage

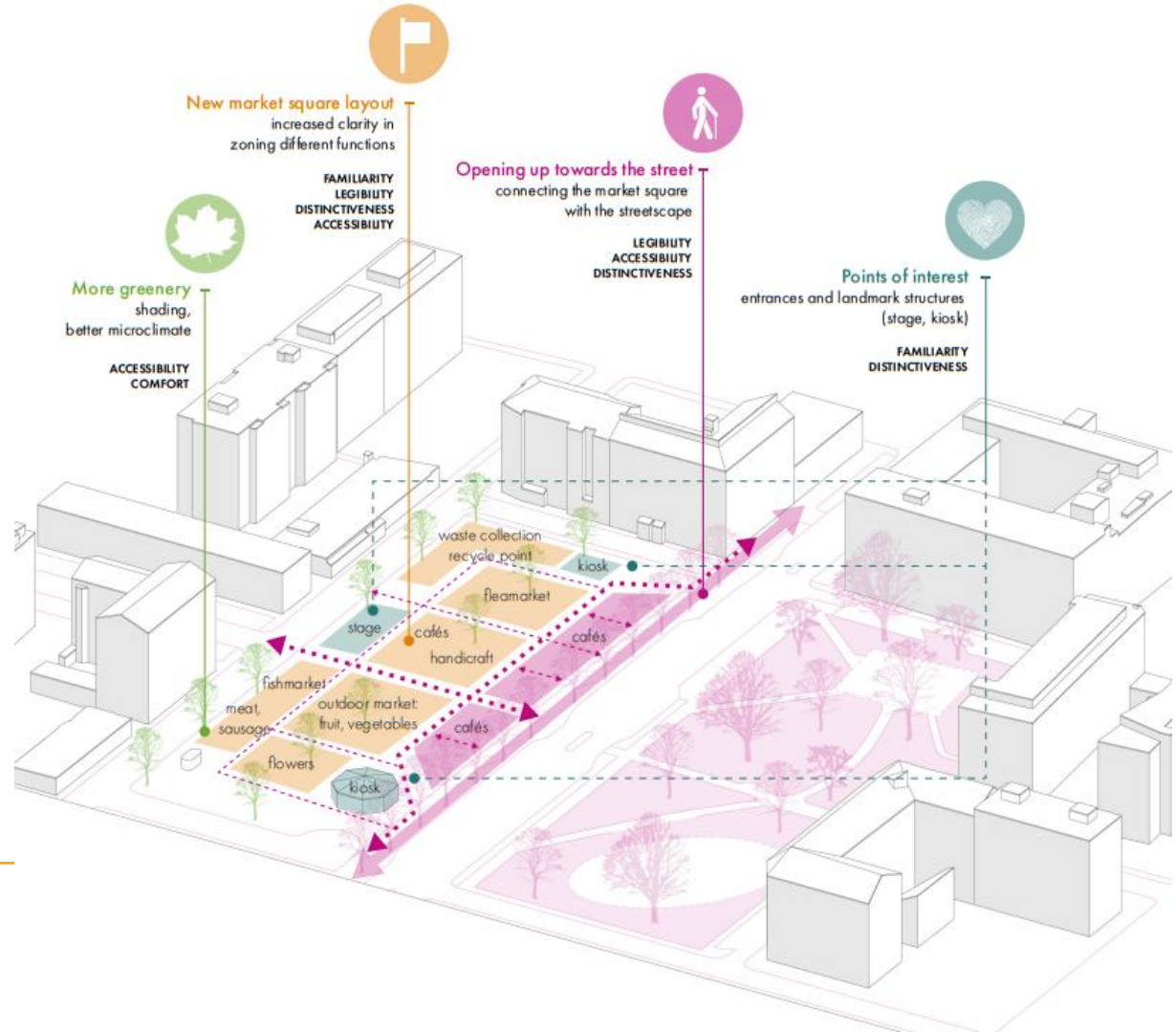- **Identity:** Visible local heritage, clear entrances, small landmarks

Aalto-yliopisto
Taiteiden ja suunnittelun
korkeakoulu

MonIA Monimuotoista integroitua asumista muistisairaille

Framework for memory–friendly public spaces

Application: memory–friendly public spaces

Tampere Finland

Figure 77.
Improved state.

New market square layout
increased clarity in zoning different functions

**FAMILIARITY
LEGIBILITY
DISTINCTIVENESS
ACCESSIBILITY**

Opening up towards the street
connecting the market square with the streetscape

**LEGIBILITY
ACCESSIBILITY
DISTINCTIVENESS**

More greenery
shading, better microclimate

**ACCESSIBILITY
COMFORT**

Points of interest
entrances and landmark structures (stage, kiosk)

**FAMILIARITY
DISTINCTIVENESS**

waste collection recycle point

kiosk

fleamarket

cafés

stage   cafés

handicraft

fishmarket

meat, sausage

outdoor market: fruit, vegetables   cafés

flowers

kiosk

8 SENSORY DESIGN

Thesis by Viivi Salminen

As the population ages, living for those with memory decline needs to be developed. No-one wants to live in noise, but even better is if the acoustical environment actually increases wellbeing. This thesis offers design recommendations and examples for better acoustical enviroments – and life. (Finnish only)

A? **Aalto-yliopisto
Taiteiden ja suunnittelun
korkeakoulu**

AKUSTINEN SUUNNITTELU MUISTIYSTÄVÄLLISESSÄ ASUMISESSA
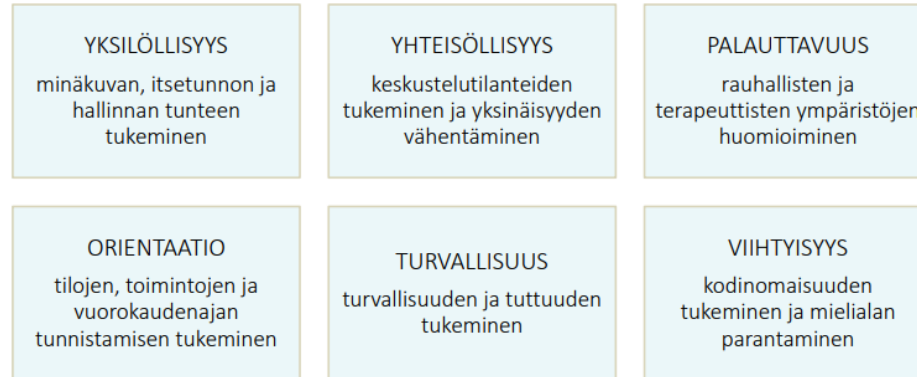
Viivi Salminen

Diplomityö Syksy 2021
Arkkitehtuurin maisteriohjelma
Rakennussuunnittelun oppituoli
Terveys- ja hyvinvointialan arkkitehtuuri

Research questions – sensory design

1. How can the effects of memory decline and age-related hearing loss be taken into account in design?

2. What is an ideal acoustical environment for memory- and age friendly living?

3. How can acoustical design support wellbeing and activities of daily living in memory- and age friendly living?

Elements of memory–friendly acoustical environments
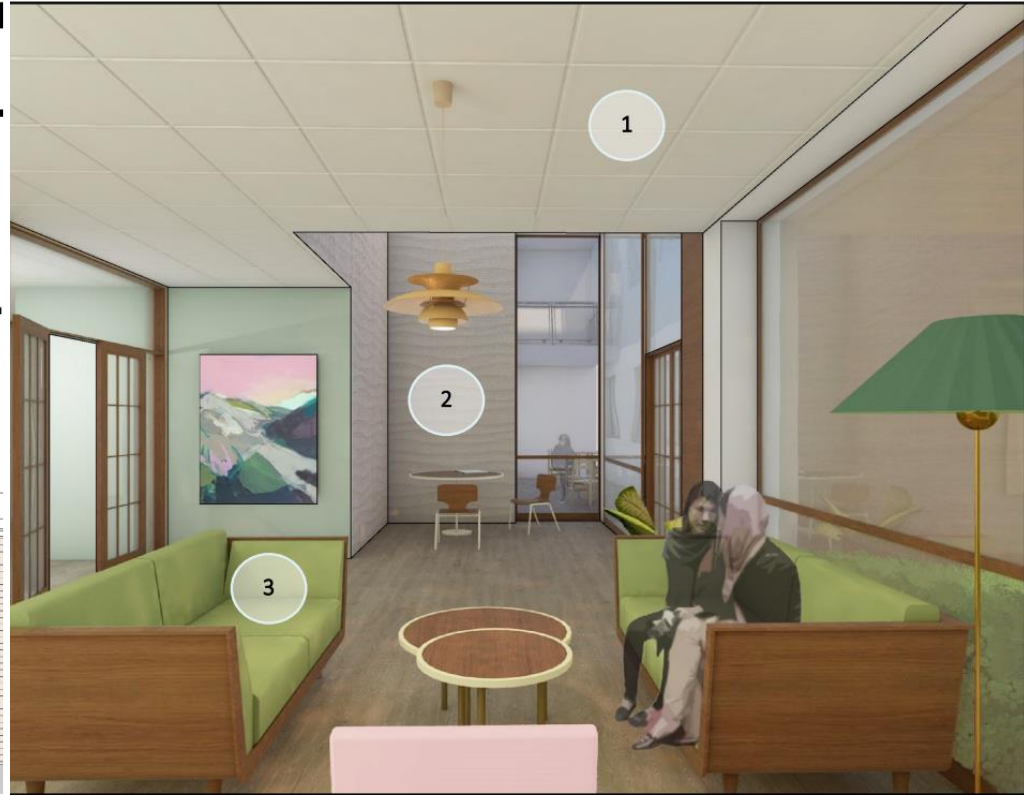
INDIVIDUALITY   **COMMUNALITY**   **RESTORATIVENESS**

YKSILÖLLISYYS minäkuvan, itsetunnon ja hallinnan tunteen tukeminen	**YHTEISÖLLISYYS** keskustelutilanteiden tukeminen ja yksinäisyyden vähentäminen	**PALAUTTAVUUS** rauhallisten ja terapeuttisten ympäristöjen huomioiminen
ORIENTAATIO tilojen, toimintojen ja vuorokaudenajan tunnistamisen tukeminen	**TURVALLISUUS** turvallisuuden ja tuttuuden tukeminen	**VIIHTYISYYS** kodinomaisuuden tukeminen ja mielialan parantaminen

ORIENTABILITY   **SAFETY**   **ENJOYABILITY**

Design example – communal lobby

Aalto-yliopisto
Taiteiden ja suunnittelun
korkeakoulu

MonIA
Monimuotoista integroitua asumista muistisairaille

March 2023
37

We **need** to talk about a paradigm change

What are we doing? How do we talk?

Delivering care	Living life
Focus on safety	Focus on freedom and excitement
for them'	by them'
Serving	Supporting
Transporting	Encouraging to move
Providing therapy or treatment	Doing meaningful activities
Residents a burden	Residents a resource
Patients	Personalities
Admitting to care	Moving in

What are we doing? How do we talk?

Delivering care	Living life
Focus on safety	Focus on freedom and excitement
for them'	by them'
Serving	Supporting
Transporting	Encouraging to move
Providing therapy or treatment	Doing meaningful activities
Residents a burden	Residents a resource
Patients	Personalities
Admitting to care	Moving in

Aalto-yliopisto
Taiteiden ja suunnittelun
korkeakoulu

MonIA
Monimuotoista integroitua asumista muistisairaille

Vision document

- bit of a manifesto

requires EXPERTISE

DIVERSITY
There are several different living solutions and services, and they are all needed. The residents have different needs and hopes, and their life situations can also vary greatly. It is harmful to think that everyone should live in the same way. The starting point should always be one's own home, and the way one wants to live and manage one's living.

INTEGRATION
No group should be excluded from residential communities. Persons with memory decline should not be moved from their neighborhoods or secured away with gates or locks. They need to be integrated just like all other residents. This requires both social inclusivity and flexible physical environments. Efficiency in care planning must not necessitate resident moves, the care should be brought to the resident.

INDEPENDENCE
Safety is always important, but it should not come at the cost of a good life. We should not forget that life at all ages involves risks. We need to look for measures that help persons with memory decline live safely but are not in conflict with personal freedom and right of self-governance. Ideally, support from one's residential community, familiar social encounters, and a resident coordinator will recognize individual needs to ensure recognition and fulfillment of personal wishes.

ACCESSIBILITY
Accessibility of the built environment benefits everyone. For places and services to be 'memory-accessible' we need to also consider e.g. sensory environments, shared and public spaces, public transit, services, running errands, and event planning. If persons with memory decline will not participate in something, we need to recognise the barriers.

EXPERTISE
Memory care is a specialty field. It is imperative that expertise is both required and recognized in all areas of living, planning and services. User participation and genuine respect for the clients' voices is important on every level of decision making. Planning should not focus on merely accommodating for a service.

ECONOMY
Diverse and integrated living solutions can be accommodated with current economic resources as new options reduce reliance on residential care. Interpretation and application of current funding policies and regulations must recognize new forms of living and not work against them.

COLLABORATION
Genuine collaboration between different municipal, regional and regulatory bodies will enable high quality and flexible solutions for varying needs of the clients. Living solutions for persons with memory decline should focus on the 'living'. If we start applying institutional regulations to private living, we will only get more institutions.

Brochure

INTEGRATION

- Persons with memory decline are normal people, any of us may get memory decline. Memory decline advances slowly, often enabling a long and independent life

- Increased understanding and acceptance of diversity enables integration of various resident groups, and creating common spaces and activities to reduce loneliness

- Examples include multi-generational living, communal living, and day programs

FAMILIARITY

- Familiarity helps with comprehensibility, identity and sense of security

- It is important to recognize the value of one's own belongings, local landmarks and memories from different periods and everyday experiences

- Routines, familiar activities, and daily rhythms are beneficial in memory care

EXTERIOR ENVIRONMENTS

- Possibilities for outdoor recreation are important for wellbeing and mental alertness

- Green areas, parks, any pedestrian-friendly areas can serve as venues for venturing and sitting outdoors, exercise and social interaction

- Physical exercise is one of the most important

Thesis links

Monia Thesis Projects:
Portfolio https://issuu.com/sotera_aalto/docs/poster_portfolio
All theses available at Aalto University document platform: aalto.aaltodoc.fi

Juutistenaho, Olga: Making a neighbourhood memory-friendly – The case of Tammela in Tampere, Finland
https://aaltodoc.aalto.fi/handle/123456789/110440
Kiikkilä, Outi: Muistiystävällistä ja yhteisöllistä asumista Poriin
https://aalto-doc.aalto.fi/handle/123456789/113395
Khembavi, Shreya: Integrated living environment for people with memory decline
https://aaltodoc.aalto.fi/handle/123456789/112810
Ren, Zhuoying: Adaptive Memory Friendly Reuse of Existing Residential Stocks in Finland
https://aaltodoc.aalto.fi/handle/123456789/115037
Salminen, Viivi: Akustinen suunnittelu muistiystävällisessä asumisessa
https://aalto-doc.aalto.fi/handle/123456789/111890
Sevele, Luiza: Planning memory-friendly residential environments
https://aalto-doc.aalto.fi/handle/123456789/114091
Tao, Jiaxin: Ideas of future exterior environments for memory-friendly neighborhoods
https://aaltodoc.aalto.fi/handle/123456789/113394
Wang, Jiaqi: Active living - Memory friendly future visions for Omenamäki service centre
https://aaltodoc.aalto.fi/handle/123456789/113400