TONES of comfort

The Architectural Canvas of Dementia Well-being

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17/01/2024
Research Journal

Dwelling Graduation Studio
AR3AD110

Designing for Care in an Inclusive Environment

Delft University of Technology
Master Architecture, Urbanism and
Building Sciences

Hou van mij
om wie ik ben
Ook als ik je
niet meer herken

Kijk me aan
en zie wie ik was
Ik ben er nog steeds
Maar in een andere jas

M.C. Eberhart

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DEMENTIA / CARE / HEALTH / WELL-BEING / THERAPY / ART PRACTICES / FINGERS / PERSON-CENTRED CARE / ARCHITECTURAL DESIGN/ GENTLE CARE / DESIGN GUIDELINES / QUALITY OF LIFE / INTERVENTIONS

Abstract

This study explores whether implementing art into architecture can improve the well-being among of people suffering from dementia. The concept of well-being is explained through the four fingers of well-being: emotional, psychological, physical, and social dimensions.Various art practices, ranging from music to visual arts, prove beneficial, enhancing cognitive functions and the overall quality of life. Emphasizing person-centred care, the study aligns art-based therapy integration with individual preferences and highlights the importance of proactive and well-educated care-staff. Diverse approaches to tailored dementia architecture are explored, including initiatives in the Netherlands and principles like 'Gentle Care' or a 'prosthetic model'. The impact of integrating art into architecture is evident in improved autonomy, a decrease in behavioural issues, and community engagement. This research presents 23 comprehensive design guidelines for dementia-friendly architecture, subdivided into general, architectural, and art-related (dementia) guidelines.These guidelines serve as essential tools for decision-making in the design process. In conclusion, the study promotes the personalized stategy of art therapy to enhance well-being among individuals suffering from dementia, fostering supporting and complementing environments.

Prologue
PERSONAL INTEREST

Early in my studies, I figured out that my interest lies in the discipline of interior and furniture design. The studio 'Designing for Health and Care in an inclusive environment' allows the students to choose the scale of the project, whether it is redesigning an entire neighbourhood or simply a chair. Additionally, within the healthcare system, there is plenty to design for, ranging from prevention to healthcare and from caregivers to patients. The studio provides a platform to make a real difference in the lives of those who need it the most.

With the number of people affected by dementia on the rise, there is an urgent need to improve the living spaces, facilities, and conditions for those dealing with the disease. I have experience when it comes to caring homes for the elderly with dementia because of my own grandmother, who suffered from Alzheimer's. She lived in a well-designed facility, but I believe there are still a lot of improvements that can be made.

During a painting class in Rotterdam during COVID-19, I discovered that painting, or visual arts, can have a positive impact on people with dementia. One of the participants of the course suffered from the disease and the painting class was a place where he could still find comfort and peace. Literature studies show that art can even benefit the communication abilities of people suffering from dementia.

It got me thinking about how other forms of art could have similar benefits. That is where my research started.

1
INTRODUCTION

Problem statement
& BACKGROUND

Dementia is a growing global concern due to an aging population. In the Netherlands, there are currently 110.000 people diagnosed with dementia. Additionally, there are approximately 120.000 people who suffer from dementia, but have not yet received a diagnosis (www.alzheimer-nederland.nl). Out of the 230.000 people in total, more than 160.000 are currently living at home (Peeters et al., 2015). It is expected that the amount of people suffering from dementia will be doubled in 2050, resulting in half a million people (World Alzheimer Report, 2010) and a rising pressure on our healthcare system.

The growth in the number of people with dementia is both a societal issue and an individual challenge (LKCA, 2023). Societally, it means that there is an increasing burden on healthcare: dementia is the condition with the highest mortality and the highest disease burden (LKCA, 2023). Individually, it means that people with dementia and their loved ones must (learn to) deal with the consequences of the disease (Peeters et al., 2015). Many people with dementia need to be admitted to nursing homes, but the vast majority of individuals with dementia wishes to continue living at home for as long as possible (Peeters et al., 2015). Because dementia often co-occurs with comorbidities and social, and behavioural issues, care is generally complex, so family caregivers are often heavily burdened (Zwaanswijk et al., 2010). Already in 2002, the Health Council of the Netherlands recognized the need for improvement in dementia care due to the absence of integration and cohesion (Gezondheidsraad, 2002). Over the past few years, numerous initiatives have been undertaken to enhance the quality of dementia care, including efforts within the National Dementia Program (LDP, 2003-2008).

There is a pressing need to enhance the design of interior spaces to accommodate the unique needs of people suffering from dementia. They face numerous cognitive and sensory challenges, including (short term) memory loss, difficulty with communication and language, disorientation (visual depth), problems with problem-solving and a shorter concentration span (Gramegna, 2021). Therefore, it is important to facilitate navigation, comprehension, a sense of belonging, and emotional well-being for dementia patients within interior spaces. This encompasses not only the physical elements such as signage and furniture but also considers the broader spatial and sensory experience.

For people with dementia, it is important to remain socially engaged (Wilson et al., 2007). Social interaction is often one of their primary needs and the lack of it can even lead to the development of dementia (Wilson et al., 2007). However, as dementia progresses, the ability to initiate social contact independently, declines. Apathy and social isolation are common with people suffering from dementia and have a negative impact on their well-being even the quality of life (Peeters et al., 2015).

Research shows that art can be a way to still connect with these individuals and have proven to be a contribution to the sense of purpose, problem-solving abilities, self-confidence, and (physical) well-being of the elderly, including those with dementia (zorgvoorbeter.nl). By

the terms of art, we can understand any medium used for creative expression, including not just paint (visual arts), but words (poetry, storytelling), plants (gardening), food (cooking), fabric (weaving, fiber arts) and clay (pottery) (Basting, 2006). Besides, art therapy can potentially provide meaningful stimulation, improve social interaction, improve levels of self-esteem and personal satisfaction (Killick & Allan, 1999).

When we think of the visual arts in Basting's work (2006), we can think not only of painting or drawing but also of the graphic design within a building. The layout design of a nursing home plays a crucial role in shaping residents' spatial orientation and wayfinding, which is particularly important for people suffering from dementia according to Gramegna (2021). Supplementary elements like signage, furnishings, lighting, and colours provide additional support, but they cannot fully compensate for poorly designed architecture (Marquardt, 2011). This stresses the importance of art being incorporated into an early stage of the architectural design for dementia. Combining visual art within the building along an interior fit for art-based therapy could potentially result in an optimal architectural design for dementia care, improving the well-being of the patients.

Literature study

For this study, I commenced with a literature study. There were several criteria that the studies under investigation had to meet: they had to be about dementia, art, and architecture. Numerous research studies have already been conducted on the disease of dementia (Wilson et al. (2007), World Alzheimer Report (2010), Zwaanswijk et al. (2010)).

Additionally, research has been conducted on the factors influencing the well-being of individuals with dementia. One of the foundational studies for my research is the FINGER study. This study examines preventive measures for cognitive decline and disability in individuals at risk for dementia, employing a comprehensive approach that includes lifestyle interventions such as diet, physical activity, cognitive training, and vascular risk monitoring. The aim is to enhance overall brain health and postpone the onset of cognitive impairment. Kitwood and Bredin (1992), Clarke et al. (2020), and Keyes (2007) are crucial studies that have been compared and incorporated into this research. Kitwood et al. (1992) establish 12 indicators for relative well-being, each closely tied to observable behaviour. They discuss 'a conceptualization of personhood', presenting evidence of relative well-being even in those severely demented from a cognitive standpoint. The argument is made that the central psychological task in dementia care is to preserve the sufferer's personhood. Clarke et al. (2020) introduce a conceptual framework with domains for measuring well-being in people with dementia, aligning with Keyes' (2007) model of well-being.

In my study, I have explored various viewpoints in existing literature about how art-based interventions to affect dementia. Gross' et al. (2013) investigation into an art activity program reveals that while quantitative outcomes may not show improvement, caregivers do observe a notable difference in the well-being of participants. This theory is emphasized by Beard's (2011) critical review of arts therapies for individuals with Alzheimer's. She as well urges a shift towards subjective well-being measures instead of quantitative. Also Hendriks (2022) measures life in a person-centred way by nature and art interventions. Basting's (2006) emphasis on the positive impact of easy-to-learn methods in promoting playfulness and meaningful engagement extends beyond individuals with dementia to include family caregivers and staff, advocating for a comprehensive approach. Meanwhile, Deshmukh (2018) explores art therapy as a form of psychotherapy and defining it to facilitate personal growth through art materials in a safe environment. While these studies form the foundation of my research, additional comparisons will be made with studies focusing on specific art forms, like sculpting (Seifert, 2007), to further enrich the investigation.

Specific research on architecture for individuals with dementia have been examined, with the studies by Torrington (2006) and De Boer et al. (2018) as crucial foundations for this study. Torrington's study explores the influence of building design on the

quality of life. His 'independent project' focuses on developing technologies to enhance quality of life by supporting enjoyable activities, exploring the interaction between spatial settings and meaningful activity. On the other hand, De Boer et al.'s (2018) study compares traditional nursing homes with small-scale living facilities and green care farms, examining how the physical environment is used in terms of location, engagement, and social interaction of residents.

Finally, I have also explored research that focuses on interior interventions for dementia. Gramegna's work emphasized a creative approach to building management and sensory rich environments for individuals with dementia. In contrast, Marquardt's (2011) paper specifically focuses on architectural wayfinding design in nursing homes, highlighting the critical influence of the floor plan on resident's spatial orientation and wayfinding abilities.

For a clear overview of the sources that formed the foundation for this research, refer to the image at the following page.

Interior Design for Dementia

Gramegna, S. M. (2021). Interior design as a tool for dementia care: Experiences and Guidelines for the Therapeutic Habitat Model.

Marquardt, G. (2011). Wayfinding for People with Dementia: A review of the role of architectural design. HERD: Health Environments Research & Design Journal, 4(2), 7590. https://doi.org/10.1177/193758671100400207

Architecture Design for Dementia

Torrington, J. (2006). What has architecture got to do with dementia care?: Explorations of the relationship between quality of life and building design in two EQUAL projects. Quality in Ageing and Older Adults, 7(1), 34–48. https://doi.org/10.1108/14717794200600006

De Boer, B., Beerens, H. C., Katterbach, M. A., Viduka, M., Willemse, B., & Verbeek, H. (2018).The physical environment of nursing homes for people with dementia: traditional nursing homes, Small-Scale living Facilities, and green care farms. Healthcare, 6(4), 137. https://doi.org/10.3390/healthcare6040137

Art-Based Interventions

Basting, A. (2013). TimeSlips: Creativity for People with Dementia. Age in Action, Virginia Commonwealth University VCU Scholars Compass, 28(4), 1-5.

Beard, R. L. (2011). Art Therapies and Dementia Care: A Systematic review. Dementia, 11(5), 633–656. https://doi.org/10.1177/1471301211421090

Deshmukh, S. R., Holmes, J., & Cardno, A. G. (2018). Art therapy for people with dementia. The Cochrane library, 2018(9). https://doi.org/10.1002/14651858.cd011073.pub2

Hendriks, I. H. (2022). The art of personalising interventions for people with dementia: Development, evaluation and implementation. [PhD-Thesis - Research and graduation internal, Vrije Universiteit Amsterdam].

Gross, S., Danilova, D., Vandehey, M. A., & Diekhoff, G. M. (2013b). Creativity and dementia: Does artistic activity affect well-being beyond the art class? Dementia, 14(1), 27–46. https://doi.org/10.1177/1471301213488899

Dementia in General

Wilson, R. S., Krueger, K. R., Arnold, S. E., Schneider, J. A., Kelly, J. F., Barnes, L. L., ... & Bennett, D. A. (2007). "Loneliness and risk of Alzheimer disease." Archives of General Psychiatry, 64(2), 234-240.

Zwaanswijk, M., Van Beek, A., Peeters, J., Meerveld, J., & Francke, A. (2010). Problemen en wensen van mantelzorgers van mensen met dementie: een vergelijking tussen de beginfase en latere fasen in het ziekteproces. Tijdschrift Voor Gerontologie En Geriatrie, 41(4), 162–171. https://doi.org/10.1007/bf03096203

World Alzheimer Report 2010. The global economic impact of dementia. Alzheimer's Disease International (ADI), 21 september 2010.

Finger Method

Kivipelto, M., Mangialasche, F., Snyder, H. M., Allegri, R., Andrieu, S., Arai, H., Baker, L. D., Belleville, S., Brodaty, H., Brucki, S. M. D., Calandri, I., Caramelli, P., Chen, C., Chertkow, H., Chew, E., Choi, S., Chowdhary, N., Crivelli, L., De La Torre, R., . . . Carrillo, M. C. (2020). WorldWide FINGERS Network: A global approach to risk reduction and Prevention of Dementia. Alzheimer's & Dementia, 16(7), 1078–1094. https://doi.org/10.1002/alz.12123

fbhi. (2023a, september 7). The FINGER Study - FBHI. FBHI - FINGERS Brain Health Institute. https://fbhi.se/the-finger-study/

Dementia and Well-Being

Tom Kitwood and Kathleen Bredin (1992). Towards a Theory of Dementia Care: Personhood and Well-being. Ageing and Society, 12, pp 269-287 doi:10.1017/S0144686X0000502X

Clarke, C., Woods, B., Moniz-Cook, E., Mountain, G., Øksnebjerg, L., Chattat, R., Diaz, A., Gove, D., VernooijDassen, M., & Wolverson, E. (2020). Measuring the well-being of People with Dementia: A Conceptual Scoping review. Health and Quality of Life Outcomes, 18(1). https://doi.org/10.1186/s12955-020-01440-x

Keyes CL. Promoting and protecting mental health as flourishing: a complementary strategy for improving national mental health. Am Psychol. 2007;62(2):95–108 Epub 2007/02/28.

Research gap
& POSITIONING OF THE RESEARCH

Existing research shows the rising global concern of dementia, particularly in the Netherlands where over 230,000 individuals are affected, and this number is expected to double by 2050 (World Alzheimer Report, 2010).

While initiatives have been undertaken to enhance dementia care, apathy and social isolation are still common with people suffering from dementia (Peeters et al., 2015). Research shows that various art forms have proven to be a contribution to their well-being (Basting, 2006; Hendriks, 2022; Deshmukh, 2018). According to Marquardt (2011), visual arts are already often incorporated in traditional interiors within nursing homes but there is a need for a broader sensory experience in the architecture for dementia care facilities (Basting, 2006; Gramegna, 2021).

A crucial research gap maintains in understanding how other diverse art forms and activities, such as words, plants, food, fabric, and music, can be effectively integrated into the architectural design for dementia care. Bridging this gap can provide valuable insights for architects, (family) care takers, and policymakers, offering a more holistic approach to dementia care that addresses the unique cognitive and sensory challenges faced by patients and their families while promoting their well-being.

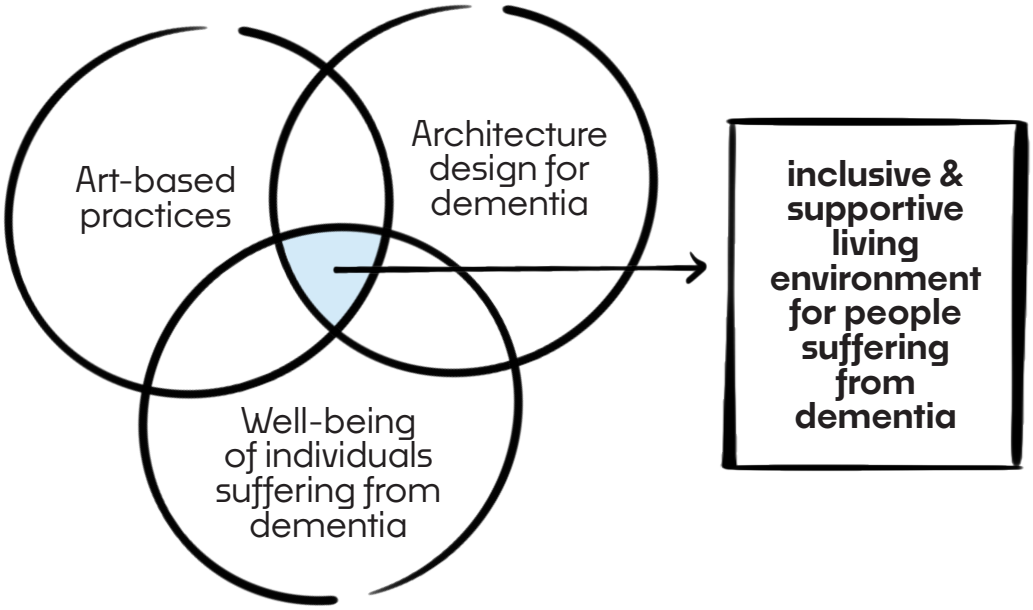


Image 1: Positioning of the research. Made by author (2023).

2

Theoretical Framework

Theoretical framework

This theoretical framework aims to investigate the concept of 'well-being' in the lives of individuals suffering from dementia. It will compare various studies to establish the foundation for this research.

In the documentary 'Human Forever' by De Jong (2023), Teun Toebes speaks about the Finger Model for dementia: a model based on scientific evidence from the FINGER study, which shows that adopting lifestyle measures across five domains simultaneously has the potential to prevent and postpone the progression of cognitive decline in individuals affected by dementia (Fbhi, 2023). Put simply, the FINGER model emphasizes the importance of involving all five 'fingers' in daily life: 1) maintaining a healthy diet, 2) engaging in regular physical activity, 3) stimulating the mind, 4) participating in social activities, and 5) monitoring cardiovascular risk factors, as shown in image 1 (Fbhi, 2023).

The FINGER model's emphasis on these lifestyle factors aligns with a broader understanding of well-being, encompassing emotional, psychological, and social dimensions. There have been a variety of studies conducted on the well-being of people suffering from dementia. Kitwood et al., (1992), for example, consider 12 indicators or 'observables' of relative well-being: 1) the assertion of desire or will, 2) the ability to experience and express a range of emotions (positive & negative), 3) initiation of social contact, 4) affectional warmth, 5) social sensitivity, 6) self-respect, 7) acceptance of other dementia sufferers, 8) humour, 9) creativity and self-expression, 10) showing evident pleasure, 11) helpfulness and 12) relaxation. The 12 different observables lead to four global states of which the indicators are an expression:

1. Feeling good about yourself at a deep level – the most fundamental form of 'self-esteem'.
2. Being able to control your own life in a meaningful way, achieve goals, and make a positive impact on others and the world, no matter what stage of life you're in.
3. Feeling comfortable and confident around others, being able to connect with them, and believing you have something valuable to offer.
4. Holding onto hope, staying confident that some sense of security will persist even as things change externally and internally. It's about having a basic trust that things will be okay.

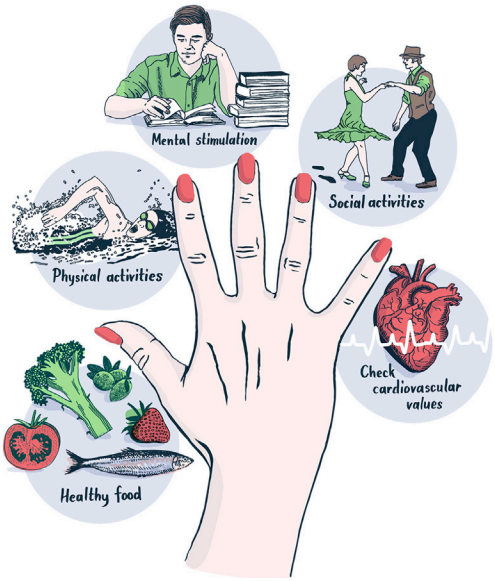


Image 2: FINGER model (illustration from Martine Krona from the book 'Brain Health' (Mila Kivipelto, Mai-Lis Hellenius))

The global states proposed by Kitwood et al. (1992) align with the findings of Clarke et al. (2020). In their research, they identify 17 elements of well-being in dementia, which they organized in 4 overarching (main) domains and 6 dub-domains (image 2). The table also

resonates with Keyes' model of well-being (2007).

Conceptual Theme	Domains
Emotional Well-Being	· **Positive States (*n* = 7)**[a] Positive affect (e.g. pleasure, enjoyment, contentment); positive experience and associated emotion (e.g. humour) and 'affect balance'
Psychological Well-Being	· **Going Beyond (n = 7)**[a] Personal strengths (e.g. hope) showing aspects of personal growth, meaning-making or spirituality i.e. a sense of transcending the challenges of dementia. · **Agency and Purpose (*n* = 13)**[a] 'Keeping Going' and remaining' Active'. Self-determination, autonomy, goals and achievement; 'resilience' (defined as remaining strong in the face of dementia or 'resisting dementia')', through continued engagement with meaningful activity. · **Positive Sense of Self (n = 13)**[a] Positive attitudes toward the self as well as perceived continuation of self-hood, including self-efficacy, self-esteem, sense of identity and dignity.
Social Well-Being	· **Connection and Belonging (n = 6)**[a] Experiences of belonging (e.g. close relationships) love, support, appreciation, connection (e.g. meaningful social networks), 'resilience' (remaining strong / resisting dementia) through continued social participation, engagement in communities and citizenship.
Life Satisfaction	· **Valuing Life (n = 2)**[a] Reflects a general sense of 'feeling well' and satisfaction with life as it is e.g. 'Are you satisfied with your life?' [53]

[a] denotes number of studies at Step 2 in each domain

Image 3: A conceptual framework for measuring well-being in dementia (Clarke et al., 2020).

To explore the impact of art on individuals with dementia in this research, I have developed my own extended FINGER model, incorporating aspects derived from the original FINGER model (Fhbi, 2023), as well as insights from Kitwood et al. (1992), Clarke et al., (2020) and Keyes (2007). This composite framework will serve as the theoretical foundation for understanding the well-being of individuals suffering from dementia.

My well-being FINGER model (image 3) excludes cardiovascular risk factors and healthy food (present in the original FINGER model), as these are not applicable when examining the impact of art. The fingers of this research consist of 1) emotional well-being, 2) psychological well-being (corresponding to the mental stimulation in the original model), 3) social well-being (equivalent to social activities in the original model), supplemented by 4) physical well-being (from the original model). This aspect is not included in Clarke's model, but in my view, it significantly contributes to the well-being of older individuals, where different art practices can play a part in. Additionally, 'life satisfaction' will be omitted, as I categorize it under emotional well-being.

Marquardt's (2011) research will serve as the theoretical foundation for the architectural design, The research outlines four essential criteria for creating a dementia-friendly environment.

1) *No need for new or higher skills*. The design should consist of a simple and clear layout of the floor plan and geometrically simple rooms. There should not be room for misinterpreting reading or signage.
2) *Allow visual access and overview.* All relevant spaces should allow for visually easy access. Besides, it should be possible to oversee the entire living environment at once.
3) *Reduce decision making.* Architectural choices like crossing hallways and change directions should be avoided. The pathway should not involve difficult choices; individuals should be able to follow the floorplan intuitively. If a circulation system is the only option for the specific design site, a clear reference point should be included in the design. Additionally, to distinguish and find rooms with similar meanings or functions, it is essential to apply differences in size, shape, colour, and lighting.
4) *Increase architectural legibility.* The purpose of rooms and other spaces, along with the expected and appropriate behaviour, can be clearly communicated through elements such as size, proportion, materials, and furnishings.

The outcome of Marquardt's (2011) research is supported by Gramegna's (2021) book, that serves as a second foundation for the architectural part of this study. According to Gramegna, two additional principles could be added to Marquardt's list.

5) *Preserving personal spaces*. The design should allow for the customization of rooms, considering resident's memories, needs and living habits.

6) *Therapeutic habitat model*. There should be a balance between full and empty spaces, recognizing the importance of pauses and actions, and integrating sensory corners, colours, lights, and intangible elements.

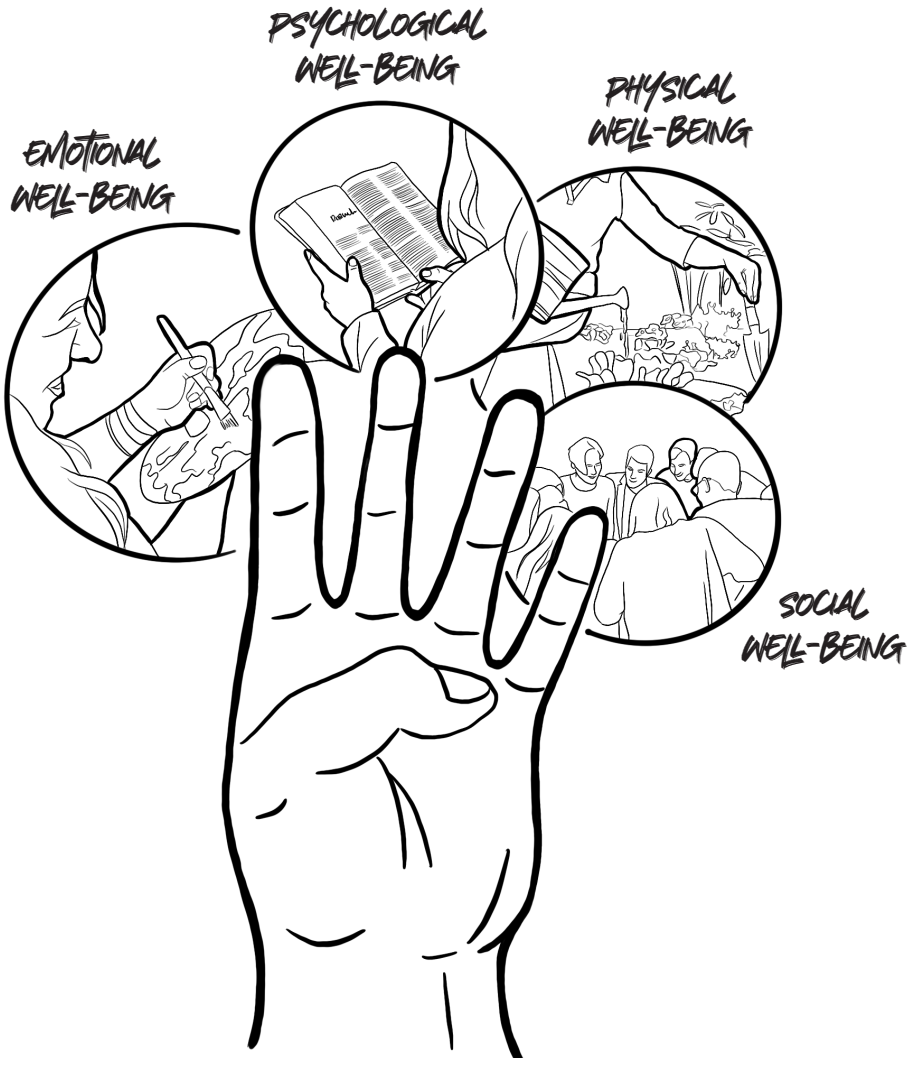


Image 4: Conceptual framework for measuring well-being in dementia. Made by author (2023).

Goal
& AIMS

This research aims to find the answer to the main research question: 'If art has the capacity to promote well-being among people suffering from dementia, what does this mean for architecture?'.

The answer to this question will result in a design handbook for designing dementia care facilities: do's and don'ts, guidelines, boundaries, regulations, preferences, and desires. This handbook can be applied to various situations, from respite care to day-care, to educational facilities, to dwelling. With this handbook in mind, the optimal design can be created concerning the relationship between art, architecture, and dementia. Currently, little is known about the relationship between art and dementia, but the studies conducted (Basting, 2013; Beard, 2011; Deshmukh et al., 2018; Hendriks, 2022; Gross et al., 2013) have shown positive outcomes.

The goal is to create an inclusive design for healthcare. Healthcare that isn't meant to highlight the differences.

Hypothesis
DESIGN

The hypothesis for this research is that the integration of art (based practices) into architectural design can enhance the quality of life and well-being of individuals living with dementia while reducing the burden on healthcare systems.

This hypothesis assumes that both active and passive engagement in arts and cultural activities have positive effects on people with dementia. By thoughtfully incorporating elements of art and culture into architectural spaces, more inclusive and supportive living environments are created. Hereby improving the social interaction, pleasure, quality of life, immersion in the present moment, and overall well-being of individuals with dementia.

This research seeks to establish a practical framework or design guideline for enhancing the lives of dementia patients and their caregivers while also improving society's ability to connect with and support this growing demographic.

Research question
AND SUBQUESTIONS

**If art has the capacity to promote well-being among people suffering from dementia,
what does this mean for architecture?**

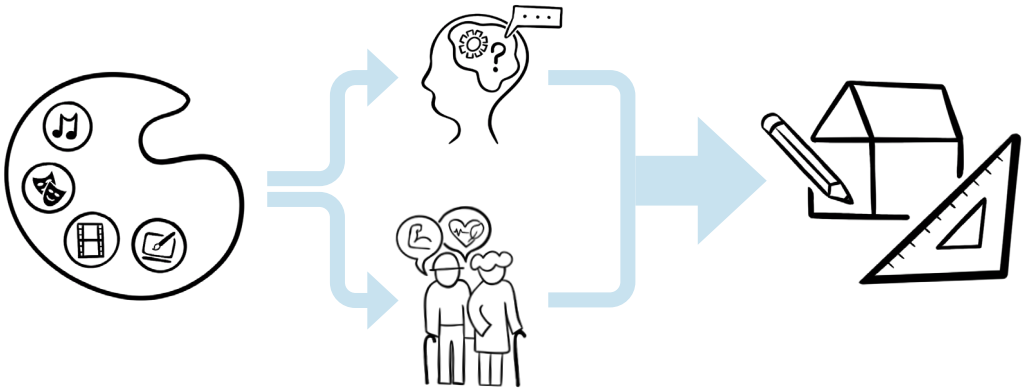


Image 5: Research- and subqustions diagram. Made by author (2023).

The following questions will help me find the answer to the main question. The last sub-question will serve as a concluding sub-question, providing me with the answer of the main research question.

Sub-questions:

1.What are the (cognitive and sensory) challenges faced by individuals with dementia and how do these challenges affect their spatial perception and navigation abilities?

2. What does well-being mean for people suffering from dementia and how can diverse art practices affect their well-being?

3. How can architectural design support the unique spatial needs of individuals with dementia?

4.Which features are desired in terms of spatial design when it comes to implementing art and dementia in architecture?

5. How can architectural design incorporate art (based therapies) into the living & care spaces of individuals suffering from dementia to enhance their physical and emotional environment?

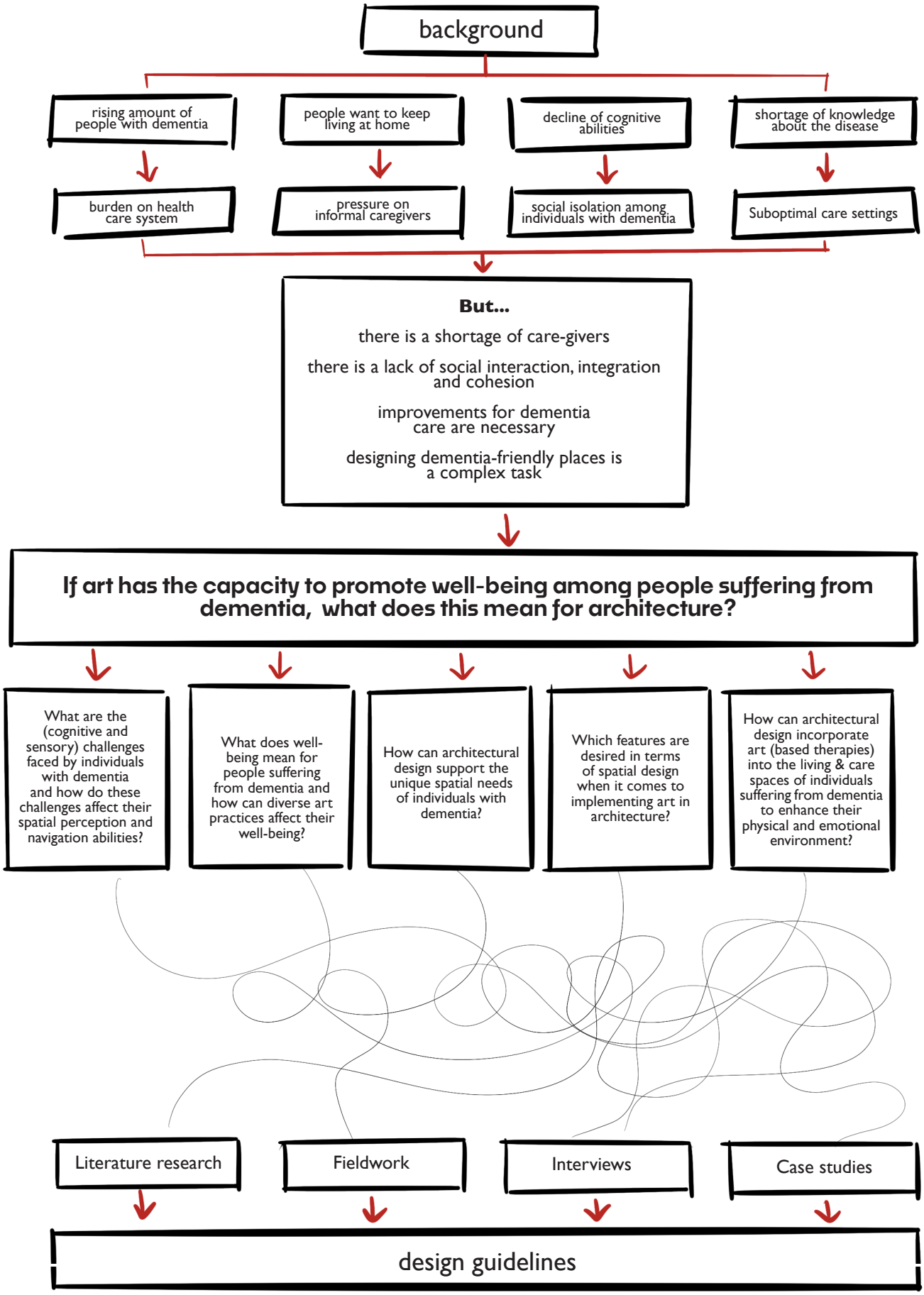


Image 6: Research scheme. Made by author (2023).

3
Methodology

Limitations
OF THIS RESEARCH

In addressing the research questions in this study, several topics will be left out due to the duration and scope of this graduation project.

This research will exclusively focus on a specific target group: individuals with dementia. However, no distinction will be made between the various forms of dementia; instead, dementia will be considered as one disease. I am aware that there are many different types of dementia, each with numerous stages; what may be stimulating for one person could be perceived as stressful by another. This research aims to provide general design guidelines, regardless of these differences. As the study encompasses various art forms (including art, gardening, and music), for the majority of people suffering from dementia, one of these practices is likely to enhance their well-being. The age of the patient is another aspect that will not be considered in this research.

The context in which this target group is studied is the Netherlands. It is possible that the outcome of this research is not applicable to other areas, but the research aims to provide universal guidelines.

Art as well is a broad concept. Given the scale of the project, certain forms of art have been chosen to be excluded. The forms of art that this research will be focussing on are cooking (and gardening), music, painting/drawing, dance, crafts, film/theatre, poetry, and visual arts such as graphic design and wayfinding. All other forms will not be included in this study.

Definitions
KEY TERMS

Design guidelines
The phrase 'design guidelines' refers to the outcome or final product of this research. They are specific recommendations, rules, or principles that offer direction and standards for creating a design, in this case, for dementia care facilities. These guidelines encompass various aspects such as dos and don'ts, regulations, preferences, and other considerations that contribute to the effective design of spaces for individuals with dementia.

Dementia
Dementia is a syndrome that can be caused by progressive disorders impacting memory, cognitive functions, behaviour, and daily activities. Alzheimer's disease is the most common type of dementia, accompanied by others like vascular

dementia, dementia with Lewy bodies and frontotemporal dementia (World Alzheimer report, 2010). Dementia primarily affects older individuals but there is a growing number of cases that start at the at the age of 65. Beyond the age of 65, the likelihood of developing dementia approximately doubles every five years. According to the most recent World Alzheimer Report, in 2010 35.6 million individuals were living with dementia. This number is expected to rise to 65.7 million by 2030 and 115.4 million by 2050 (World Alzheimer report, 2010).

Cognitive and sensory challenges

According to Marquardt (2011), cognitive challenges involve problems with mental processes. With people suffering from dementia, they usually involve memory loss and at least one of the following phenomena: inability to speak, difficulty in planning and executing movements or impaired executive functioning like thinking abstractly, plan, initiate, sequence, monitor, and stop complex behaviour. They also face challenges in recognizing objects, shapes, and persons.

Sensory challenges involve difficulties in processing information received through the senses, including sight, hearing, touch, taste, and smell (Gramegna, 2021). In the context of dementia care, individuals may experience cognitive and sensory challenges that impact their ability to navigate their environment, communicate effectively, and engage in daily activities.

Spatial perception

By spacial perception, I mean the way individuals with dementia interpret and understand their physical surroundings. It involves their ability to recognize and interpret shapes, structures, and spatial relationships. For example, round shapes may serve as guiding elements, while intersections may pose challenges by requiring choices in routing and potentially complicating the lives of those with dementia. Additionally, simple objects like toilet seats in relation to the colour of the floor or thresholds might become challenging to recognize, impacting spatial perception.

Art (based) practices

Art (based) practices refer to a therapeutic or educational approach that involve using artistic activities and creative expression to achieve therapeutic goals, enhance well-being, or facilitate learning and personal development (Beard, 2010). The specific art forms this research will be focussing on are music, visual arts (painting/drawing, graphic design, wayfinding), cooking & gardening, activity therapy (dance/movement), drama & theatre, and poetry. All other forms will not be included in this study.

Well-being

In this research, the concept of 'well-being' will be explained through four subdivisions or so-called 'fingers': mental well-being, physical well-being, psychological well-being, and social well-being. The exact meaning of these domains and the rationale behind them can be found in the chapter 'theoretical framework'.

Methods

To address the various research questions, this study employs multiple research methods. This chapter will explain how each method is applied and describe which research methods are specifically used for each sub-question.

Sub-question 1: Exploring the needs of the target group

This chapter addresses the question: *'What are the (cognitive and sensory) challenges faced by individuals with dementia and how do these challenges affect their spatial perception and navigation abilities?'* The answer to this question will be found through multiple research methods.

The research will begin with a literature study on the cognitive and sensory challenges faced by individuals with dementia (Wilson et al., 2007; Zwaanswijk et al., 2010; World Alzheimer Report, 2010). Another literature study will identify the spatial perception and navigation problems experienced by people with dementia (Marquardt, 2011; Gramegna, 2021). The relationship between these two outcomes will then be examined. These literature studies will be supported by observations during fieldwork at a small-scale care facility and a closed care facility in the Netherlands. Through observations, we will gain insight into how individuals with dementia experience spaces and the difficulties they encounter. Finally, interviews will be conducted. Since it may not always be possible to converse directly with residents/patients, these interviews will (mostly) be conducted with family members and caregivers. They will support and confirm the findings and observations, providing a comprehensive understanding of the challenges that individuals with dementia face due to their illness.

Sub-question 2: Examining and exploring the impact of diverse art practices

In Chapter 5, the question *'What does well-being mean for people suffering from dementia and how do diverse art practices affect their well-being?'* will be addressed. This question will also be answered through multiple literature studies.

Initially, the definition of well-being for people suffering from dementia will be explored based on conducted interviews and literature and tested against the well-being fingers as described in the theoretical framework. Subsequently, various forms of art will be explored, and a distinction will be made between the principles applicable to this research and those that will be excluded (Basting, 2003; Beard, 2011; Deshmukh et al., 2018; Hendriks, 2022; Gross et al., 2013). The specific art forms that are covered in this study can be found under *definitions*. The focus will be on the impact of art on well-being, which is investigated by multiple studies (Kitwood & Bredin, 1992; Clarke et al., 2020). The different art forms and their effect on the 'fingers of well-being' will result in a table, providing advice about the best applicable art therapy. Insights and observations from multiple fieldworks and existing dementia art projects will also be incorporated into Chapter 5.

Sub-question 3: Exploring the needs of the target group in spatial surroundings (fieldwork)

In the next chapter, I will address the question: *'How can architectural design support the unique spatial needs of individuals with dementia?'* The response

Literature study - Interviews - Fieldwork - Observations - Case studies - Workshops

to this question will involve a literature study, reference studies, and on-site observations.

Keeping the answers from Chapter 4 in mind, we can translate the identified needs into spatial considerations based on different literature studies. The literature will be supported by our fieldwork experiences. Plans of current healthcare facilities, including those visited during the fieldwork week, will be analysed. The floor plans, combined with observations and interviews, will reveal the strengths and weaknesses of different spaces. Interviews with residents and architects will highlight the possibilities and requirements when it comes to designing for dementia and provide architectural dementia guidelines.

Sub-question 4: Translating the spatial needs (case studies)
In Chapter 7, the question *'Which features are desired in terms of spatial design when it comes to implementing art in architecture?'* will be addressed. This question will integrate the needs of different art practices when it comes to architecture.

The answer to this question will be found through literature studies, observations, but above all: case studies. With the theoretical framework, I have laid the foundation for the required criteria of the case studies. The answer to chapter 3 will be used to compare different care facilities (the Rosa Spier House by EGM Architects and Alzheimer's Village Dax by NORD Architects), their vision on dementia architecture and their way of implementing art (therapies). The case studies will be analysed on different design concepts and tested against the different fingers of well-being, providing additional art guidelines for dementia architecture to support the general guidelines provided by Chapter 6.

Sub-question 5: Integrating the qualities of art practices in dementia healthcare facilities
Finally, Chapter 8 will focus on the question: *'How can architectural design incorporate art (based therapies) into the living & care spaces of individuals suffering from dementia to enhance their physical and emotional environment?'* The answer to this question will be found by combining all the answers to the previous sub-questions and will form the foundation for the conclusion of this research.

The purpose of this chapter is to merge the design guidelines obtained from Chapters 6 and 7 to create a comprehensive set of guidelines. The guidelines are not an absolute package but can be applied individually to enhance the environment of people with dementia by integrating art into their daily lives. The guidelines will be tested one last time against the various art forms identified as the most effective in Chapter 5 and the design elements necessary to facilitate these art forms within architecture.

Conclusion
In Chapter 9, the main question will be answered: 'If art has the capacity to promote well-being among people suffering from dementia, what does this mean for architecture?'

To answer this question, the responses from all previous sub-questions will be combined. The answer will result in a design handbook with tools for designing dementia care facilities, encompassing dos and don'ts, guidelines, boundaries, regulations, preferences, and desires.

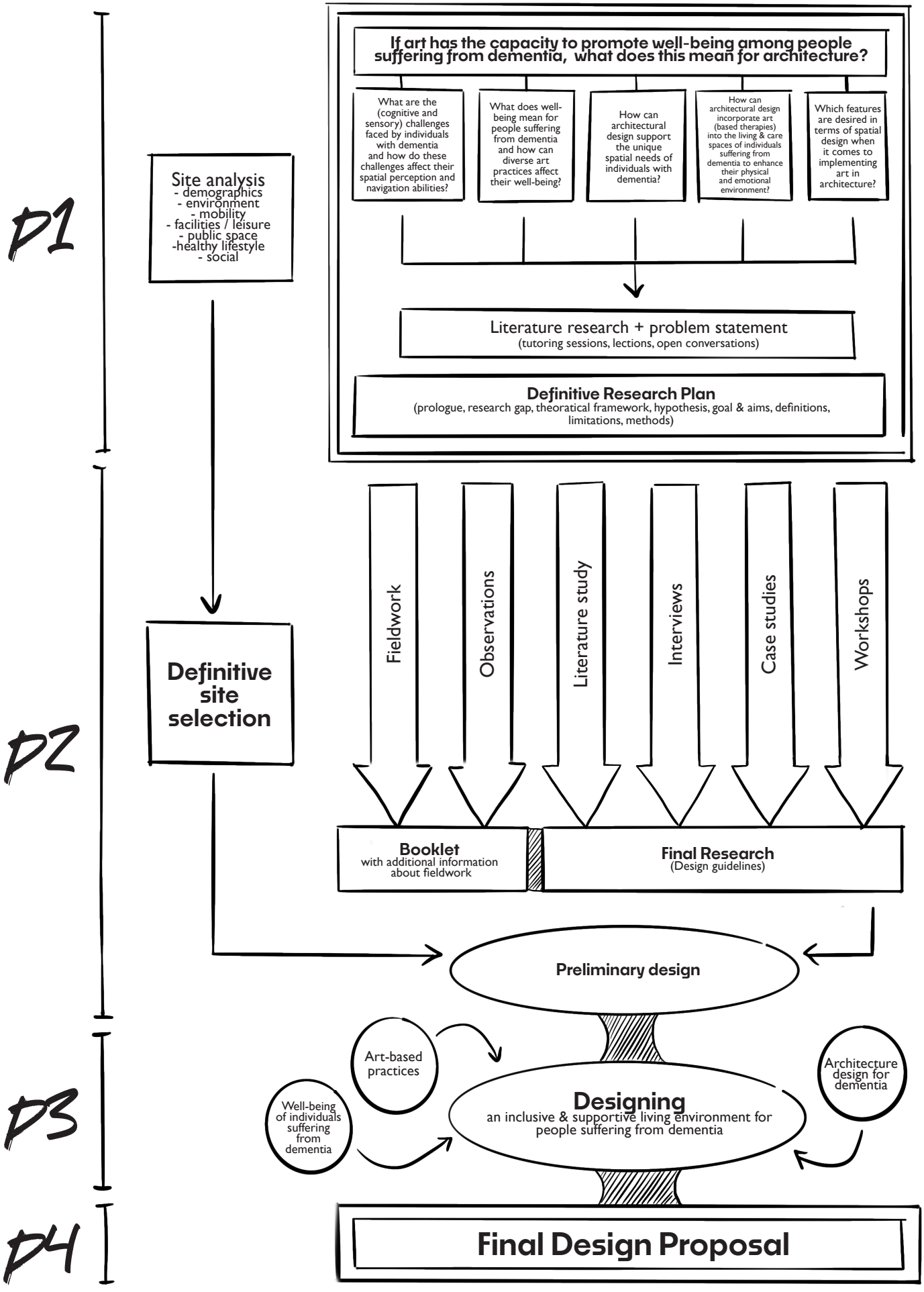


Image 7: Research planning. Made by author (2023).

4

NEEDS OF THE TARGET GROUP

Chapter 4
EXPLORING THE NEEDS OF THE TARGET GROUP

What are the (cognitive and sensory) challenges faced by individuals with dementia and how do these challenges affect their spatial perception and navigation abilities?

Cognitive challenges

According to the American Psychiatric Association (2007), people suffering from dementia encounter challenges such as memory loss, alongside at least one of the following phenomena: 1) inability to speak (or understand spoken or written language (Gramegna, 2021)), 2) difficulty in planning and executing movements and 3) impaired executive functioning (thinking abstractly, plan, initiate, sequence, monitor and stop complex behaviour and recognizing objects, shapes, and persons).

The Global Deterioration Scale (GDS), a seven-stage rating system developed by Reisberg et al., (1982), serves to assess cognitive impairments associated with dementia (*image 8).* It spans from no cognitive decline (stage 1) to severe dementia (stage 7). The terms 'mild, moderate and severe' describe how much the person is affected by the disease. Although there are many forms of dementia, all of them are progressive (Alzheimer's Society, 2020). This means that symptoms that are initially mild, worsen over years. Nevertheless, dementia affects everyone differently, so the timing and required support vary for each person (Alzheimer's Society, 2020).

Sensory challenges

Sensory challenges involve difficulties in processing information received through the senses, including sight, hearing, touch, taste, and smell (Gramegna, 2021). Agnes Houston (2022), who suffers from dementia herself, collaborates with dozens of others affected by the disease to create a leaflet discussing the most common sensory challenges. Regarding sight, they describe a phenomenon known as 'brain blindness', where your eyes perceive, but your brain doesn't immediately interpret the information. 'David' shares an experience of trying to use a computer and struggling to see the letters on the keys, mentioning that they keep jumping.

Regarding hearing, Houston (2022) mentions hypersensitivity to noise and specific tones. 'Peter' expresses his discomfort with music in shops, describing it as torture. Houston writes about touch, taste, and smell, stating that there is an inability to differentiate between cold and warm, that changes occur in taste affecting appetite and habits, and that there is an increased intensity of smells or that some smells may no longer be perceived. Finally, Houston adds 'hallucinations' to the list, as discussed by Gramegna (2021). Cognitive abilities are limited because of dementia, and physical abilities are reduced by sensory impairment, like poor vision (Marquandt, 2011).

Spatial perception and navigation abilities

The underlying causes of spatial disorientation in dementia could

	LEVEL	CLINICAL CHARACTERISTICS	CARE NEED	
1	**No cognitive decline** (normal adult)	No subjective memory complaints or objective findings of memory deficits in conversation.	No need for additional care.	no care
2	**Very mild cognitive impairment** (forgetfulness or normal aging)	Subjective complaints of memory problems exist, with (a) forgetting the location of placed objects, (b) forgetting well-known names. There are no signs of memory problems in conversation, and there is no interference with daily occupational or social activities. The individual is still mildly concerned about the issue.	Although there might be memory issues, individuals may function independently.	no care
3	**Mild cognitive decline** (early confusional stage or very early Alzheimer's disease)	The first defects manifest in the following areas: (a) Disorientation with difficulty finding the way in a less familiar environment; (b) Colleagues begin to notice mistakes in social or occupational activities; (c) Word-finding problems begin to manifest and are noticed by close relatives; (d) Reading a text results in relatively little retention; (e) Remembering names in new social contacts becomes difficult; (f) The patient sometimes misplaces valuable items; (g) Concentration disorders are noticed in a clinical test assignment. In demanding tasks, difficulties are observed. The patient begins to deny mistakes, and there may be mild anxiety.	(Informal) care may be needed (due to disorientation and memory deficits).	informal care
4	**Moderate cognitive decline** (late confusional stage or early Alzheimer's disease)	In conversation, there is a clear deficit in the following domains: (a) Reduced knowledge of recent events; (b) Memory deficits in one's recent personal history; (c) Concentration disorders in simple repetitive calculations; (d) Increasing difficulties in independent travel, handling financial matters, etc. Often, there are no impairments in: (a) Orientation in time and space; (b) Recognizing family and personal acquaintances; (c) The ability to travel to well-known destinations. Complicated tasks are not completed successfully. Denial becomes a dominant defense mechanism. Emotional flattening occurs, and there is a tendency to withdraw from confrontational situations.	Substantial (informal) care is necessary in daily activities.	informal care
5	**Moderately severe cognitive decline** (early dementia stage or moderate Alzheimer's disease)	The patient can no longer function independently. During an interview, they cannot remember normally known facts, such as an address or well-known phone number, the names of close relatives (grandchildren), or the name of the school they attended. There is often disorientation in time (date, day of the week, season) and space. A patient with a good education has difficulty making simple repetitive subtractions (starting from 40 or from 20). At this stage, there is often still awareness of important personal facts about oneself or close relatives. They still remember the partner's name, children, and their own name. No assistance is required for personal hygiene and nutrition, but there may be difficulties in dressing neatly.	Individuals can no longer function independently. Siginificant support is needed, including hygiene & dressing.	professional or informal care
6	**Severe cognitive decline** (moderately severe Alzheimer's disease)	The patient frequently forgets the name of the spouse on whom they have become fully dependent. They are not aware of all recent events. Sometimes, there is still fragmentary knowledge of their own early life. Usually not aware of the environment, the year, the season, etc. Has difficulty counting backward from 10, and sometimes also counting up to 10. Requires support for ADL activities: (a) May be incontinent at times; (b) Needs help to move outside, except occasionally to very familiar places. The daily rhythm is significantly disturbed. They still usually respond to their own name and can usually distinguish close relatives from strangers. Personality and mood disorders can vary, with: (a) Delusions and hallucinations (accusatory delusions, sometimes talking to imaginary people or their own reflection); (b) Obsessive symptoms, such as repeatedly cleaning objects; (c) Anxiety disorders, agitation, and even aggressive behavior in previously calm individuals; (d) Indecision, loss of purpose, as a thought cannot be held long enough to complete a task (cognitive abulia).	Need for intensive (professional) care, including support for mobility and ADL activities.	professional care
7	**Very severe cognitive decline** (end-stage Alzheimer's disease)	All verbal abilities are lost. Usually, there is no speech, only groaning sounds. Urinary incontinence exists, and assistance is needed for toilet visits and feeding. Basic psychomotor activities are no longer possible, such as walking, sitting up, and controlling head movements. The brain can no longer control the body. Generalized neurological signs and symptoms are often present.	Extensive (professional) support is essential for all aspects of living.	professional care

Image 8: Table based on the Global Deterioration Scale (GDS) from Reisberg at al. (1982). Made by aythor (2023).

be memory deficits (Monacelli et al., 2003), visual-spatial impairments (Liu et al., 1991), and changes in orientation skills specific to dementia and the decline in planning abilities (Passini, 1998). According to Reisberg (1982), individuals with dementia encounter various challenges related to spatial perception across different stages. These include disorientation, characterized by difficulty recognizing familiar surroundings or following planned routes; wandering behaviour, where individuals lose track of intended destinations, contributing to aimless wandering; obstacle negotiation, involving struggles to navigate obstacles; and visual perception deficits causing issues with depth perception and contrast sensitivity.

The GDS scale also provides insights into navigation abilities at different levels. Level 3 indicates mild cognitive decline, where skills in familiar environments still function reasonably well (Liu et al., 1991). At this stage, however, finding one's way in unfamiliar surroundings becomes challenging. At level 4, it becomes difficult to navigate even in familiar settings. The decline in orientation significantly limits individuals with dementia in basic daily activities such as self-care, feeding, bathing, dressing, as well as leisure activities or hobbies. For this reason, spatial disorientation stands as a primary factor leading to the institutionalization of people with dementia (McShane et al., 1998).

The complete array of challenges that is discussed in this chapter is categorized into seven main subjects and listed in *image 9* on the left. The column on the right indicates the correlation between the challenges people with dementia face and their navigation abilities and spatial perception. These difficulties should all be considered when designing spaces for dementia.

TOTAL OF COGNITIVE & SENSORY CHALLENGES	PHYSICAL CONSEQUENCES
Memory impairment	Short-term memory loss can hinder the ability to recall (recent) spatial information, making it challenging to navigate in familiar or unfamiliar environments.
Executive dysfunction	Impaired executive functions, such as planning, decision-making, and problem-solving, can disrupt the ability to organize spatial information and make choices regarding routing, considering factors such as turns, intersections or multiple (similar) doors.
Attention deficits	Difficulty in sustaining attention may lead to disorientation and difficulty focusing on relevant spatial cues or wayfinding signs.
Language and communication impairments	Decline in language skills may hinder the ability to comprehend and convey spatial information, affecting communication with caregivers and navigation-related instructions.
Visual impairments	Visual perception deficits, such as depth perception and contrast sensitivity, can lead to difficulties in recognizing spatial cues and obstacles. In combination with memory loss, the function of an object can also be forgotten if this is not clearly indicated.
Auditory impairments	Hearing loss or sensitivity may hinder the ability to perceive auditory cues in the environment, such as alarms or verbal instructions. Especially in loud surroundings.
Position and balance dysfunction	Impaired position and balance function of the body makes it challenging to maintain spatial orientation and navigate safely around wandering and random objects.

Image 9: Cognitive and sensory challenges against physical consequences. . Made by author (2023).

5

THE IMPACT OF ART

Chapter 5

EXAMINING AND EXPLORING THE IMPACT OF DIVERSE ART PRACTICES

What does well-being mean for people suffering from dementia and how can diverse art practices affect their well-being?

Currently, there is no cure for dementia. Treatments or activities can only improve the well-being of the patients or slow down the progression of the disease. In this study, the concept of well-being is categorized into four dimensions or 'fingers': emotional well-being, psychological well-being, physical well-being, and social well-being. The theoretical foundation for these categories is explained in the theoretical framework of this research. The table below describes the exact meaning behind the different dimensions based on the articles of Clarke et al. (2020), Vernooij-Dassen (2007) and the Fbhi (2023).

While this research is conducted based on the four fingers of well-being, it is crucial to delve deeper into what well-being means for individuals with dementia, despite the challenges involved in obtaining their perspectives. To understand the essence of well-being, I interviewed founders, caregivers and people suffering from dementia (see additional booklet for detailed interviews). Peter, a man in his early 60s in the early stages of dementia, states that, for him, it's most important to focus on living day by day. Well-being, according to Peter, involves staying active with sports, spending time with his grandchildren, and handling simple household tasks. Feeling safe and secure is crucial, and routine plays a significant role. For my own grandmother, well-being meant preserving the little things: drinking

Emotional well-being	A state of positive affect, encompassing pleasure, enjoyment, and humour.
Psychological well-being	Personal growth and 'meaning making', agency and purpose, maintaining activity, autonomy, pursuing goals, and achieving them, a positive sense of self, characterized by positive attitudes toward oneself, good self-esteem, and a sense of identity and dignity.
Physical well-being	Physical well-being refers to the overall health of the body, encompassing fitness, nutrition, and the absence of physical ailments. Regular exercise is emphasized as essential for preventing dementia and promoting mental and physical health,
Social well-being	A sense of belonging (in close relationships), love, support, appreciation, involvement, resilience (maintaining strength or resisting dementia), social participation, engagement in communities, and citizenship.

Image 10: Well-being dimensions defined, based on Clarke et al. (2020), Vernooij-Dassen (2007) and Fbhi (2023). Made by author (2023).

coffee in the sunshine, feeding the ducks together, watching TV, and listening to music. These simple daily activities brought her happiness. Hanneke, the founder of the Small Farm (from now on reffered to as SF), I visited, recounts that the absence of activities and stimuli for engagement throughout the day leads to what she perceives as boredom, resulting in so-called 'challenging behaviour'. Creating an environment with a variety of things to experience and do is essential. Individuals with dementia have the same basic needs as anyone else, but due to dementia, they are less capable of fulfilling those needs independently, Hanneke explains. These needs include belonging, a meaningful daily routine, a sense of identity, security, attachment, and comfort.

'People with dementia have a kind of mist created by their condition, and we, as the other side of communication, need to go the extra mile to break through that mist' – Hanneke (founder SF)

'Activities such as cooking together with the residents, praising their involvement, and appreciating shared activities contribute to fostering a positive environment and promoting well-being, offering a sense of purpose and freedom. The farm setting, with animals to care for, provides a meaningful context for engagement, emphasizing a focus on residents' well-being with minimal changes to maintain consistency', Hanneke explains.

According to Gramegna (2021), leaving a familiar environment, like moving to an assisted facility, is a delicate moment in the life of someone suffering from dementia. Often, this change causes confusion, agitation, or disorientation leading to anxiety, apathy, delusion, depression or wandering when they have moved (Gramegna, 2021). To enhance a sense of belonging and connectedness, an effective person-centred care program should involve activities based on the past lives of the patient (Vernooij-Dassen, 2007). For people, remaining active is a driving force in life. During our lives we are involved in a wide range of activities like household chores, work-related pursuits, and social engagements. According to Phinney et al. (2007), the activities experienced meaningful by people with dementia show a 'striking resemblance' to those enjoyed by other (healthy) adults. This chapter provides an overview of meaningful activities and their potential effects on individuals with dementia. However, it's essential to emphasize that there is no 'one-size-fits-all' solution, and determining the most beneficial activity remains a matter of individual examination.

In his book 'Poetry and Dementia: a practical guide', John Killick (2018) states five different reasons why individuals suffering from dementia could benefit from art. 1) Dementia affects the reasoning capacity of individuals whereas the arts are fundamentally concerned with emotional expression. 2) Dementia causes changes in functioning which a person needs to attempt to come to terms with and the arts offer opportunities to explore personal issues both verbally and non-verbally.

3) Dementia often involves a degree of disinhibition, and this encourages the person to explore areas of activity where previously barriers may have existed. 4) Dementia is often accompanied by social withdrawal, and the arts provide opportunities for communal activity. 5) Dementia has consequences of loss of attainment in different areas of life for many people, and the arts can often involve new achievement goals.

Music

When researching the effects of art on dementia, music is the most common topic. Music therapy involves engagement in singing, listening to music or playing an instrument, whether this is individually or in groups. Hanson et al. (1996) show that the biggest responses are observed during movement, followed by rhythm, and singing activities. According to Killick & Allan (1999), it has been reported by several studies that people with dementia gained significant benefits in terms of mood and improved relaxation from music. Music therapy has the strongest evidence when it comes to its effectiveness in reducing problematic behaviours and enhancing desirable ones among people suffering from dementia (Gerdner, 2005). It would however be a shame, to focus only on biomedical products such as reducing and controlling symptoms, rather than well-being improving outcomes, like enjoyment.

Research shows music can cause a decrease in agitation, apathy, disruptive vocalizations and wandering behaviours, alongside enhancements of orientation, attention span, and socialization/social skills among people suffering from dementia (Beard, 2011). Improvements in specific areas of cognitive functioning, such as language or memory recall, motor skills/activity and bathing cooperation, are also emphasized (Beard, 2011). Aldridge (1998) highlights the potential for non-verbal communication for those unable to use words, promoting active engagement, enjoyment, empowerment, and musical creativity (Riley et al., 2009) and thereby the overall quality of life. However, personality and history must be considered when promoting 'pleasure' (Kitwood, 1999).

Image 11: Memories in the Making program - Alzheimer's Association (www.alz.org).

Painting and drawing (visual arts & crafts)

The next most researched art topic when it comes to effecting dementia are visual arts, such as drawing and painting. According to Killick & Allan (1999), applying visual art therapy can promote non-verbal communication, enhance opportunities for reminiscence, serve as a sensory stimulation and enjoyment, promote self-expression, grant freedom of choice (in terms of colours and themes) and strengthen the individual's sense of self. According to Chauhan (2020) viewing and making sculpture for example, influences the sensory involvement, the imagination and creativity.

'Memories in the Making' is a program offered by The Alzheimer's Association. The program offers creative art expression for people suffering from dementia with mild cognitive impairment (*image 10*). Memories in the Making participants create imaginative and colourful artwork in the shape of watercolour paintings. Most of de participants have no previous art experience, but the program provides a chance to engage socially and reminisce about life, individuals, or personal interests. Subsequently, Newell-Walker (2002) stresses that interaction is essential in visual art therapy. According to Beard (2011), the results of this program show that 80% of the participants express enjoyment. Also, it is reported that individuals demonstrate better sustained attention, pleasure, a boost in self-esteem and 'normalcy' compared to activities at a traditional day-care facility for people suffering from dementia (Beard, 2011).

Utilizing drawing or painting as a means of communication proves effective, regardless of the severity of the disease. This is evident as individuals in advanced stages of dementia can still successfully create self-portraits (Kahn-Denis, 1997). Artwork is a visual reminder that people with dementia can still achieve and acquire new skills, overcoming limitations in mobility or cognition (Johnson et al., 1992). Even without prior experience, this capability allows people to see their strengths beyond their limitations. Additionally, 'the universal reason for using art with this population seems to be the sensual, evocative nature of the art medium itself' (Kahn-Denis, 1997, p. 198).

Cooking and gardening

Murroni et al. (2021) investigate therapeutic gardens for people with dementia and identify on which domains (behavioral, cognitive, emotional, sleep, physiological etc.) the most significant effects are observed, based on over 400 different studies. Engaging in gardening activities results in a remarkable 78% engagement, surpassing traditional activities and resulting in an improved sense of involvement (Murroni et al., 2021). Notably, the calming effect of therapeutic gardens leads to a decrease in agitation levels and a reduction in anxiety and depression, positively influencing overall well-being and behaviour (Gigliotti et al., 2019). Subsequently, therapeutic gardening demonstrates a substantial reduction in the number and severity of falls. This is a critical outcome, as falls can have significant consequences for heatlh and safety (Detweiler et al., 2021). The cognitive benefits

are evident, with improvements observed in memory, orientation, and other cognitive domains (Murroni et al., 2021). Sleep patterns are also positively transformed, marked by reduced nocturnal awakenings and increased sleep efficacy. Furthermore, exposure to therapeutic gardens alleviates stress, resulting in lowered heart rates and cortisol levels. This approach even impacts medication use, resulting in individuals requiring reduced dosages, particularly in antipsychotics (Pedrinolla et al., 2021).

Cooking and mealtimes play a vital role in enhancing sensory stimulation and fostering positive experiences for individuals with dementia. Activities like preparing a fruit salad, making sandwiches, or decorating cupcakes provide not only sensory engagement but also opportunities to reminiscence. The aroma of food can stimulate appetite and conversation (www.scie.org.uk). Erika, a caregiver at a small-scale farm (refer to the additional booklet for the complete interview) emphasized the significance of food aromas in the residence. The aromas trigger memories, foster social interaction, and promote awareness of the present moment. Involving individuals in various kitchen task, like peeling vegetables, promotes a sense of purpose and boosts confidence. Engaging in meal-related activities, like setting the table, helps to maintain skills and a feeling of involvement. Utilizing therapeutic cooking programs as a means to encourage residents to participate, socialize, engage in cognitive activities, and enjoy the shared experience shows significant potential (Fitzsimmons et al., 2003). The experience gains added meaning when residents are involved in planning the recipe, shopping, preparing, and sharing the final product with others (Fitzsimmons et al., 2003).

Activity therapy (dance/ movement, sport)

Activity therapy involves group activities such as dance, sport, and drama. Research shows that physical exercise has different health benefits on people with dementia, from reducing the number of falls to improving mental health and sleep cycles, improving people with dementia's mood and self-confidence (King et al., 1997). Dance/movement therapists worldwide commit to utilizing a different approach: merging the art of dance or movement with the science of health to help people suffering from dementia. The researched literature on dance/movement therapy has a process-oriented perspective, with the expressive value of dance and movement as the primary goal. The studies however show reductions in behavioural and psychological symptoms of dementia, such as decreased agitation, improved self-care practices, and enhanced cognitive performance or procedural learning (the acquisition of motor skills) (Beard, 2011). These include improved communication (Nystrom et al., 2005), increased interaction (Duignan et al., 2009), and greater reminiscence (Coaten, 2001). Some authors also propose the use of circle dancing or social dance to create a sense of community (Beard, 2011).

The literature highlights non-verbal communication as a primary

advantage of dance, reporting that any 'lost skills of ordinary conversation' can be rediscovered. This is a significant positive effect, considering that 'the loss of initiative for contact or conversation' is a well-known phenomenon in the advanced stages of dementia. In contrast to the medical model's emphasis on communication limitations, group dance therapy sessions reveal that movement can serve as a substitute or support for speech, allowing the expression of thoughts, memories, and emotions (Nystrom et al., 2005). Coaten (2001) states that movement therapy prioritizes the immediate enjoyment of participants, focusing on 'enrichment' rather than fixating on the therapy's end product. This art form accentuates the quality of life, promoting a sense of community and demonstrating the meaningful interaction capacity of individuals with dementia. Furthermore, therapies incorporating physical rehabilitation contribute to sustaining a high level of independence. These interventions help people with dementia to restore damaged functions or maintain their current motor abilities through engaging in motor activities (Beard, 2011).

Drama and theatre

Drama therapy has been studied less compared to music or visual arts, with outcomes not primarily focused on quantifiable clinical measurements. Activities like mime, storytelling, role-play, object work (the art of creating with imaginary objects), movement, music, and games can contribute to drama therapy (Batson, 1998). Moos et al. (2006) discuss the comprehensive treatment of the individual's life story. Incorporating storytelling therapy outcomes into person-centred care interactions may lead to more effective and medication-reduced care approaches (Moos et al., 2006).

Timeslips, a worldwide program centred around collaborative storytelling for people with dementia, generates fictional stories based on consciousness and creative pictures (www.timeslips.nl).

Image 12: Timeslips program, founded by Anne Basting (www.timeslips.nl).

The program, emphasizing creativity and present time thinking over memory recall, has demonstrated improved communication skills and relationships in nursing settings (Basting, 2011). Meeting, collaborating, listening, and being heard are vital aspects of Timeslips. Anne Basting, the founder of the program, notes

that individuals with dementia may not recall the answer to 9 out of 10 questions, leading to confusion and frustration. However, when it comes to creating their own fantasies, they can still excel.

Overall outcomes include enhanced communication, interaction, and an improved understanding of non-verbal forms of storytelling, such as reminiscence (Beard, 2011). Encouraging spontaneity enhances a person's sense of self, allowing individuals to explore, co-create, discover meaning, and make connections (Beard, 2011).

Poetry

According to Killick (2018), poetry as well is a form of art that can have a beneficial effect on people suffering from dementia. He states: 'Many people with dementia display an unforced propensity for metaphor and simile. It is as if the condition had unlocked their imaginative powers while at the same time inhibiting the capacity for logical thought'. The study of Swinnen (2016) emphasizes the live participatory nature of poetry interventions in person-centred dementia care, highlighting the communal performance and the dialog created through call and response. The positive impact is attributed to the flexibility for formal language and vocal input, fostering creative sessions.

Vernooij-Dassen (2007) stresses the importance of carers identifying and stimulating meaningful activities. This highlights once more, the importance of well-educated and proactive care staff. In the article by Brooker et al. (2007), the term 'locksmith' has left an impression on me. The locksmith, a senior member of the care staff, holds the responsibility of discovering the 'keys' to unlock the potential for well-being in each individual living with dementia. This concept fascinates me as it describes the essence of the person-centred care approach. According to their experiments, participants benefited of the activities, no matter their level of dependency or cognitive impairment.

In summary, these six art forms can contribute to maintaining cognitive functions, improving the quality of life, and reducing behavioural disorder which reduces the burden on the care (Graff et al., 2006). There are, however, even more examples of art practices that have proven to be beneficial to the well-being of indiviudals suffering from dementia (Beard, 2011). Image 13 shows the six art forms and their effects.

Art practice	Emotional well-being	Psychological well-being	Physical well-being	Social well-being
Music	Improved mood and relaxation (Killick & Allan, 1999) Decrease in agitation (Beard, 2011)	Decrease in apathy, increase in memory recall (Beard, 2011)	Decrease in wandering behaviours, increase in orientation, motor skills, attention span, language, bathing cooperation (Beard, 2011)	Decrease of problematic behaviours (Gerdner, 2005) Increase in socialization/ social skills (Beard, 2011)
Visual arts & crafts	Stimulation of sensory experience, enjoyment & pleasure (Killick & Allan, 1999; Beard, 2011)	Improved reminiscence, self-expression, freedom of choice (Killick & Allan, 1999) Increase of sensory involvenent, imagination and creativity (Chauhan, 2020) Boosted self-esteem, normalcy & cognition (Beard, 2011)	Overcoming limitations in mobility (Beard, 2011)	Essential interaction (Newell-Walker, 2002)
Cooking & gardening	Stimulation of appetite and conversation (www.scie.org.uk)	Decrease in agitation levels and reduction in anxiety and depression (Gigliotti et al., 2019) Improvements in memory, awareness of the present moment, a sense of purpose and boosted confidence (www.schie.org.uk; Murroni et al., 2021)	Reduction in number and severity of falls (Detweiler et al., 2021) Improvements in orientation & sleep patterns (Murroni et al., 2021) Lowered heart rates and medication use (Pedrinolla et al., 2021)	Engagement (Murroni et al., 2021; Fitzsimmons et al., 2003) Enjoyed shared experience, increased participation, socialization (Fitzsimmons et al., 2003) Social interaction (www.schie.org.uk)
Activity therapy	Decreased agitation (Beard, 2011) Immediate enjoyment of participants & 'enrichment' (Coaten, 2001)	Improved mood and self-confidence (King et al., 1997) Improved self-care practices, and enhanced cognitive performance or procedural learning (Beard, 2011) Greater reminiscence (Coaten, 2001) Expression of thoughts, memories, and emotions (Nystrom et al., 2005)	Reduction in number of falls, improvement of sleep cycles (King et al., 1997) Preserved motor abilities through engaging in motor activities and a higher level of independence (Beard, 2011)	Improved communication (Nystrom et al., 2005) Increased interaction (Duignan et al., 2009; Coaten, 2001) Sense of community (Beard, 2011)
Drama & theatre	Enjoyment, humour (Basting, 2011)	Improved reminiscence, spontaneity, sense of self and discovered meaning (Beard, 2011)	Medication-reduced care approaches (Moos et al., 2006).	Improved communication skills & relationships in nursing settings, making of new connections (Basting, 2011; Beard, 2011)
Poetry	Enjoyment, humour (Killick, 2018)	Beneficial effect of activities, no matter the level of dependency (Brooker et al., 2017) Improvement of maginative powers (Killick, 2018)	Improvement in (formal) language and speech (Swinnen, 2016)	Improved communal performance by a dialog created through call and response (Swinnen, 2016)

Image 13: The effect of various art practices on different domains of well-being. Made by author (2024).

6

NEEDS IN A SPACIAL CONTEXT

Chapter 6

EXPLORING THE NEEDS OF THE TARGET GROUP IN SPATIAL SURROUNDINGS

How can architectural design support the unique spatial needs of individuals with dementia?

During my fieldwork experience on the SF (see additional booklet for detailed information), the founder shared insights into the pillars of her vision (*image 16*). One key aspect is that the environment of people suffering from dementia should act as a prosthesis to support the deficiencies caused by the disease. 'Gentle Care' is a so-called 'prosthetic model' of dementia care and was developed by a therapist called Moyra Jones. Gentle Care involves defining the deficits in functioning experienced by people suffering from dementia and structuring the environment, compromising people, programs, and physical space, as a prosthesis. The goal of the model is to compensate for functional deficits, support existing or residual functions, and enhance the quality of life. Unlike approaches centred on drugs and technology for symptom relief, the prosthetic model prioritizes the pace of decline, emphasizing the identification and support of remaining functions. The primary focus lies in enhancing and modifying the physical environment rather than focussing on the impairments caused by the disease (Gramegna, 2021).

'Gentle Care' manipulates three main components: people, programs, and physical space. In terms of *people*, social relations represent an essential therapeutic factor in the lives of people suffering from dementia. *Programs* encompass all daily activities of a person with dementia, in a cycle of 24-hours. The third component of Gentle Care, and thus the most crucial for this research, is the *physical environment*. Design features like secure perimeters, in- and outdoor walking paths, clear wayfinding cues and signage, (multiple) dining areas, avoidance of distracting patterns, reducing noise and confusion, and family cluster living arrangements, can contribute to the quality of life (Del Nord, 2003). According to Jones (1999), the physical environment designed for people suffering from dementia should be based on the following elements:

1. Safety & security: because of the lack of cognition, reason and judgement, the environment needs to be safe and (reasonably) free from risk.

2. Access & mobility: due to confusion and disorientation, access areas need to be clearly defined. People should be able to roam around freely, and walkways should be inviting, clear of obstacles and lead the person to interesting objects.

3. Function & activity: the physical environment should provide opportunity for engagement, interaction, and meaningful activities, preferably in a home-like environment.

4. Individual control, privacy, comfort, and sociality: the environment should be designed to promote social contact,

give comfort, and simultaneously respect privacy.

5. Flexibility in choices, participation, and decision-making.

The implementation of Gentle Care shows a decline in 'troubled' behaviour and an improvement in the patient's functional abilities, as well as an improvement in social interaction (Del Nord, 2003).

The SF we visited (*image 14*) utilizes such a prosthesis in which the environment is kept as 'normal' as possible: physical obstacles remain a part of life and keep the brain active, and individuals are encouraged to make their own choices regarding movement and daily routine. Even though it is not scientifically proven, it is striking that in the small care farm over the past year, only one person has passed away, minimal to no medication or sedatives are used, and remarkably, none of the 27 residents were in a wheelchair, in contrast to about 80% of the residents in the large, closed facility that we visited (refer to additional booklet for more information about the large, closed facility). Image 15 illustrates how the core pillars of the SF result in four distinct architectural choices.

Marquardt (2011) as well, outlines four main design guidelines to create a supportive, dementia-friendly environment. She highlights that floor plan designs can significantly support the spatial orientation and wayfinding of people suffering from dementia. While elements like signage, furnishings, lighting, and colours are crucial for people's orientation and well-being, they cannot fully make up for *poorly designed* architecture (Marquardt, 2011).

The table on page 49 (*image 17*) shows design guidelines that integrate insights from Gramegna (2011), Del Nord (2003), Jones, (1999) and Marquardt (2011), supported by the findings during the fieldwork week, to create comprehensive recommendations for dementia-friendly environments, focusing on wayfinding, safety, engagement, and the therapeutic use of sensory elements. I excluded 'safety & security', stated by Jones (1999), as it contradicts the Gentle Care model and the core values of the Small Care Farm. Practical experience demonstrates that utilizing a non-risk-free environment is actually beneficial for brain stimulation and maintaining a 'normal life'.

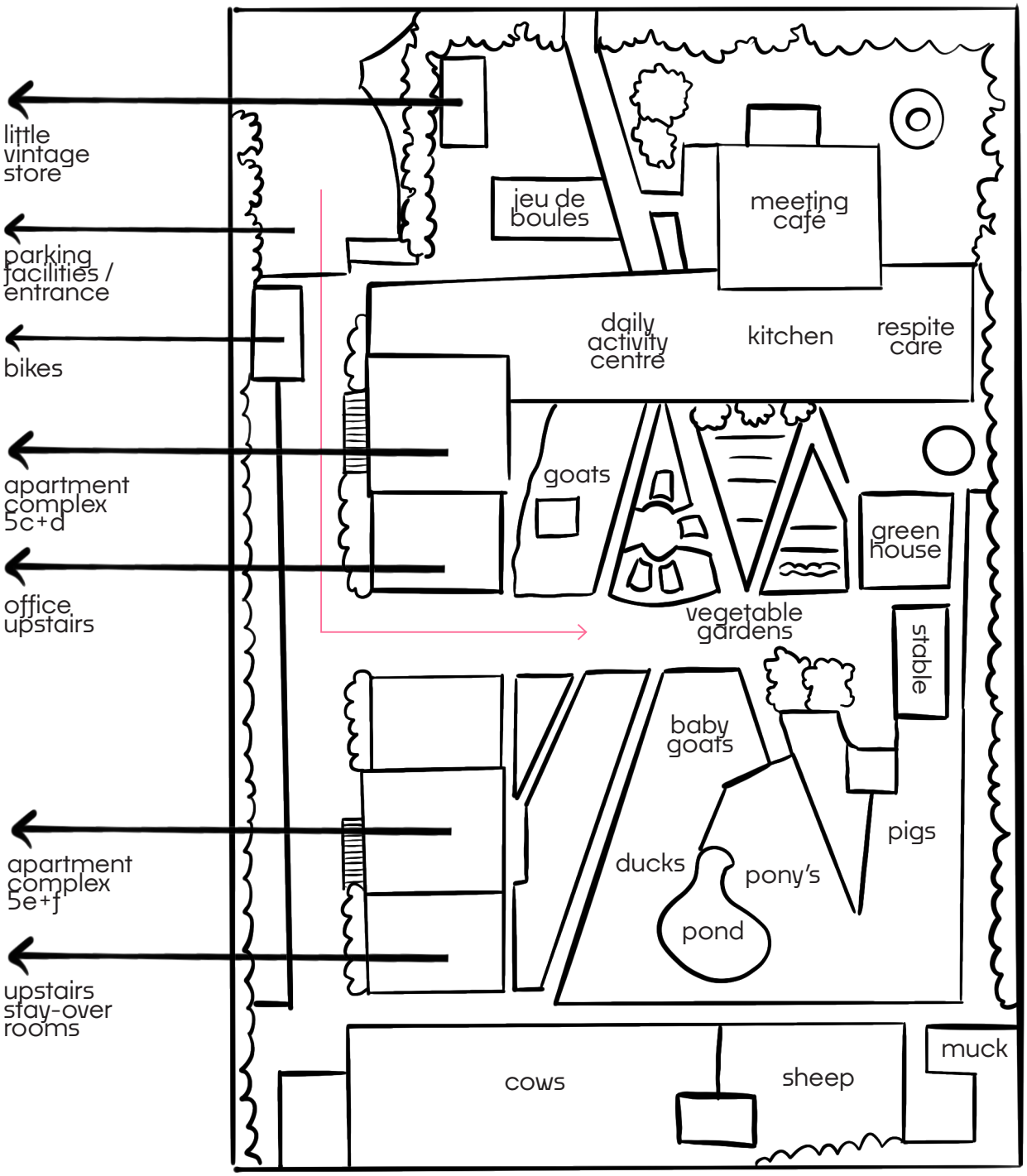


Image 14: Plan of 'a small care farm'. Made by author (2023).

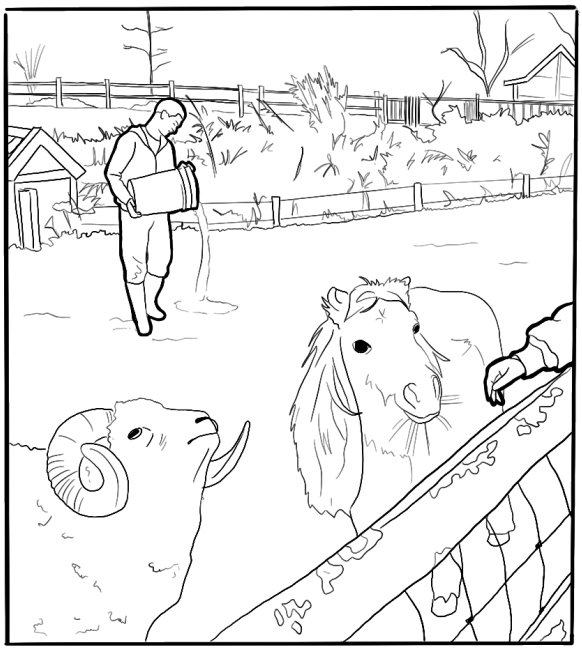
The SF grounds consist of gravel paths surrounded with benches and flower pots. Residents can freely stroll, risking tripping or walking into the the pond. Multiple animal enclosures, from pigs to horses to cows, are scattered across the premises. There also is a greenhouse where residents can engage in gardening or have a coffee.

The various living rooms on the premises were furnished with items brought in by the residents during their move, ranging from pianos to armchairs. Moving in with a pet, whether it is a cat, dog, or parakeet, is also possible. 'Everything is possible until it tuns out not to be.' Each living room overlooks the farm garden, creating a safe feeling and clear overview.

Image 15: Applied Design Elements at the Small Care Farm. Drawings based on pictures made during the fieldwork week. Made by author (2023).

FREEDOM
People are encouraged to make their own choices regarding movement and daily routine.

No door at the SF is (ever) locked. Residents can go fetch the newspaper, take a breath of fresh air, pet a cow, or visit one of the other apartment complexes, day or night. Leaving the premises is also allowed, but the residents are asked if they want to wear a tracker while doing so, which they usually prefer.



ACTIVITIES
Involving residents in activities is a core task; efforts are made to create a pleasant daily routine.

Each apartment block is responsible for a different animal enclosure. By incorporating such daily activities, residents have a purpose during the day, making them feel valued and useful. They are also asked to participate in other daily tasks such as folding laundry or peeling potatoes.

Vision

Core pillars of a Small Care Farm

1

Person-Centered Care

Residents' well-being takes priority, respecting their preferences and needs. Collaboration with family is crucial.

2

Psychosocial Needs

Good care fulfills psychosocial needs such as love, warmth, engagement, and attachment. The environment should contribute to this, considering individual pace and preferences.

3

Sense of Home

A recognizable and normal environment provides residents with a sense of security. They have individual apartments that they decorate to their liking, with active involvement from family.

4

Flexibility

Everything is possible unless practically unfeasible. Pets, family dinners, and individual preferences are actively supported.

5

Freedom

Residents have the freedom to walk around and, if necessary, go outside the premises. No coercive measures are used, and freedom means accepting risks.

6

Meaningful Daily Activities

Activities are offered to keep residents engaged. Involving residents in activities is a core task, and, together with family, efforts are made to create a pleasant daily routine.

7

Community Integration

Residents are part of society, with accessibility for family, volunteers, and the community. Collaborations and events encourage interaction with people from outside.

Image 16: Vision of the small care farm visited during fieldwork week. Made by author (2023).

RECOMMENDATIONS FOR (ARCHITECTURAL) DEMENTIA DESIGN

1

No need for new or higher skills (Marquardt, 2011)

Design environments should not require higher cognitive skills for navigation. Avoid complex floor plans and unfamiliar typologies to support easy orientation. Consider indivudal pace and preferences (Small Care Farm).

2

Allow visual access, overview, and mobility (Marquardt, 2011)

Ensure all areas relevant to individuals with dementia allow for visual access and provide inviting walkways (Jones, 1999). Design spaces that enable individuals to oversee their immediate living environment. Encourage free movement, allowing individuals to explore freely (Small Care Farm).

3

Reduce decision-making (Marquardt, 2011)

Minimize changes in direction and crossings to simplify wayfinding. Intuitively guide individuals, avoiding the need for complex decision-making.

4

Increase architectural legibility (Marquardt, 2011)

Focus on the physical environment, incorporating secure perimeters, clear wayfinding, and family cluster living arrangements (Gentle Care). Make room functions and expected behaviours clear through size, proportion, materials, and furnishings. Create distinctive places that enhance memorization and promote spatial orientation.

5

Design for function & activity (Jones, 1999)

Create environments that facilitate engagement, interaction, and meaningful activities (Small Care Farm). Promote social contact while respecting privacy and providing comfort. Prioritize social relations and daily programs as therapeutic factors (Del Nord, 2003). Design spaces that offer flexibility in choices, participation, and decision-making. Freedom means accepting risks (Small Care Farm).

6

Incorporate a 'Therapeutic Habitat Model' (Gramegna, 2021)

Strive for a balance between memory spaces and therapeutic areas. Utilize sensory environments to create a space that stimulates memories, decreases agitation, and facilitates relaxation.

Image 17: Design guidelines based on Gramegna (2011), Del Nord (2003), Jones (1999) and Marquardt (2011), supported by the findings during the fieldwork week. Made by author (2023).

7

TRANSLATING SPATIAL NEEDS

Chapter 7

TRANSLATING THE SPATIAL NEEDS (CASE STUDIES)

Which features are desired in terms of spatial design when it comes to implementing art and dementia in architecture?

To address this question, I examined two different projects and perspectives. Both projects involve living facilities for individuals affected by dementia, each with its unique aspects. The most significant difference between the two residential facilities is that case study 2 integrates art into its architecture.

1. Alzheimer's Village Dax / NORD Architects

2. Rosa Spier House / EGM Architects

The analysis of the projects will be based on the four fingers (emotional well-being, psychological well-being, physical well-being, and social well-being) outlined in the theoretical framework of this research. The exact definitions of the fingers can be found in Chapter 5. Subsequently, a comparison will be drawn between the different projects, based on obtained information and self-created analytical drawings. This approach aims to explore the ways in which architectural elements contribute to the different fingers of well-being.

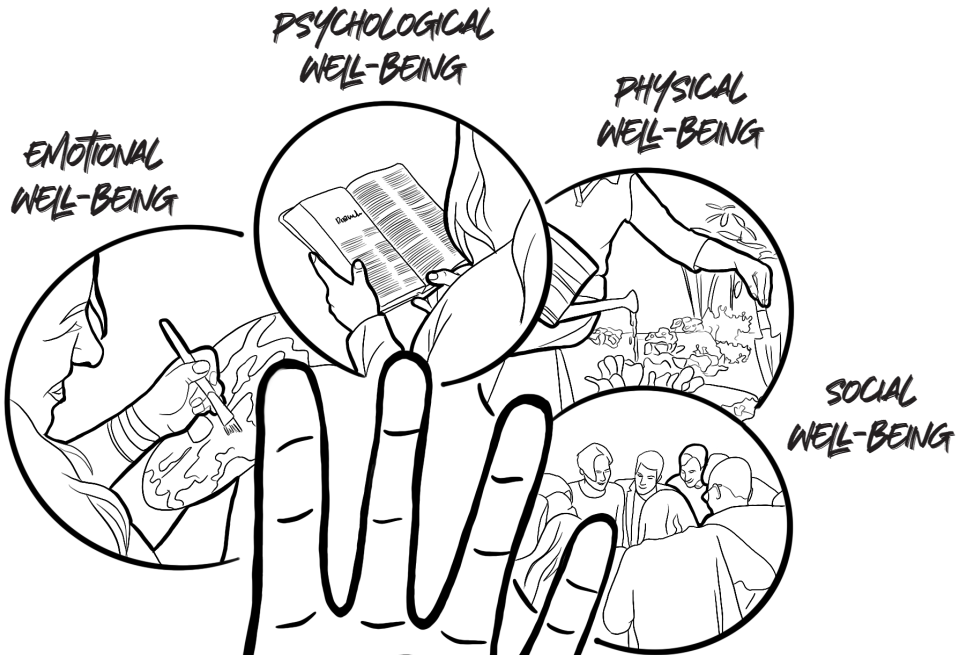


Image 4: Conceptual framework for measuring well-being in dementia. Made by author (2023).

Case study 1: Alzheimer's Village Dax / NORD Architects
Alzheimer's Village in Dax (France) is designed by NORD Architects and is seen as an innovative transformation of the conventional nursing home. 'Healing architecture' was prioritised in the design process to enhance the quality of life for individuals experiencing significant life changes.

Recognisability creates continuity and a sense of belonging
The village was designed to establish a secure environment, creating a sense of well-being for residents, relatives, and healthcare professionals. The surroundings are recognisable, free from alienating elements, enabling the residents to move through the local landscape independently. The village incorporates familiar functions in the complex: a grocer's, a hairdresser's, a restaurant, an auditorium, a library, and a market square – evoking memories of resident's past lives. The goal is to include residents in as many everyday activities as possible. Morten Gregersen, partner at NORD Architects, emphasizes the importance of a recognizable environment for individuals suffering from dementia to ensure it doesn't create challenges or disrupt cognitive abilities. The architecture incorporates local elements, serving as a cultural extension and easing the transition from living at home to living in an Alzheimer's centre for people with severe mental illnesses.

Social interactions and recreational nature
The architecture of Alzheimer's Village Dax addresses the needs of both communities and individuals, offering the residents continuity and cohesion across different life patterns. The complex blends with nature to create a recreational space where residents can relax or take a stroll. A path runs through the landscape, forming a loop, ensuring the residents won't encounter dead ends or get lost.

EMPHASIZING FAMILIAR SURROUNDINGS & CREATING CONTINUITY

Image 18: Alzheimer's Village Dax by NORD Architects (https://www.nordarchitects.dk).

Case study 2: Rosa Spier House / EGM Architects

The Rosa Spier House, founded as a community for artists and scholars, stands out for its unique integration of housing, care, and art in a park-like setting. This distinctive and unique design doesn't solely focus on care but allows normal life to continue while supporting artistic practice and preserving the residents' autonomy.

Living life to the fullest with art and nature

The central cultural building, apartments, and care dwellings are connected but separable, resulting in a balance between community, privacy, and a small-scale feel. Art is at the core of each building and the connecting route. The green surroundings are seamlessly incorporated, fostering a healthy living environment for both staff and residents. The overlapping of interior and exterior spaces, including terraces, pergolas, and transparent circulation routes, maximizes daylight and connects interior spaces with the surrounding nature.

Culture and care

The centrally located culture building serves as the flagship of the Rosa Spier House. It houses the Anna Stibbe Concert and Theatre Hall, exhibition space, grand café, and studios (*image 19*). Out of 45 apartments, 20 are specifically designed for residents with dementia. The four residential buildings (The Musician, The Sculptor, The Painter, and The Writer) provide acces to gardens, balconies, or roof terraces, along with additional care facilities. The autonomy of the residents is prioritized, allowing freedom of choice. Artworks by current and past residents are prominently positioned inside and outside the buildings, providing inspiration and making the house an enjoyable and recognizable place to live.

Life-long art: unique integration of living, care and art

Image 19: Rosa Spier House by EGM Architecten (https://www.egm.nl).

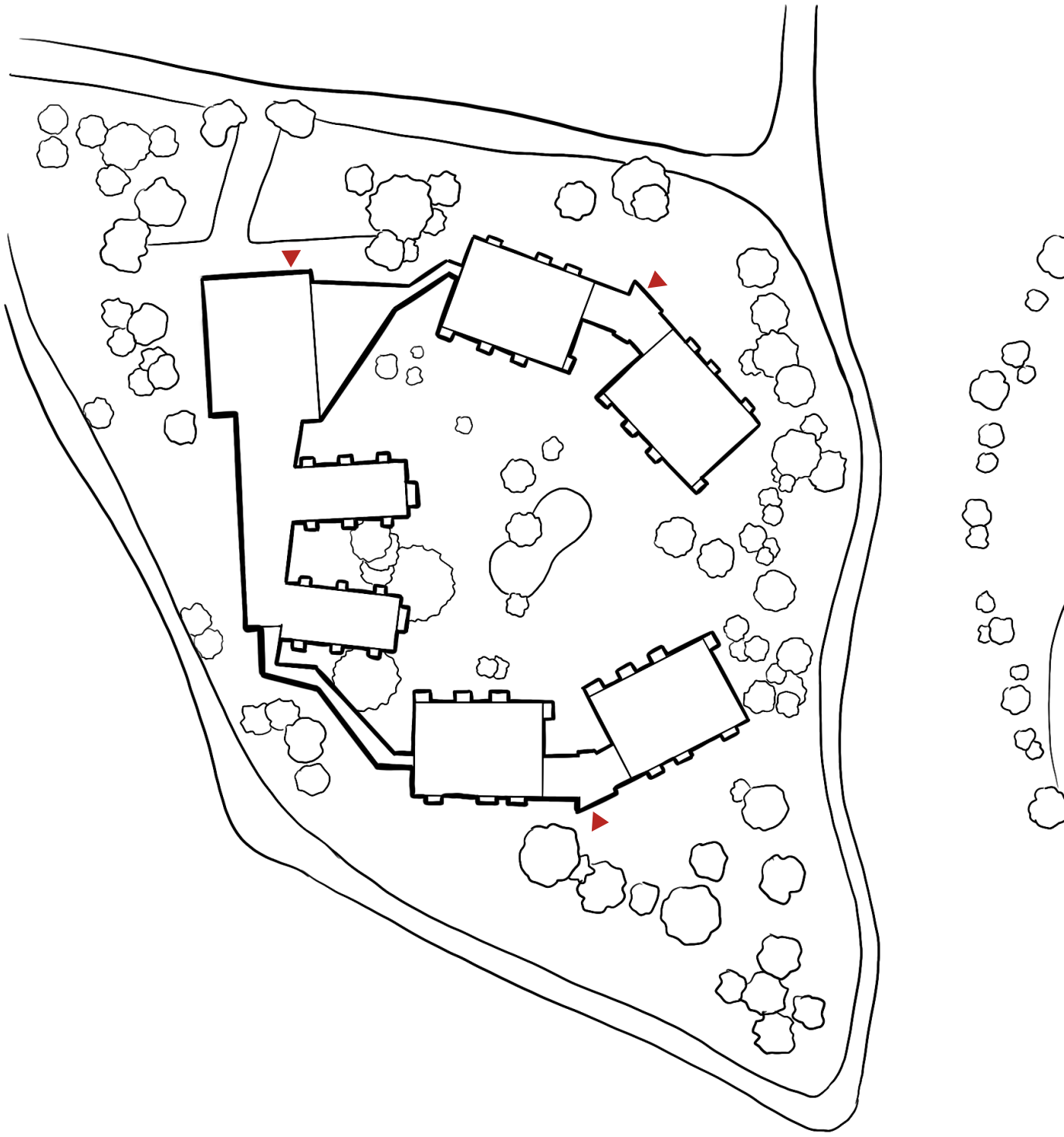
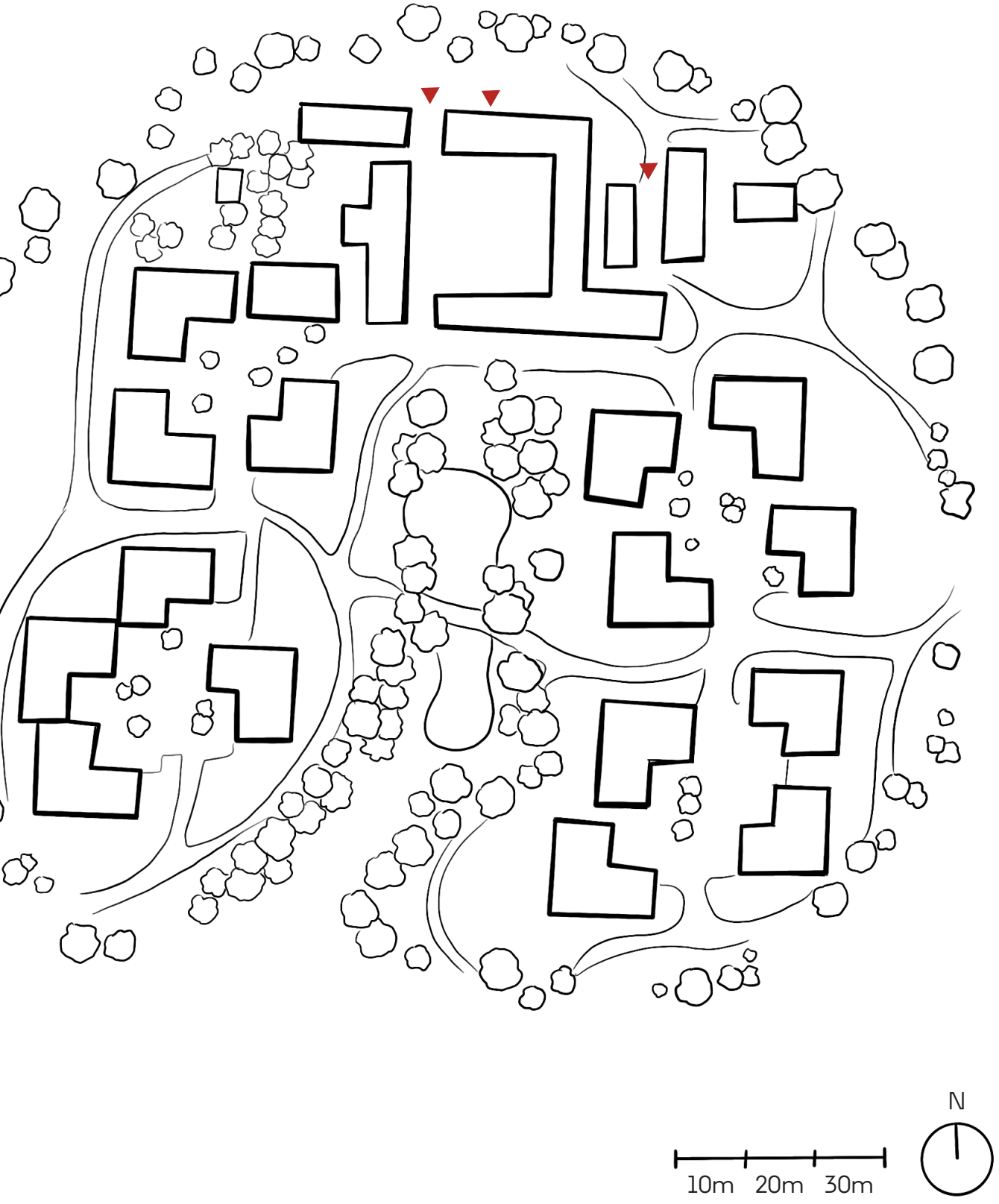


Image 20: Left: plan Rosa Spier House by EGM Architects. Right: plan Alzheimer's Village Dax by NORD Architects. Made by author (2024).


N
10m 20m 30m

	Alzheimer's Village Dax / NORD Architects	Rosa Spier House / EGM Architects
1. Emotional Well-Being A state of positive affect, encompassing pleasure, enjoyment, and humour. 	1. Positive Affect: The design emphasizes creating a secure and recognizable environment, fostering a sense of safety and comfort. 2. Pleasure and Enjoyment: The inclusion of familiar functions such as a grocer's, a hairdresser's, a restaurant, and a market square provide opportunities for residents to engage in activities that bring pleasure and enjoyment. These familiar elements can evoke positive memories and contribute to a positive emotional experience.	1. Integration of Art and Cultural Spaces: The central cultural building, with spaces like the Anna Stibbe Concert and Theatre Hall, exhibition space, grand café, and studios, creates an environment that fosters pleasure and enjoyment. 2. Artworks and Inspiration: Displaying artworks by current and past residents inside and outside the buildings provides visual stimulation and inspiration. 3. Community Engagement: The interconnected design of the buildings and the emphasis on cultural and communal spaces promote social interactions and community engagement. 4. Recognition and Enjoyable Living Environment: Prominently positioning artworks created by residents contributes to a recognizable and enjoyable living environment.
2. Psychological Well-Being Personal growth and 'meaning making', agency and purpose, maintaining activity, autonomy, pursuing goals, and achieving them, a positive sense of self, characterized by positive attitudes toward oneself, good self-esteem, and a sense of identity and dignity. 	1. Personal Growth and Meaning Making: The inclusion of familiar functions like a grocer's, a hairdresser's, a restaurant, and a market square fosters a sense of normalcy and continuity. The design encourages residents to be involved in various everyday activities, promoting a sense of agency and purpose. The familiar and secure environment allows individuals to make choices, participate in community life, and maintain a level of control over their surroundings. 2. Maintaining Activity and Autonomy: The looped path through the landscape and the design's emphasis on familiar functions enable residents to maintain an active lifestyle while ensuring a secure environment. 3. Pursuing Goals and Achieving Them: Involvement in everyday activities, whether it's visiting a grocer's or participating in community events, allows residents to pursue and achieve personal goals within the context of their abilities. 4. Positive Sense of Self, Self-Esteem, and Identity: Recognizable elements from residents' past lives, along with the emphasis on a secure and familiar setting, contribute to a positive sense of self. 5. Dignity: The design, with its focus on a recognizable environment and local cultural elements, contributes to a sense of dignity. Residents are not only part of a care facility but also connected to a broader cultural context, enhancing their sense of identity and dignity.	1. Personal Growth and Meaning Making: The integration of art at the core of each building and the connecting route supports personal growth and provides opportunities for residents to engage in meaningful artistic practices. 2. Agency and Purpose: Prioritizing the autonomy of residents allows for a sense of agency and purpose. The interconnected yet separable design of the central cultural building, apartments, and care dwellings allows for a balance between community and privacy. 3. Pursuing Goals and Achieving Them: The availability of various spaces, including studios and exhibition areas, supports residents in pursuing and achieving personal and artistic goals within the community. 4. Positive Sense of Self, Self-Esteem, and Identity: Artworks by current and past residents are prominently displayed, fostering a positive sense of self. 5. Dignity: The design respects the dignity of residents by emphasizing their autonomy and providing an environment where their artistic contributions are celebrated and showcased

Image 21: Case studies of the Rosa Spier House and Alzheimer's Village Dax in relation to the different fingers of well-being. Made by author (2024).

	Alzheimer's Village Dax / NORD Architects	Rosa Spier House / EGM Architects
3. Physical Well-Being Physical well-being refers to the overall health of the body, encompassing fitness, nutrition, and the absence of physical ailments. Regular exercise is emphasized as essential for preventing dementia and promoting mental and physical health, 	1. Recreational Spaces: The incorporation of a looped path through the landscape provides residents with an opportunity for physical activity. The ability to take a stroll in a secure environment encourages movement, contributing to overall physical health. 2. Blending with Nature: The integration of the complex with nature creates a recreational space where residents can relax. 3. Community Engagement: Spaces like a market square and a restaurant not only foster social interactions but may also encourage residents to engage in physical activities, such as walking to these communal areas.	1. Integration of Nature: The seamless incorporation of green surroundings, terraces, pergolas, and transparent circulation routes allows residents to connect with nature. Access to gardens, balconies, and roof terraces in the residential buildings provides spaces for residents to enjoy outdoor environments, promoting physical well-being. 2. Cultural and Recreational Spaces: The centrally located culture building houses the Anna Stibbe Concert and Theatre Hall, exhibition space, grand café, and studios. These spaces offer opportunities for cultural and recreational activities, indirectly supporting physical well-being.
4. Social Well-Being A sense of belonging (in close relationships), love, support, appreciation, involvement, resilience (maintaining strength or resisting dementia), social participation, engagement in communities, and citizenship. 	1. Sense of Belonging: The village is designed to create a secure and recognizable environment, which contributes to a sense of belonging. The inclusion of familiar functions like a grocer's, a hairdresser's, a restaurant, and a market square, as well as local elements, helps residents connect with their past and feel at home. 2. Appreciation and Involvement: The design encourages residents to be involved in everyday activities by incorporating familiar functions. 3. Resilience: The design promotes resilience by incorporating a looped path through the landscape, ensuring that residents won't encounter dead ends or get lost. This feature helps individuals maintain a sense of strength and independence, contributing to their resilience against the challenges posed by dementia. 4. Social Participation and Engagement in Communities: The village is designed to address the needs of both individuals and communities. The incorporation of a market square and a restaurant, among other elements, provides spaces for social interactions and community engagement. 5. Citizenship: By incorporating local elements and serving as a cultural extension, the architectural design supports the idea of citizenship. Residents are not only part of a care facility but also connected to the broader cultural context, promoting a sense of identity and belonging within the larger community.	1. Sense of Belonging and Community: The design integrates housing, care, and art in a park-like setting, fostering a sense of community. The balance between community and privacy, along with small-scale structures, contributes to a close-knit and supportive environment. 2. Appreciation and Involvement: Art is at the core of each building and the connecting route, emphasizing the importance of artistic practice. Artworks by current and past residents are prominently displayed, fostering appreciation for residents' talents and contributions. The central cultural building provides spaces for exhibitions, concerts, and a grand café, encouraging residents' involvement in cultural activities. 3. Resilience: The design allows normal life to continue while supporting artistic practice, promoting resilience by maintaining a sense of purpose and strength. 4. Social Participation and Engagement: The centrally located culture building serves as a hub for cultural activities, providing opportunities for social participation and engagement. The interconnectedness of the buildings and the emphasis on art create spaces for communal interactions. 5. Citizenship: The integration of art and culture within the community contributes to a sense of citizenship, where residents are part of a creative and vibrant environment.

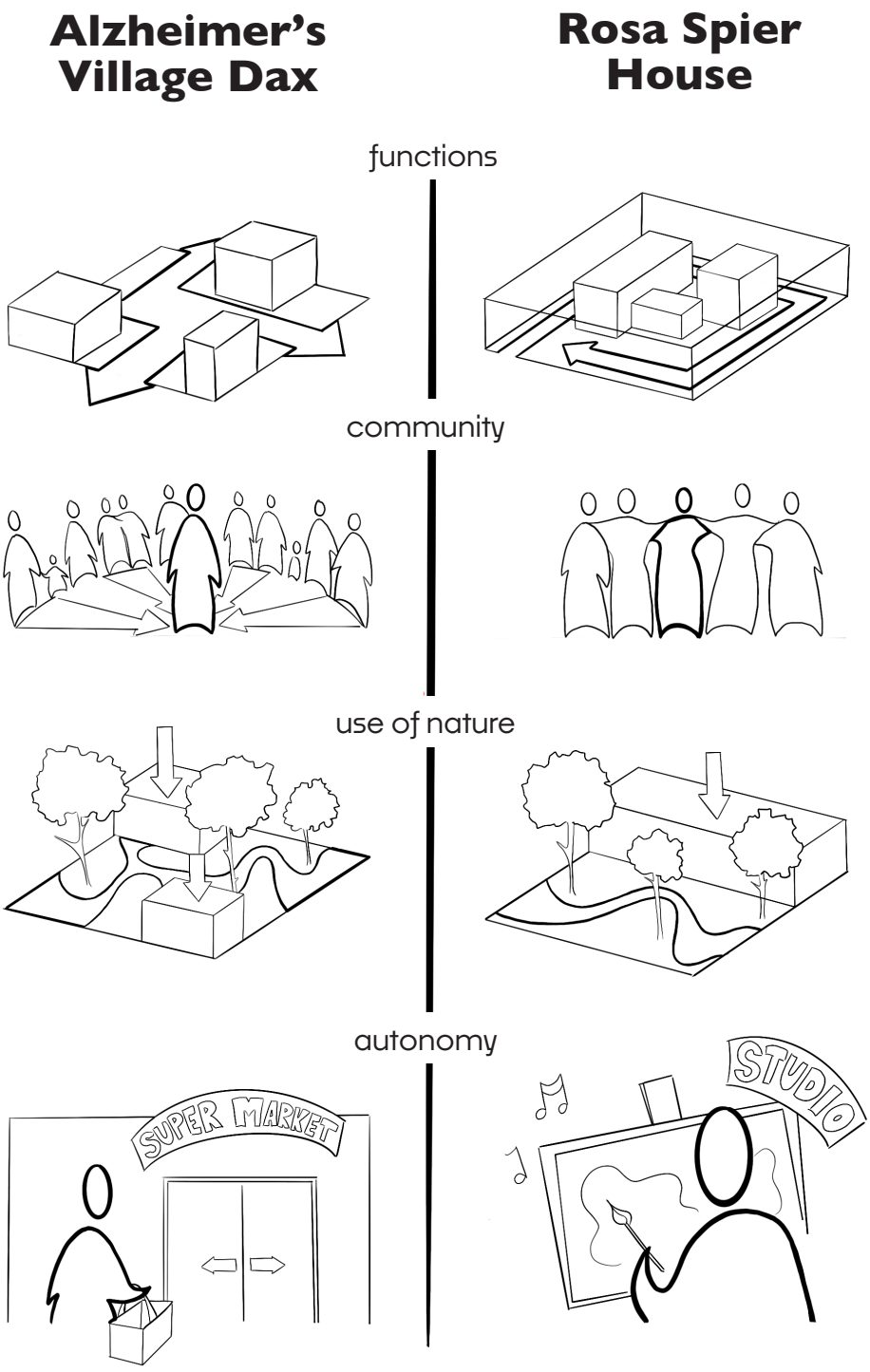


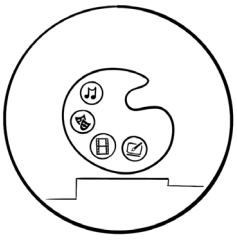
Image 22: Implementation of design concepts (functions, community, use of nature, and autonomy) of Alzheimer's Village Dax compared to the Rosa Spier House. Made by author (2024).

Both designs focus on improving the well-being of people suffering from dementia, but they share more similarities that address the different fingers of the well-being model (refer to *image 21* for the complete analysis). Both designs stress the importance of autonomy. Alzheimer's Village Dax highlights the significance of a recognizable environment and the preservation of daily routine, while the Rosa Spier House prioritizes the autonomy of the resident (or artist) by daily (therapy) activities. Both designs emphasize integrating nature into the design, with attractive outdoor spaces. Additionally, both designs aim to create a sense of community. Alzheimer's Village Dax achieves this by integrating recognizable functions and local elements, whereas the Rosa Spier House incorporates common cultural spaces.

However, there are differences. While Alzheimer's Village Dax focuses solely on its residents (with dementia), the Rosa Spier House also supports artists, scholars, and students, creating a diverse target audience. Alzheimer's Village Dax emphasizes 'healing architecture' with a focus on safety and recognizability to facilitate an easy transition from home living to a care facility. The Rosa Spier House integrates architecture with artistic and cultural aspects, emphasizing an inspiring living environment. While Alzheimer's Village Dax integrates recognizable daily activities, including a library and an auditorium, the Rosa Spier House provides specific spaces for creative activities, such as studios and exhibition areas. The different concepts of the projects can be seen in *image 22*.

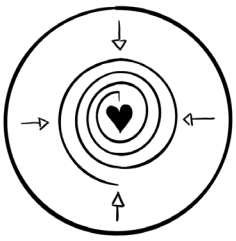
Both designs strive to promote well-being among people suffering from dementia, but the approaches differ. There are four points that distinguish the Rosa Spier House from Alzheimer's Village Dax, ensuring that the Rosa Spier House scores high on the well-being model. These design concepts are visible in *image 23*.

Rosa Spier House



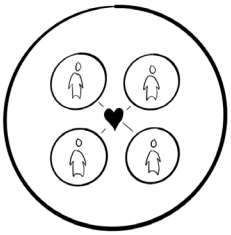
Focus on art and creativity

The design emphasizes creative activities and maintaining an inspiring environment, specifically designed for artistic expression. This includes studios, exhibition spaces, and other facilities designed for artists.



Central cultural hub

The centrally located cultural building serves as the flagship of the facility. This building houses cultural activities, a concert and theatre hall, exhibition spaces, and a grand café.



Separate spaces for artists and scholars

The specific names of the residential buildings in the Rosa Spier House (The Musician, The Sculptor, The Painter, and The Writer) show that separate spaces or 'wings' have been designed to cater to the different needs and interests of various (creative) groups.

Prominent placement of artworks

The house emphasizes the placement of artworks, both inside and outside the buildings, created by current and former residents. This contributes to aesthetics and highlights the individual contributions of residents to the community.

Image 23: Additional design concepts to enable the integration of art into dementia architecture at the Rosa Spier House.

8

INTEGRATING ART

Chapter 8

INTEGRATING THE QUALITIES OF ART PRACTICES IN DEMENTIA HEALTHCARE FACILITIES

How can architectural design incorporate art (based therapies) into the living & care spaces of individuals suffering from dementia to enhance their physical and emotional environment?

To understand how art-based therapies can be integrated into the living and care spaces of individuals suffering from dementia, and therefore answer the final question, the outcomes of the previous chapters will be combined.

Chapter 4 outlined the challenges faced by individuals suffering from dementia, while Chapter 6 translated these challenges into spatial desires. Based on fieldwork and researched literature, this resulted in six architectural recommendations (*page 49, image 17*), describing solutions and recommendations for the living environment of people suffering from dementia. I subdivided the six recommendations into 12 design guidelines. As mentioned in the *Definitions* section of this research, the term 'design guidelines' refers to specific recommendations, rules, or principles that offer direction and standards for creating a design, in this case, for dementia care facilities. They will shape the final product of this research. The first five of these guidelines encompass 'general dementia guidelines', providing advice on overarching principles for the living environment of individuals with dementia. These principles address intangible aspects such as 'easy orientation' and 'facilitating engagement', focusing on creating a supportive atmosphere. The remaining seven guidelines offer specific architectural recommendations that are directly visible in the design. Examples include 'inviting walkways', which involve placing benches strategically for an immediate inviting feel, or 'simple floor plans'. These guidelines focus on concrete, actionable steps rather than abstract principles. The comprehensive design guidelines for architectural dementia design are displayed on *image 24*.

Now, 12 design guidelines are established; none of which are specifically related to art. The examined case studies in Chapter 7 reveal the architectural qualities that contribute to effecte dementia design:

1) integrating daily functions
2) fostering a sense of community
3) designing an appealing outdoor space
4) empowering autonomy

However, the Rosa Spier House adds several qualities to facilitate the integration art (based therapies) into architecture:

1) a focus on art and creativity
2) using a central cultural hub
3) providing flexible spaces for different (creative) groups
4) featuring a prominent placement of artworks

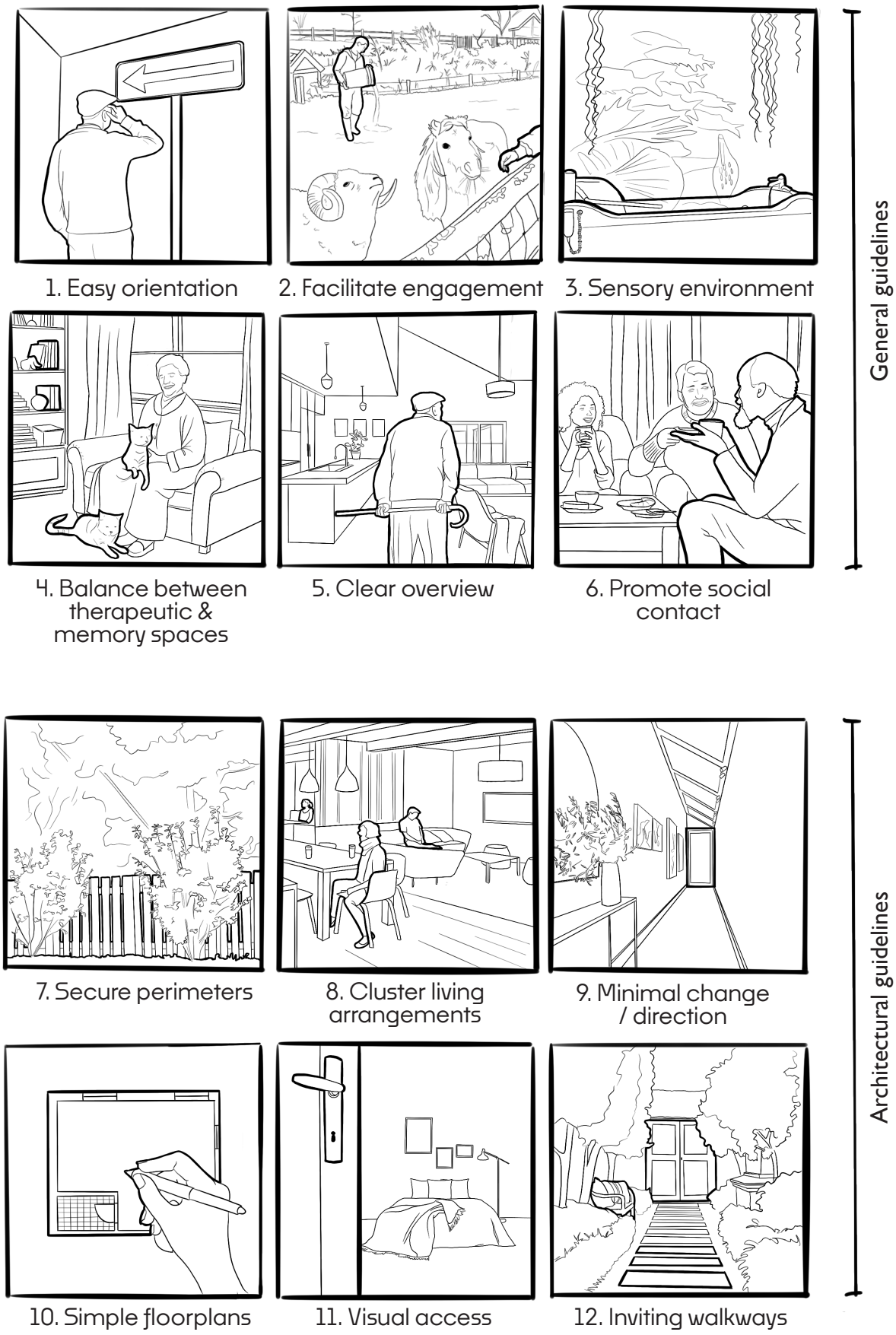


Image 24: General and architectual guidelines based on fieldwork, interviews and researched literature. Made by author (2024).

Together, the case studies introduce 8 additional guidelines, with 4 guidelines specifically applied to art, as illustrated in *image 26*.

Thus far, I have formulated 18 design guidelines to support the design of art-inclusive architecture for dementia. However, image 13 in Chapter 5 (page 41) offers insights into the various art forms studied in this research and their impacts on the well-being of individuals with dementia. The table presents evidence suggesting which art forms could have the most significant effect on their well-being, specifically: cooking and gardening, visual arts, music, and activity therapy. To ensure the accommodation of these specific art forms within architecture, the guidelines are revisited and tested against these top 4 art forms, resulting in the addition of 3 final extra guidelines (*image 25*):

1) good acoustics
(for an optimal music experience)
2) An accessible and safe kitchen
(for cooking therapy)
3) Ample daylight access
(for, among other things,
enhancing visual arts)

The remaining requirements for these art forms are already incorporated into the previously stated guidelines. Now we have a total of **23 guidelines** for incorporating art-based therapies into the architecture for people suffering from dementia.

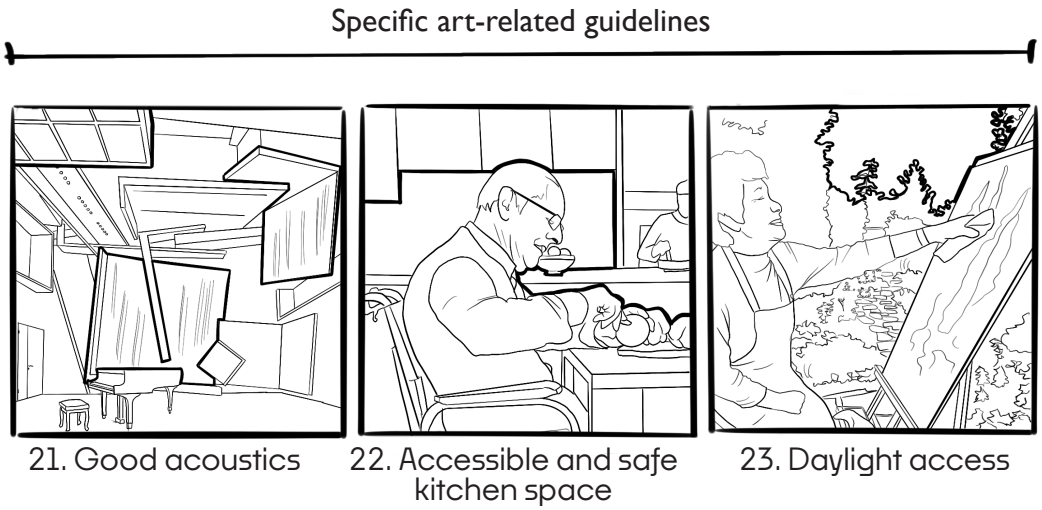
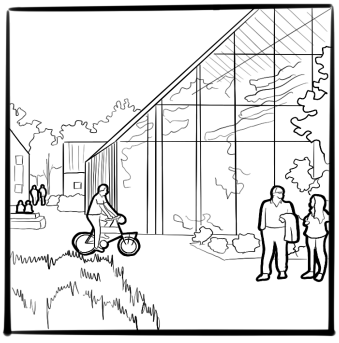


Image 25: Specific art-related guidelines based on the outcomes of Chapter 5. Made by author (2024).

13. Integrate daily functions

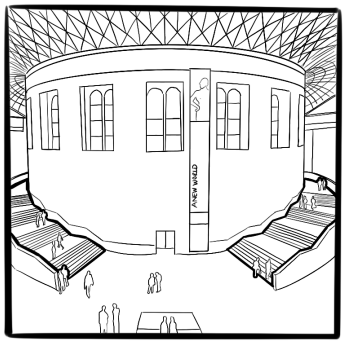


14. Fostering a sense of community

15. Design appealing outdoor space

16. Empower autonomy

17. Focus on art and creativity



18. Create a central (cultural) hub

19. Provide flexible spaces

20. Feature prominent placement of artworks

Additional art-related guidelines

Image 26: Additional art-related guidelines based on case-studies. Made by author (2024).

9
CONCLUSIONS & DESIGN TOOLS

Chapter 9
CONCLUSIONS, DISCUSSION & REFLECTION

Discussion

1. Dimensions of Well-Being
The categorization of well-being into emotional, psychological, physical, and social dimensions provides a framework for understanding the various needs of individuals with dementia. A deeper understanding of what well-being truly means for the patients themselves requires, however, (more) direct one-on-one interviews. Unfortunately, due to the short duration of this project and the communication challenges posed by the disease, obtaining insights directly from the source proved challenging. Therefore, the information is primarily drawn from literature and interviews with experts, caregivers, and founders who provide valuable perspectives on what well-being means in their lives (refer to additional booklet for full interviews). The limitations in directly accessing the perspectives of individuals with dementia highlight the difficulties and sensitivity of the subject, stressing the importance of more in-depth research in future studies.

The well-being framework provided a solid basis for comparing the two residential facilities: the Rosa Spier House and Alzheimer's Village Dax. The table on page 58/59 offers a complete comparison of various design concepts and their effect on the different fingers of dementia well-being, like the focus on autonomy, nature, and community. To gain a more nuanced understanding, additional projects could be incorporated into the table, both with and without the implementation of art. This inclusion will show the clear (specific) impact of integrating art into architecture. Unfortunately, there were few to no other projects found that were as focused on art and dementia as the Rosa Spier House.

2. Art Practices and Well-Being
This study explores various art forms, including music, visual arts, cooking, gardening, activity therapy, drama, and poetry, showing the positive impacts these practices can have on individuals with dementia. There are, however, even more examples of art practices that have proven to be beneficial to the well-being of individuals suffering from dementia (Beard, 2011). It is necessary to conduct additional in-depth research on alternative art therapies to obtain a comprehensive understanding of the impact of art on dementia. This study accentuates the potential of art not only to enhance cognitive functions but also to lessen behavioural issues, potentially leading to reduced care indications (Graff et al., 2006) and, consequently, lower healthcare costs. The integration of art into daily activities aligns with the person-centred care approach covered in this study (Hendriks, 2022 (p.11); Vernooij-Dassen, 2007 (p.35); Moos et al., 2006 (p.39); Swinnen, 2016 (p.40)), prioritizing the needs and preferences of each individual.

However, it is crucial to note that the success of incorporating art practices heavily depends on well-educated and proactive care staff (Vernooij-Dassen, 2007). They bear the responsibility of unlocking the potential for well-being, like a locksmith (Brooker et al., 2007 (p.40)). Dementia remains a disease that manifests differently in each individual, emphasizing the importance of tailored approaches in care and art interventions to contribute to an improved overall quality of life.

3. Final Design Guidelines

The research of the 'Gentle Care' concept (Jones, 1999; Del Nord, 2003; Small Care Farm) reveals the critical role of designing the physical environment to compensate for functional deficits and support remaining functions for people suffering from dementia. The outcome of this study results in 23 comprehensive design guidelines for dementia-friendly architecture, featuring specific recommendations for incorporating art practices. These guidelines aim to establish an environment tailored to the unique needs of individuals with dementia, subdivided into general guidelines, architectural guidelines, and additional art-related guidelines. The latter are derived from the conclusions drawn in image 21, which compares two significant case studies. Finally, the guidelines are tested one last time against the art forms identified as most effective to promote well-being in Chapter 5 (*image 12*), resulting in three final guidelines. The recognition of factors such as acoustics, accessible kitchens, and ample daylight access demonstrates a nuanced understanding of the unique needs associated with different art forms. However, it is essential to note that the investigation of additional art forms may lead to the formulation of extra guidelines. These additional guidelines will not contradict the existing ones but serve as complementary guidelines.

While these guidelines collectively contribute to prioritizing individual well-being in the built environment, their application does not guarantee a perfect design. They can be applied individually to enhance dementia architecture but cannot compensate for poorly designed architecture (Marquardt, 2011). Therefore, they should be integrated into the design process from the start to ensure their effective implementation.

Reflection

At the start of this research, together with two fellow students, I spent a week at two dementia care facilities including a small-scale care farm and a large-scale closed facility. During the weeks in advance, we had prepared various interviews and workshops. The extent to which we could conduct interviews and workshops with the residents was, however, a small set-back. We were advised to let the day unfold naturally, complicating the research of well-being for individuals with dementia, but highlighting the difficulties and sensitivity of the subject. Practical experience taught us the differences of dementia experiences among different individuals, where what one person perceives as relaxing might be bothersome to another. In conducting comprehensive research, hands-on experience proved essential, but the development of workshops and interviews is most effective when it is collaboratively devised on-site with the staff, ensuring a tailored approach for each individual. For future research, I would aim to speak more directly with individuals with dementia to obtain a detailed understanding of what well-being means to them.

A disappointment was the setup and experience of the large-scale closed facility, contrasting significantly with the small care farm, where we were pleasantly surprised with the care staff, overall vibe, and vision of the facility. It became clear how urgent research, improvements and interventions are in this specific care domain are. We witnessed many residents in distress or displaying apathetic traits. During my literature research, I was positively impressed by the variety of initiatives already in place across the world regarding the application of art in the lives of people with dementia. While my research strongly indicates that numerous therapies and practices can enhance the lives of people living with dementia, if one is well-informed and willing to make the effort, almost no similar or equal practice was applied at the large closed facility we visited.

Ultimately, in healthcare, financial considerations play a significant role. If I can demonstrate that art genuinely contributes to improved cognitive abilities and therefore reduced challenging behaviour, this could potentially lower the level of care indications. Individuals might be able to stay at home longer, reducing government expenses, and require fewer sedatives or wheelchairs, cutting costs. If it could be demonstrated that applying art in the lives of people with dementia contributes to lower healthcare costs, a real change in the current treatment of dementia and the Dutch healthcare system would truly commence. However, this would require additional research, invested time and resources, which unfortunately was not possible during this graduation project, but offer an intriguing perspective for future research.

Conclusion

In conclusion, this study significantly contributes to understanding how a variety of art practices and architectural design can positively influence the well-being of individuals with dementia. The integration of art, whether through music, visual arts, cooking and gardening, activity therapy or poetry, each to a varying extent but all contributing according to image 12 (page 41), proves to have the potential to enhance cognitive abilities, reduce behavioural challenges and promote overall happiness (Killick & Allan, 1999; Beard, 2011; Chauhan, 2020; Gerdner, 2005; Newell-Walker, 2002; Gigliotti et al., 2019; Murroni et al., 2001; Detweiler et al., 2021; Pedrinolla et al., 2021; Fizsimmons et al., 2003; Coaten, 2001; King et al., 1997; Nystrom et al., 2005; Duignan et al., 2009; Basting, 2011; Moos et al., 2006; Killick, 2018; Brooker et al., 2017; Swinnen, 2016).

The comparison of two case studies (the Rosa Spier House and Alzheimer's Village Dax) proves the beneficial effect on well-being of implementing art in dementia architecture (*image 21*). The research highlights the necessity of a personalized and inclusive approach to care, acknowledging the uniqueness of each individual's experiences and preferences. The presence of a well-educated and practiced care staff also emerges as a crucial component in enhancing dementia care (Vernooij-Dassen, 2007).

The exploration of different art forms, combined with fieldwork, observations, and case studies, results in 23 final guidelines, visible on the following page (image 23). These design guidelines provide practical insights for creating environments that prioritize the well-being of people living with dementia, addressing elements such as safety, engagement, and autonomy, in alignment with the principles of person-centred care (Hendriks, 2022 (p.11); Vernooij-Dassen, 2007 (p.35); Moos et al., 2006 (p.39); Swinnen, 2016 (p.40)) and the 'Gentle Care' concept (Jones, 1999; Del Nord, 2003; Small Care Farm).

A growing segment of the Dutch population will either personally experience dementia or encounter it within their surroundings. Despite the increasing focus on the disease and improvements in care, there is still much progress to be made. The results of this research answer the main question 'If art has the capacity to promote well-being among people sufering from dementia, what does this mean for architecture?, revealing that implementing art has great potential for further developments in the architecture for dementia well-being and reducing the burden on the care system (Graff et al., 2006), presenting a promising vision for the future of dementia care. The final 23 guidelines are applicable either individually or in combination, serving as both guidance and practical tools for upcoming dementia initiatives dedicated to improving the well-being of individuals affected by dementia.

1. Easy orientation

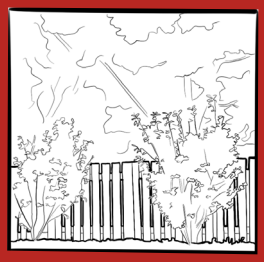
2. Facilitate engagement

3. Sensory environment

4. Balance between therapeutic & memory spaces

5. Clear overview

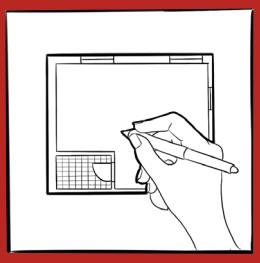
6. Promote social contact



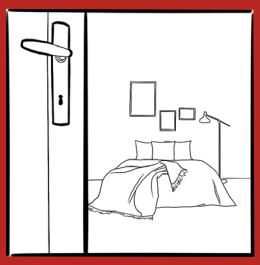
7. Secure perimeters

8. Cluster living arrangements

9. Minimal change / direction

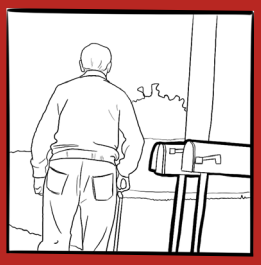


10. Simple floorplans

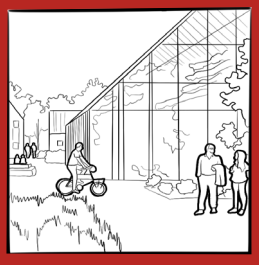


11. Visual access

12. Inviting walkways



13. Integrate daily functions

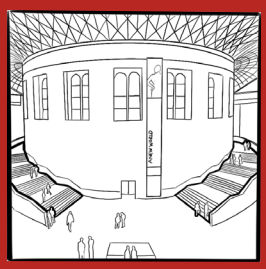


14. Fostering a sense of community

15. Design appealing outdoor space

16. Empower autonomy

17. Focus on art and creativity



18. Create a central (cultural) hub

19. Provide flexible spaces

20. Feature prominent placement of artworks

21. Good acoustics

22. Accessible and safe kitchen space

23. Daylight access

10
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Appendix

Interviews

For our dementia research, we will conduct various interviews. As it may not always be possible to directly communicate with residents/patients, our focus will extend to individuals in their surroundings: caregivers, family members, other visitors and even the founder of Reigershoeve.

While we have prepared a set of questions for these interviews, our approach involves active listening and building on the responses received during the conversation. The detailed interviews can be found later in the transcript.

General
1. Who are you?
2. What is your role within Reigershoeve?
3. Describe Reigershoeve / Humanitas in 3 words.
4. How do you perceive the balance between protecting and granting freedom to residents? (How far do you go for their safety?)
5. Is it an open or closed residence?

Concept of Residence
1. How long do people live here? Can they stay until the end of their lives?
2. How is the decision made about who can or cannot live there (indication/ application/lottery)?
3. What stage of dementia do people have here? Do people with different stages live together?
4. Can people live together with a partner?

Residents' Care
1. From what point do you see that elderly individuals with dementia need more intensive care? What things can they still do independently?
2. What are your tasks? What does your day look like?
3. Are there situations where both members of a couple live in the same care institution? Does this happen, and what, according to you, are the pros and cons?
4. Is it better for elderly individuals with dementia to live at home for as long as possible or better to move to a care institution early to acclimate there?
5. How can you, as an official caregiver, collaborate with a family caregiver?

Design of Living Environment
1. How do you think this architectural design differs from other care institutions?
2. Are there special design elements added to this location to contribute to alleviating the symptoms?
3. Was there a special reason behind combining a residence with a farm?
4. What is the advantage of small-scale living?
5. How do you think the living environment contributes to the well-being of the residents?
6. Was the location chosen for its living environment, or is the living environment a part of the design?
7. What makes a room unique for someone with dementia (design elements)?
8. Are there specific times of the day when issues may arise? Does the living environment play a role in this?
9. Are there design elements missing at this location that could contribute to the daily routine of residents (easier routes, room shapes, etc.)?

Daily Life of Residents

1. In what ways are the residents stimulated/kept active?
2. How much do these people do themselves? What do they need help with?
3. Can visitors always come by or are there specific visiting hours?

Visitors (Family Members and Others)

1. Do you feel comfortable visiting your family members here?
2. If yes/no, what contributes to this feeling?
3. What was the decision-making process to consider future housing options?
4. Why was Reigershoeve chosen?
5. Were you looking for options that were not available (in the neighborhood)? Is the resident originally from this region?

Partner

1. What is the impact on your life of having a partner with dementia? What do you notice and what changed the most?
2. What are the challenges of living with someone with dementia?
3. Do you ever need distance from your partner with dementia? How much distance do you need?
4. Would you still want to live with your partner in later stages of dementia?
5. Why could that be possible/not possible? What would it look like?
6. Do you think it is beneficial for the well-being of your partner to continue living together?

Extra case studies

Case study 3: Art School Pardubice / Perspektiv
The primary art school serves as a cultural hub to educate children and provide a space for the community to engage with the cultural environment. Functioning as a local community center, the building is designed with an all-glass ground floor to foster an open and flexible environment, seamlessly connecting interior and exterior spaces. The emphasis on accessibility from all sides is complemented by clearly defined public areas.

The elementary art school is located on the second floor, allowing it to benefit from the surrounding life and function as a community space. The ground floor is easily rentable for various events and functions independently from the rest of the art school. By passers can take a look at the events taking place through the glass façade. One of the rehearsal halls offers the option of opening onto the garden, featuring an outdoor auditorium, making the boundary between inside and outside practically non-existent. The space in front of the café is intentionally designed as a calm zone, where the garden naturally blends with the practicality of the paved area of the square.

Although the school is not specifically designed for dementia, it still meets **3/4 fingers**. The building is focused on education and 'maintaining activity and purpose' (Psychological Well-Being). Individuals with dementia could experience agency and purpose in such a building if it were used for day activities. The architecture promotes Social Well-Being, as the design is conceived as a gathering place where people can engage with the cultural environment and each other. Lastly, the design targets Emotional Well-Being through features like an outdoor auditorium where people can enjoy music, which can have a significant impact on individuals with dementia. The design offers interesting qualities that align well with the principles discussed in Chapter 6, such as allowing for visual access (2) through the extensive use of glass. Additionally, the ground floor serves a public function while classes are conducted above, facilitating relaxation (6). This creates a serene environment with clear perimeters while allowing different groups to benefit from each other.

Image 19: Plan of Art School Pardubice / Perspektiv (https://www.prrspektiv.cz).

Uniting education, culture and community




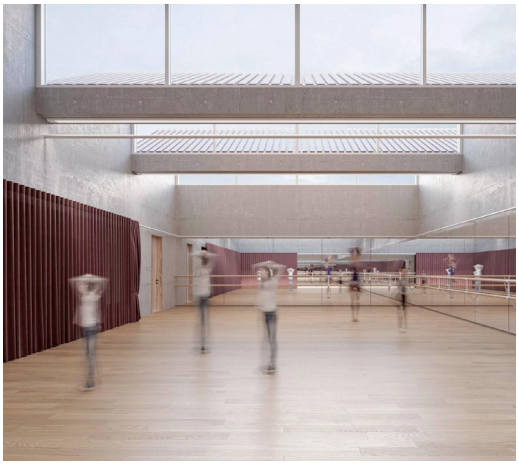
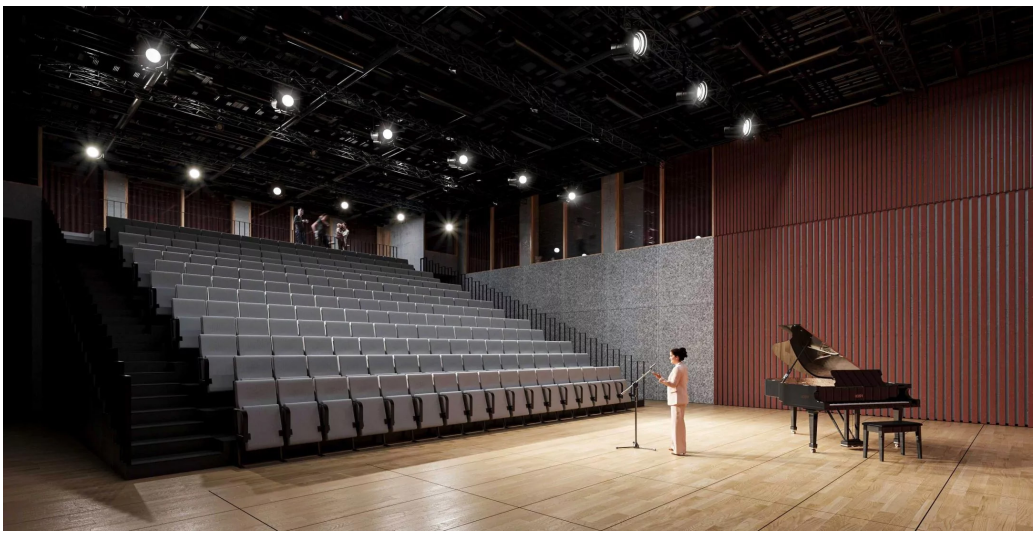

Image 19: Art School Pardubice / Perspektiv (https://www.prrspektiv.cz).

Case study 4: John Morden (Daycare) Centre / Mae Architects

MAE Architects designed a day-care and health facility within Morden College, London, addressing the prevalent issues of loneliness among the elderly. Drawing inspiration from Morden College's historical structures, the building's façade features brick, but the structure consists of a CLT frame, with an exposed internal structure. The goal of the building is to create a sense of community, acknowledging the increasing evidence of the value of social connections in old age and the necessity of preventing loneliness.

Besides medical facilities that include doctor and physiotherapy rooms, the facility provides various social and activity spaces, including a café, events hall, and an arts and crafts studio. Referencing historic structures, like the Morden College cloister, the design incorporates a generous passageway leading through diverse social spaces, with seating niches overlooking a courtyard. The building is designed around a colonnade that opens to a café, incorporating natural light and warm toned timber walls and ceilings. The hall and workshop spaces on either side of the café facilitate range of activities, from fitness sessions to art classes and sports event screenings. Additional spaces include a snug, winter garden, patio terrace, and a theater. The building's flexibility encourages residents to personalize the space and set up their own programs, whether it's art classes or race nights, as highlighted by Alex Ely (founding director at Mae Architects).

The design aligns with **4/4 fingers** of the well-being model. Various facilities and activities, such as a theater and sports event screenings, contribute to enjoyment and pleasure, promoting Emotional Well-Being. Art classes and the stimulation of 'purpose and achieving goals' contribute to Psychological Well-Being. Additionally, the design fosters Physical Well-Being through fitness sessions and physiotherapy rooms, although the building doesn't necessarily promote movement within the building or around the perimeters like the other case studies do. Almost all functions contribute to Social Well-Being, as the design is specifically crafted to bring people with dementia together by means of daily activities to combat loneliness among elderly.

The design aligns with all recommendations from Chapter 6, such as 'allowing visual acces' (2), through the use of a long corridor solely made out of glass. The building is designed to facilitate engagement and interaction (5) and achieves a seamless integration between therapeutic and memory spaces (6) by creating a building that offers spaces where people can set up their own programs.

Life-long art: unique integration of living, care and art

Image 20: Art School Pardubice / Perspektiv (https://www.prrspektiv.cz).