Learning to design spaces for living and well-being in care homes
17 study cases from Asturias and Gipuzkoa in Spain

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Abstract

This research is part of the 'Como en Casa' ('Home from Home') project, operating within the framework of the State Strategy for Deinstitutionalization by the Spanish Ministry of Social Rights and Agenda 2030. This initiative delves into multiple aspects of the deinstitutionalization process, imperative for the progressive integration of the Person-Centred Care model within nursing homes across Spain, where one of the key aspects to be transformed is the environment, aiming to create home-like atmospheres. The research commenced with a detailed evaluation of each of the 17 selected case studies, encompassing various buildings and indoor spaces. This phase utilised an environmental assessment tool designed for dementia-friendly environments tailored to the Spanish context, identifying common design elements. Primarily, this evaluation revealed obstacles in the design of spaces intended to enhance the well-being of older residents while also highlighting innovative practices that serve as valuable exemplars for knowledge transfer to other care facilities. The second phase involved developing specific training modules for the driving group within each participating facility as they embarked on their own 'Home from Home' journey. This training included essential principles of interior design and recommendations to improve spatial organisation and decorative features within nursing homes. Finally, the research documented the adaptations made following this training and assessed the outcomes achieved in each of the centres. Overall, the research highlights a pronounced interest in environmental suitability among care professionals, families, and residents. However, it also identified a general lack of design and decoration culture and a confusion between decoration and handicrafts. The best results were not directly linked to a larger budget or having a designer on the team but were found in teams with individuals who have a particular interest in decoration. The results are presented in a magazine format to be shared as a friendly and practical resource in care homes.

1. Introduction: Spanish framework for the deinstitutionalization strategy of care homes

The '*Como en Casa*' project (Matia Fundazioa & Matia Instituto, 2023) is one of the 20 pilot initiatives within the framework of the State Strategy for Deinstitutionalization, launched by the Spanish Ministry of Social Rights and Agenda 2030. The shared objective across all the projects is to drive the transformation of community services and care model, placing at the core the rights and individual life project of each person. In Spain, there are currently more than 5,500 care homes for older people, housing approximately 390,000 individuals. This figure does not include other types of facilities or resources, such as day-care centres, but focuses on the major residential alternative at the national model (Abellán García et al., 2021). Specifically, for public care homes for older people, 27.5% have fewer than 25 places, and 19% exceed 100 places (Sancho Castiello & Martínez Rodríguez, 2020).

Historically, the design of these facilities and spaces were conceived with an institutional and depersonalized character, significantly influencing isolation and segregation from the community. This factor is not only due to the location and connectivity, but also because of the image and characteristics of the environments and spaces, making these places less pleasant and low flexible for spending time with family members or friends (Cambra Rufino, Pozo Menéndez & Bentué Gómez, 2023; Sancho et al., 2002).

In this context, along with the recent publication in Spain of the 'Agreement on Common Accreditation and Quality Criteria for Centres and services of the System for Autonomy and Care for Dependency (SAAD)' (Spanish Ministry of Social Rights and Agenda 2030, 2022), one of the major axes within the research of the 'Como en Casa' project is precisely the environments and physical infrastructures, that are required to evolved into small scale and home-like spaces. Various parameters have been analysed and assessed, in addition to supporting the core teams in developing skills to work on environmental transformations independently, regardless of availability of a budget for a more extensive architectural intervention.

When discussing environmental design, a high investment for an interior or architectural project often come to mind. Nevertheless, to initiate the transformation of spaces into more homely environments in care homes is not necessarily related with a large-scale refurbishment project. The focus in the daily living in care homes is set on time efficiency, safety and hygienic measures, while forgetting about creating a home-like environment to live. Thus, the aim of the project was to transfer specific knowledge about interior design and dementia-friendly recommendations adapted to a general audience, encouraging the participation of residents, caregivers, nurses, relatives, cleaning and maintenance technicians, and the rest of the staff. To

meet this objective, a participatory dynamic was designed to accompany core teams in the transformation of the environmental design and results were collected and evaluated during a period of 7 months (June – December 2023).

1.1. Selection of the study cases

The 17 study cases were selected according to several criteria in each of the two geographical contexts: Gipuzkoa in Basque Country and Principado de Asturias. In the case of the 5 centres of Gipuzkoa, they are all centres from Matia Fundazioa, a non-profit institution in the care sector for older people in Basque Country. In many of these centres, there was the possibility of transforming living rooms of existing living units to improve convivial spaces and promoting autonomy and independence in a home-like environment. In the case of the 12 centres of Asturias region, the first requirement was to have a representative share of both private and public care homes (50% each one), also a variety on the scale and location of the centres (big and small scale, rural and urban ones) and an engaged core team that would be engaged during the development of the project. Previous selection was also discussed and validated by the teams of the Department of Social Rights and Welfare of the General Management Directorate of Planning, Organization and Social Change Adaptation of the Principado de Asturias, as well as the Autonomous Agency of Residential Facilities for Older People in Asturias.
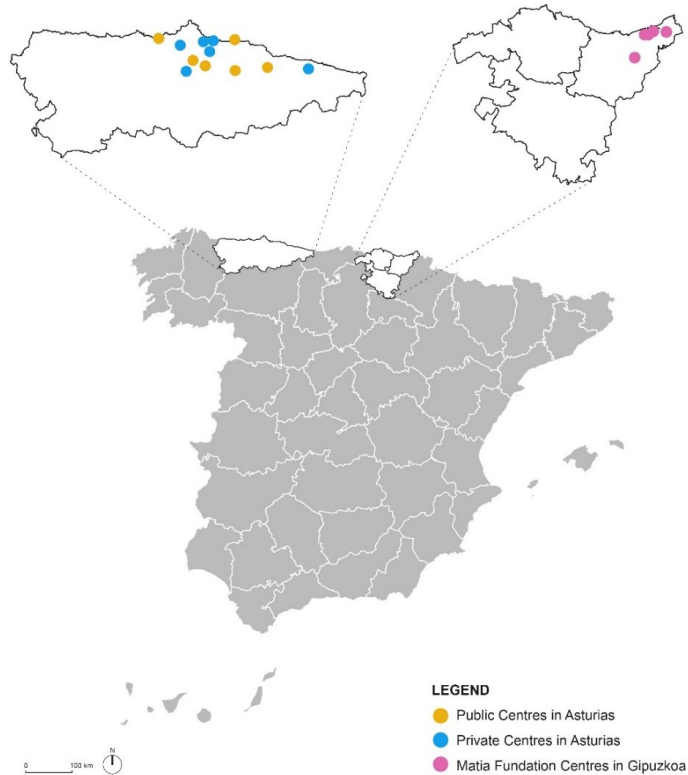
Figure 3. Map with the selected projects in Asturias and Gipuzkoa. Source: own elaboration (2024) from https://www.comoencasa.eus/es/localizaciones.

1.2. Participatory process for interior design

Regarding participatory processes for the analysis, evaluation of environments, and subsequent development of architectural or design proposals, Mitchell and Burton's research remains a reference when working with people with dementia through interviews and accompanied walks (Mitchell & Burton, 2006, 2010; Mitchell et al., 2004). Another influential work on participation methodology for co-creating interior design projects, therapeutic gardens, or public spaces outlines the dynamics developed in a workshop tailored to the profiles of people with dementia, caregivers and staff (Halsall & MacDonalds, 2017).

Furthermore, the participation tool Place Standard, developed by the Scottish Government in collaboration with other Scottish entities, stands out. Since 2015, it has been validated in various case studies as a methodology for the analysis and diagnosis of the built environment. It has been adapted internationally and recognized by the World Health Organization as a

flexible tool for identifying strategic lines of work to improve urban environments from a public health perspective. The tool considers Sustainable Development Goals in its conceptualization, facilitating a dialogue with local stakeholders, considering factors influencing urban environment quality (Scottish Government, 2022). While initially developed in the context of public health promotion in public spaces the methodology, based on qualitative analysis using a radial diagram, enables the development of participatory dynamics addressing other spatial design-related issues (Cambra Rufino, Pozo Menéndez & Bentué Gómez, 2022).

In conclusion, this is a research field still underdeveloped in Spain, where the 'Home from Home' project team not only aimed to define design recommendations and decoration criteria for the implementation of convivial units and the Person-Centred Care model. They also strived to identify existing barriers to implementation, requiring a cultural shift in public tenders and the construction sector, specific knowledge from architecture and interior design teams, and a recognition of the value of the architecture profession and trades.

2. Methodology

The methodology presented in this study focuses on one of the final deliverables of the project: the 'Home from Home' magazine. This magazine is a result of the work package titled 'Environments for a Meaningful Life,' led by an architect. Following a review of existing literature and considering the challenges faced by each of the 17 centres regarding physical environments, there was a need to develop a tool that enables project participants to improve their physical settings, irrespective of the budget available for refurbishment.

The state-of-the-art and literature review was used to construct an evaluation checklist comprising both quantitative and qualitative data from on-site visits. The first step involved developing a detailed evaluation of each case study. The 17 centres were assessed by teams of three or four people to ensure multiple evaluations of the same space, allowing for a comprehensive review of the indicators in future research. This evaluation tool for care home environments included several items related to home-like environments, universal accessibility parameters, and dementia-friendly recommendations. These in-depth visits provided a global and integral perspective on the state of physical environments in care homes.

The environmental diagnosis was further complemented with qualitative assessments conducted by other team members, primarily psychologists, sociologists, and social workers. These assessments focused on quality of life, feelings of loneliness, and well-being scales, providing a holistic understanding of the impact of physical environments on residents' lives.

After the systematic evaluation of the 17 centres, the architecture team developed two different scopes to align expectations with each stakeholder and optimise resources for major investments. On one hand, there was an urgent need to adapt built infrastructure into small-scale units and normalised, home-like living environments across the whole country. However, this requirement implies not only larger budgets, but also a clear strategy for scaling up and alignment with organisational management and coordination. Moreover, a major refurbishment of the built environment requires a complex planning process and a review of basic parameters such as number of rooms, individual versus double rooms, accessibility in private bathrooms or the reorganization of internal circulations. In this sense, only 9 of the 17 participating in the project were planning to make such an investment. Furthermore, only 4 of these investments have been executed since the project started in 2022, with 3 by Matia Fundazioa in Gipuzkoa and 1 public centre in Principado de Asturias.

Despite this desirable transformation of the entire built environment, many general aspects of indoor decoration and design that can also have a major impact with a small investment. These efforts help to raise awareness about the importance of the physical environment for the well-being of care home residents. To this end, a toolkit was designed to improve the environments in care homes: the 'Home from Home' magazine and an environmental evaluation radial diagram for a friendly qualitative analysis to facilitate discussions around potential changes for a given space. Both materials were designed by incorporating various elements observed during the visits, as well as from the architect's expertise about indoor design and dementia-friendly environments, and were adapted into a comprehensive and accessible language for a general audience.

This first version of the 'Home from Home' magazine and the radial diagram were presented in different sessions. In this context, there was a difference between the two territories. For the 12 centres in Principado de Asturias, a training session was organized for the accompaniment teams that were going to develop a whole 'Home from Home' process in each centre. These teams were primarily composed of sociologists, social workers and psychologists, professionals that are not usually familiarized with indoor design. In all the 17 centres a 'core team' was constituted to be part of this accompaniment process, consisting of a mix group of caregivers, employees, residents and relatives. For the 5 centres from Matia Foundation in Gipuzkoa, specific training or sensibilization sessions were organized directly with the core teams by the leading architect.

The training sessions lasted an average of 1,5 - 2 hours, and a first version of the 'Home from Home' magazine was distributed to be shared beyond the core teams.
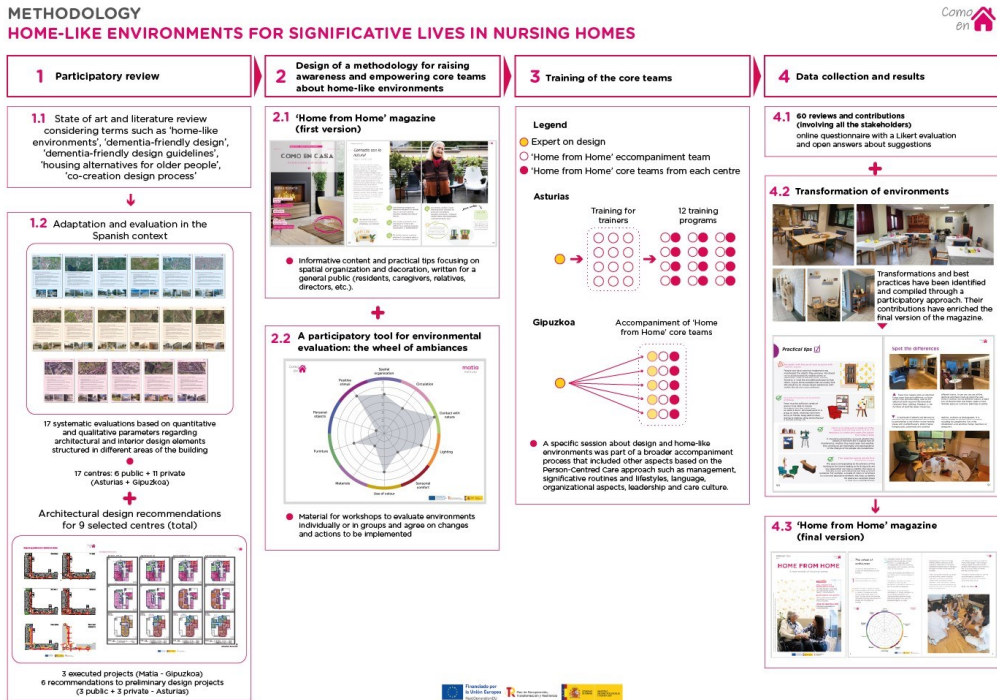

Figure 2. 'Home from Home' methodology for raising awareness on environmental design in care homes and its impact on well-being. Source: own elaboration (2024).

2.1. 'Home from Home' magazine

The main contents were structured in a magazine format, innovating in the way that evidence-based knowledge is shared through guidelines and technical materials. A first version with key information was presented to the core groups in order to have a common understanding of indoor design, such as lightning, colour or spatial organization.

The content was adapted to a general audience, with the aim to encourage the participation of residents, family members, caregivers, assistants, nurses and maintenance technicians, as well as the rest of the staff. This first version of the magazine was openly shared with all the core teams and centres participating in the project. The first version of the magazine has undergone review and collaboration from all participants and various experts. It has also been evaluated through a questionnaire provided on Google Forms to collect input from individuals who did

not directly participate in the steering groups or accessed the magazine through other channels.
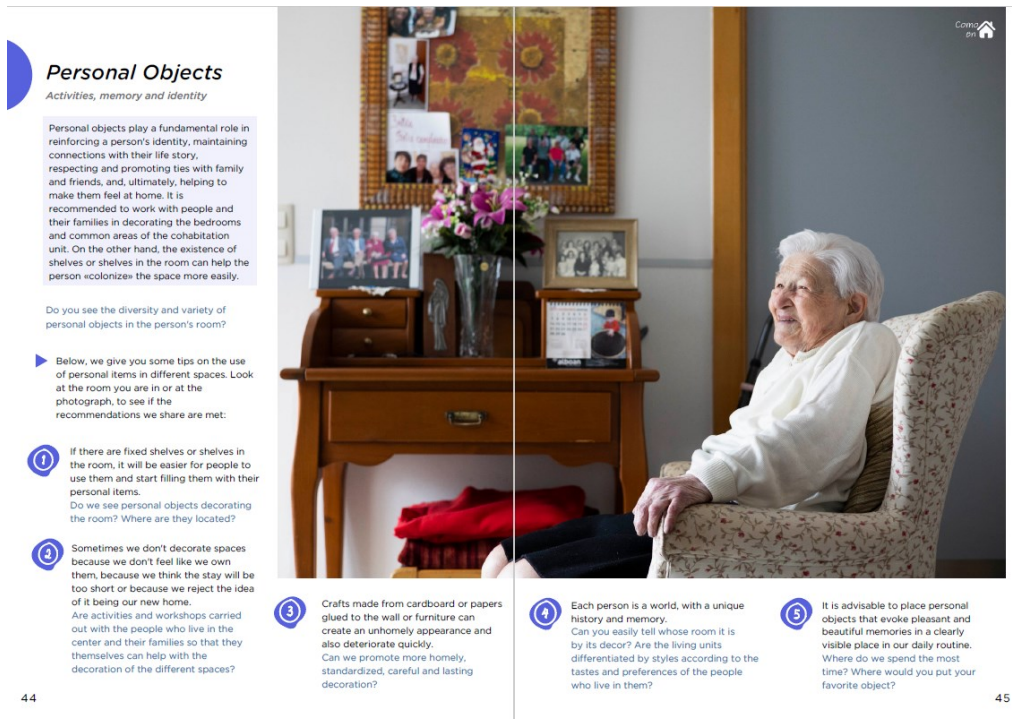
Figure 3. 'Home from Home' magazine. Personal Objects section. Source: own elaboration (2024). Available at: https://www.comoencasa.eus/es/home-home-journal.
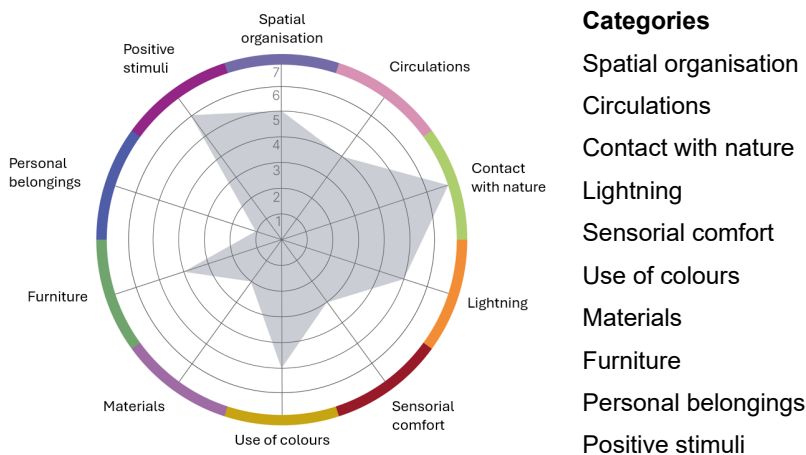
2.2. A workshop for environmental assessment with the radial diagram

In order to get a practical approach to the evaluation of environmental aspects, a workshop for the core teams was delivered once the introductory content was shared. The participating group could be divided into smaller spaces when major changes were possible to be made in different spaces of the centre. Some of the key spaces that were selected consisted on the main entrance (both indoor and outdoor), the living room, the dining room, terraces or other outdoor spaces.

For the first version of the magazine and radial diagram eight main categories were chosen to focus on when analysing and designing changes. Each one was supposed to be evaluated in a qualitative and individual manner, but evidence-based recommendations could also be found along the magazine content. Significant recommendations on the eight categories were provided to support the teams to observe spaces more critically and make more informed

decisions. The visual results were individual perspectives that could be later on contrasted and discussed with the rest of the group in order to achieve agreements on which steps should be taken. After the whole process of review of the content and collecting suggestions by all the stakeholders, two additional categories were introduced, consolidating the final items list that is presented in Figure 4.

Categories

Spatial organisation

Circulations

Contact with nature

Lightning

Sensorial comfort

Use of colours

Materials

Furniture

Personal belongings

Positive stimuli

Figure 4. Radial diagram for environmental evaluation. Source: own elaboration (2024) adapted from Scottish Government (2022).

2.3. Training process

The training process was adapted to each local context. In the case of Asturias core teams, a training for trainers was organized to then adapt the training materials to each core team's itinerary. In the case of Gipuzkoa core teams, the training was directly organized with them and involved further sessions to develop design details to improve specific areas, such as terraces or living rooms.

The structure of a training session consisted of a first activity of sharing feelings and images of a home-like environment and elements that could remind that feeling. After this first activity, the content of the magazine was shared to understand the challenges and key tips to improve environments. Once the explanation was finished, the group divided into smaller ones corresponding to different spaces and evaluate the different aspects using the radial diagram for environmental assessment. Finally, the group discussed the results and agreed actions and steps to transform the environments and promote the participation of people living in the care home as well as relatives and communities.

Table 1. Number of participants of core teams in the specific session dedicated to environmental design.

No. participants	% people living in the care home	% workers and caregivers	% relatives	% volunteers
252	19	68	8	1

In the overall context, the research underscored a pronounced interest on how to adapt indoor environments and work on home-like experiences among care professionals, families, and people living in these facilities. On the other hand, a general lack of design and decoration culture and a confusion between decoration and handicrafts was identified. The best results were not directly connected to a larger budget or having a designer in the team but have been identified in teams where there are people with a particular interest in decoration. The results were also included in the format of a magazine, in order to be shared as a friendly and practical resource in care homes.

3. Results

The first version of the 'Home from Home' magazine, regarding both the contents as well as the proposed items, have been completed from all participants and various experts. To collect the different inputs a *Google Forms* questionnaire was created, in order to also collect input from individuals who did not directly participate in the core teams or accessed the magazine through other channels. This questionnaire received a total of 57 responses from participants in 7 different centres (58 % of the total), from which 19 respondents (33 % of the answers) were relatives of individuals living in one of the centres, and 38 were staff members (66 %). The results were as follows:
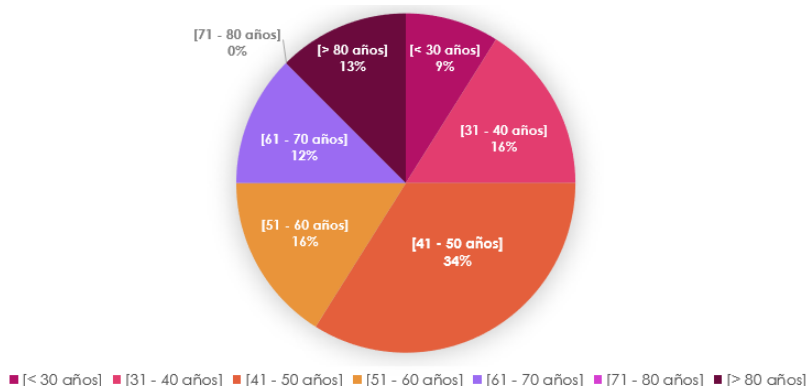
Figure 5. Percentage by age of participants in the questionnaire about the '*Como en Casa*' magazine. Source: own elaboration (2023).

A total of 95 % of respondents liked the magazine, and 96 % found the suggestions included to be useful. Of the 57 respondents, 89 % believed that some of the recommendations could be implemented, while 11 % did not. Regarding economic viability, 79 % people considered the proposals economically viable, compared to 7 % who believed otherwise. The information in the magazine was considered understandable and accessible by 96 % of respondents, except for people with severe visual impairments. Regarding the assessment of each section in the magazine, the topics that generated the most interest were 'personal belongings', 'contact with nature', 'lighting', 'use of colour', 'furniture' and 'sound environment'.

As for changes made or comments derived from following the magazine's recommendations, some individuals acknowledged being in the process of identifying needs, while 15 respondents explicitly expressed their negative in terms of have started to implement any transformation (26 %). Others reported valuable actions such as '*adding contact with nature to my work environment*', '*creating reading corners for relaxation*', '*garden area with birds for residents to be with family comfortably*', '*reorganization of living rooms and other spaces*', '*personalizing rooms with personal items*', '*using natural light*', '*considering changing the orientation of the bed for more space*', and '*creating new themed spaces for different activities*'. Participants emphasized the importance of clear circulations, appropriate lighting, calm decorative colour tones, and well-ventilated environments. Well-maintained outdoor spaces and the natural surroundings were also acknowledged for provide serenity while being surrounded by nature.

Out of all the responses received, only one mentioned the incorporation of specific information about lamps in the personal items section. It was also suggested that the top three priorities should address 'healthy and adequate nutrition', 'individualized attention', and the 'required staff quantity based on residents' needs'. Lastly, there was a proposal to meet by experience the day-to-day life of a centre of Matia Foundation.

Evidence and photographs collecting the transformations made have been provided by teams, allowing a visual representation of the different interventions carried out based on the agreements outlined in the roadmaps. These materials were included in the final version of the magazine as practical resources and ideas for inspiring other teams and centres that would like to transform their environments into friendly and welcoming homes.

In the overall context, the work with core teams highlighted the importance of raising awareness about home-like feeling in care homes and its association with specific environmental

parameters. The '*Home from Home'* itineraries develop along different sessions showed the importance of involving residents and their families, underlining the importance of a continuous support to maintain motivation and enthusiasm. Several challenges were encountered in the process, including a lack of participation from teams in the design or planning of the Person-Centred Care approach and the transformation of the built environments.

4. Conclusions

The deinstitutionalization process is often associated with the implementation of living units, which can sometimes suppose a barrier as it is perceived that nothing else can be done until the building accompanies the transformation of the model. Resistance to change and the need of resources are common issues that arise recurrently, even concerning furniture or small decorative details. Both in public and private centres, there is a tendency to attribute the lack of flexibility in designing more personalised spaces, offering more options for furniture or colour palettes based on comfort and aesthetic criteria rather than just secure and hygienic parameters, which should be assured. These challenges hightlighted the importance of coordinated efforts in addressing both physical space aspects and potential refurbishment interventions, as well as organization and coordination team management.

However, key aspects and practical actions have been implemented and represent illustrative examples that can inspire other teams to be inspired and foster openness to changes that can be made in the physical environment regardless of budget constraints. Additionally, an interesting learning point was comparing and contrasting similar refurbishment projects and how they were utilised and organised in terms of furniture, lightning or optimising spatial organization and circulations. From these experiences, it was also noteworthy how the same space and environmental features can be used differently depending on whether the teams are already familiar with the Person-Centred Care approach or not. The magazine also included such practices to raise awareness about this issue, recognising that it is essential not only to invest resources in refurbishment but also to advance cultural and social transformation.

Indeed, some interventions required no investment, only involving rearranging furniture to create differentiated spaces or engaging family and the community to bring additional resources that contribute to creating a homely-like space. Nevertheless, from a technical perspective, it is important to note that a general lack of design and decoration culture and a confusion between decoration and handicrafts has been identified. Also, contrary to the perception that such projects require significant investment and are designed for future generations,

people have been surprised to learn that the showcased images and examples depict existing spaces, many of which underwent very economical interventions.

Figure 6. Decoration is sometimes confused with crafts. Source: own elaboration (2023).

Overall, the 'Home from home' magazine was recognised as an interesting and innovative way to make interior design accessible to a wider audience. Working on environmental transformations motivated the core teams to pursue a common objective, which is typically more visually appealing than other changes, such as behaviours or daily care practices. In centres where a refurbishment project was developed, teams encountered additional challenges, such as the lack of a participatory process of co-design or real-time information about the progress of the whole building project management. Short preparation and implementation periods for architecture projects often hinder the inclusion of co-design sessions. Additionally, there is typically no allocation in the budget for such sessions, nor is there a culture or holding interdisciplinary meetings to discuss all project aspects with stakeholders, particularly older persons and caregivers. This participative and comprehensive approach aims to contribute to ongoing efforts in enhancing the well-being of residents in care settings by creating more personalised and homely environments. A noteworthy best practice is the importance of sharing real examples and practical cases to visualize the achievable results with specific interventions.

Finally, the 17 case studies revealed significant challenges in adapting existing built infrastructures to the Person-Centred Care model. Although some refurbishments have been carried out in living or dining rooms, other necessary adaptations are yet missing, such as the conversion from double to single rooms or modifying windows to allow views from an in-bed position, among others. Establishing interdisciplinary teams to optimise budgets and efforts for each refurbishment intervention, while considering the actual needs of the residents, is crucial. Facilitating this change also requires allocating time for participatory activities and observational

visits to understand the daily routines of care homes and how physical transformations can enhance residents' autonomy.

Acknowledgements

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Nine Principles for Flourishing (Environments):
Adopting Eudaemonia-informed Exploration to Curate Healthy Places and Meaningful Experiences by Design

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Abstract

This paper stems from research and practice conducted to interrogate how best to design for flourishing health and well-being in architecture, grounded in the neo-Aristotelian philosophical concept of eudaemonia (i.e., being one's best self) (Deci & Ryan, 2008). Initially explored as a theoretical construct (Mikus & Grant-Smith, 2021), Eudaemonic Design (ED) or designing for eudaemonia in the built environment, was explored through pragmatic empirical research (Mikus, 2023) to evaluate its application in spatial design practice. The ED approach seeks to foster eudaemonic well-being (Ryan & Deci, 2001) and optimal physical, mental, and social health for occupants of a space to be(come) their intrinsically motivated best selves. Recognized as foundational for promoting flourishing health and well-being in the built environment and in the humans who inhabit those spaces (Mikus & Grant-Smith, 2021), the research explored what an optimal, health-supportive home might look and feel like to support ageing in place, proposing design principles that could support that end goal. Balancing best practice and the need to adopt remote data collection, creative methods (e.g., cultural probes, Miro-facilitated workshops) were deployed virtually with older adults and designers to envision and design for their future older adult selves. This approach bridged the divide between designed-for and designed-by groups, precipitating mutual inspiration, transformative change, and meaningful eudaemonic well-being impact. Conducted with and for older adults, building on their lived experiences, this work aligns with Design for All or Inclusive Design theory (Mikus & Rieger, 2021), suggesting broader applicability for productive use with other demographics (DOGA, 2018; Light et al., 2015; Mikus, 2021). Through Research Through Co-design (Busciantella-Ricci & Scataglini, 2020), nine ED principles were developed, each forming a continuum between dimensions of a core theme, supporting adaptable eudaemonic environments that align with individual preferences and the contours of a eudaemonic life.

1. Introduction

Built environments shape us. The impact of physical spaces on occupant well-being has become widely recognized across public health (CDC, 2018) and psychology (Cooper, 2014; Lyubomirsky et al., 2005) research, especially since COVID-19 (Allen, 2020). The original definition of a healthy building was "a built environment that encourages positive well-being of human beings" (Ho et al., 2004, p. 59). However, designing built environments for flourishing well-being is a concept based more on theory than practice (Dovjak & Kukec, 2019). If buildings were designed to support our health *and well-being*, they could prevent sickness and even encourage or incentivize us to live eudaemonic lives—ones in which we experience optimal health and, in accordance with Aristotle's perspectives on eudaemonia, become our best selves.

Designers have an ethical and professional responsibility to explore new ways of designing home environments to contribute to flourishing health and well-being perspectives. Examining this approach in a relational and respectful way with and for the intended populations may serve as a means of not only enhancing health and well-being understanding but also addressing rampant housing concerns; elevating a diverse group of voices in design; and contributing to healthier, happier, flourishing lifestyles. Developing an understanding of how best to design for eudaemonic well-being could have a distinct impact on all demographics, but the approach could be life-changing if considered in the context of vulnerable populations such as older adults who wish to age in place in homes that support their changing needs.

2. The Need for Flourishing-focused Design in Older Adult Housing

There is a global need surrounding population aging, due to the recent shift towards older adults becoming a larger percentage of the overall world population. Older adults have become more prevalent and their needs more prominent and diverse. It has also brought discussions of health equity and social justice to the fore (Gratton & Scott, 2016).

Health in older adult housing has become a subject of debate and interest over the past decade (Aplin & Petersen, 2023; Baker et al., 2014; Grenier et al., 2020). Unfortunately, discussions and resulting designs commonly involve transactional considerations of accessibility and affordability (i.e., quantity rather than quality)—exploring accommodation of the population, based on either a bare minimum cost-effective approach (Hosking & Orthia, 2023; Jenkins Morales & Robert, 2020; M. Petersen & Parsell, 2015; Social Care Institute for Excellence (SCIE) et al., 2018) or to an unnecessarily high standard and concomitant unattainable expense (Lane, 2023; National Seniors Staff, 2023; A. H. Petersen, 2021; Rowland, 2023). The results of which can leading to older adults living unhappily, unhealthily and unfulfilled (Feng

& Astell-Burt, 2022; Leland, 2022). A better approach would involve housing built on a premise of nuanced, nourishing, health-promoting environments carefully curated with older adult collaborative input while considering idyllically designed futures for aging humans.

Architectural design has begun to make strides in defining how design can be done for human health and even health equity since the pandemic; however, the extent to which design can contribute to well-being and meet the positive psychology aspects of our flourishing selves in the built environment remains underexplored. Foregrounding design considerations and practices in flourishing or eudaemonic well-being has the potential to support the creation of buildings that satisfy physical, mental, and social health requirements while also nudging (Thaler, 2008) occupants behaviorally to make decisions in alignment with their best selves.

A significant portion of the older adult population of Westernized nations share a desire for independent living. They wish to age in place as long as possible (90% in the United States and 80% in Australia), even if that means requiring in-home support as circumstances change (75%) and despite many homes not being suitable to enable such desires (AARP, 2011; GCMA, 2020). Older adults require perspective in understanding what it is they need to do to stay in their homes as they age and motivation to make changes to prepare for that future. By designing carefully, with and for the chosen demographic, it is possible to create environments where people can be their best selves and experience flourishing health and well-being at home while aging in place.

A growing body of research advocates involving older adults in design decisions that relate to their lives (Ambe et al., 2019; Lee, 2020) and homes (Gaspar et al., 2022; Golembiewski, 2021; Sakaguchi-Tang et al., 2021). Capturing lived experience (Reid et al., 2005) involves exploring life narratives of the past as well as situated experiences relating to the present (Frie, 2011), offering a means of better understanding needs and desires for future home environments. It acknowledges that experience results from interactions between individuals and settings, and provides the means to "delve into the co-constitutive creativity emerging from individual participation in the studied events" (Olafsdottir et al., 2017, p. 359) while recognizing older adults as the experts they are when conceptualizing older adult homes.

3. Research Scope

This research explored a novel approach of designing for health and well-being that aimed for the neo-Aristotelian concept of eudaemonia—Eudaemonic Design (ED) (Mikus, 2023; Mikus & Grant-Smith, 2021)—by co-defining and considering that term through co-design methods

work conducted with older adults over the course of the 2021 calendar year. This exploration of ED to facilitate optimal or flourishing physical, mental, and social health was considered from ideation to validation and was situated in the context of older adults at home during the pandemic. Its overarching objective was to determine the rationale and potential for achieving eudaemonia and therefore flourishing health and well-being in the built environment using ED, a design approach grounded in well-being science and represented by a set of ED Principles co-designed by participants when envisioning eudaemonia at home.

This best practice paper presents these principles derived by the exploration of the main research question (RQ) guiding this study—*RQ: How can occupants be empowered to achieve eudaemonic well-being at home?*—and the third sub-question in particular—*RQ3: What model and principles could underpin ED to realize these requirements?*

4. Methodology

A methodological literature review was conducted to examine how best to create a comprehensive ED model and set of principles and to structure research for that result. The review resulted in 11 observations that can be translated into approach (i.e., how to do the research) and intent (i.e., what should be a focus of the research)-based considerations. *Approach* considerations included engaging with participants for four to six months; design for older adults with average abilities to begin with; empower adults via Self-Determination Theory (SDT); and collaborate with users to design their idyllic eudaemonia-focused environment. *Intent* considerations included allowing for simple yet rich technology solutions focusing on experience and not complexity; balancing contributions to academic scholarship and pragmatic application; staying current for referenced studies and considered technologies; being realistic by designing for older adults in different housing typologies; and designing for health, ease of use, and impact.

Three studies (Bjering et al., 2014; Dupuy et al., 2016; Gutierrez et al., 2019) influenced the overall tenor of this design research in relation to maintaining respect in design and the chosen methodology (Research through Co-design (RtC)); methods (creative); and theory (SDT). These three studies highlighted the need to prioritize design with and for older adults, possibly with designers but not family members—an approach SDT could facilitate—and drove identification of three observations to guide the research design. These included considering creative methods as a means for innovative design (Dupuy et al., 2016), collaborating with older adults to design (Bjering et al., 2014; Dupuy et al., 2016; Gutierrez et al., 2019), and engaging participants in a meaningful way when co-designing (Bjering et al., 2014).

5. Research Outcomes

A three-phased research approach was adopted to interrogate older adult reflections on past, present, and desired future home design. Using a combination of individual and group interviews, cultural probes (jenna et al., 2022), and group workshops, the researcher engaged nine Australian older adults, aged 65-80 and living alone as well as one research advisor who matched the average criteria of the participants and weighed in on activity designs, project timing and logistics, and terminology. Nine design academics and practitioners, with five years of experience, were asked to design for their 73-year-old selves, with the primary older adult participants during the collaborative workshops of the later phases. All activities occurred as scheduled and planned, resulting in a final set of nine ED principles (each depicted on a continuum ranging between two dimensions of a core theme), that if designed for were deemed likely to lead to a eudaemonia-supportive environment.

Nine design principles emerged from this work:

- *Cleanliness – Organisation*: Maintaining sanitary and orderly environments to promote mental health
- *Safety – Security*: Feeling safe and secure as a fundamental need for support
- *Affordability – Accessibility*: Enabling financial and physical access to promote short or long-term relocation-related moves
- *Maintainability – Reliability*: Allowing for components that are easy-to-maintain and built to last
- *Logic – Intuition*: Incorporating reasonable usage and automated learned protocols
- *Flexibility – Adaptability*: Providing choice through changeable design elements
- *Comfort – Familiarity*: Promoting ease and cosiness while also referencing memory
- *Privacy – Connection*: Supporting needs and preferences that balance alone time with socialising
- *Ecology – Sustainability*: Considering earth friendliness in material and energy usage

Presenting these principles in the form of nine continua not only recognizes the changing needs and preferences of humans over time, thereby pragmatically addressing aging in place-related transitions, but also aligns with Aristotle's view of eudaemonia as a process or journey rather than a singular destination.

All nine principles were ranked by importance and grouped, as depicted in Figure 1. Four were considered high priority: Safety – Security; Privacy – Connection; Affordability – Accessibility; and Flexibility – Adaptability; two were deemed medium priority: Comfort – Familiarity and

Maintainability – Reliability; and three low priority: Ecology – Sustainability, Logic – Intuition, and Cleanliness – Organization.
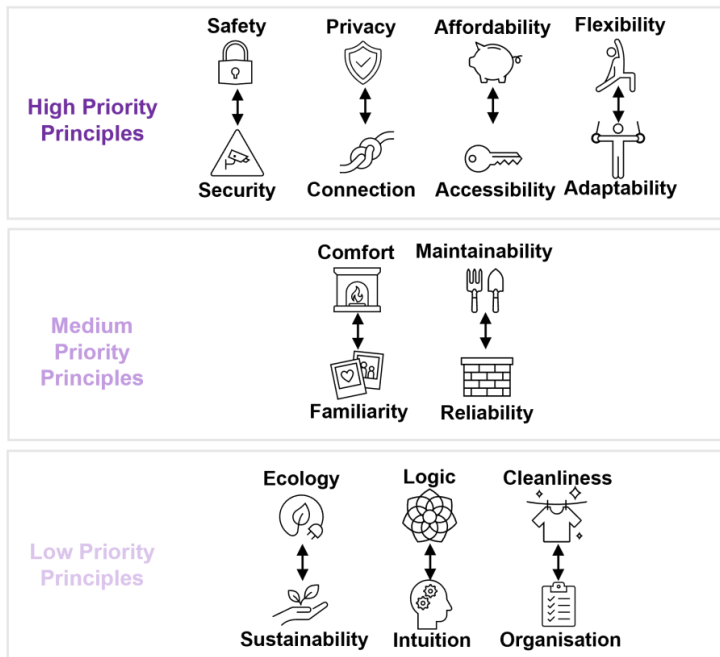

Figure 1. The Final Nine ED Principles' Continua by Low, Medium, High Priority

Reflecting on the final prioritized results, it makes sense that the older adults consider physical and financial safety to be the top two areas of importance, followed closely by flexibility—a subject that many learned about, discussed, and stated their desire for throughout the process to support aging in place design. Even though ease-of-implementation via logic, ecology, and cleanliness had been declared important to members of the group throughout a variety of steps, when it came down to their future best self environment for flourishing survival, their physiological needs had to be met first. As the project advisor commented when considering this prioritization after the study ended, "*a person who lives alone has to paddle their own canoe.*" Only then can they consider other aspects.

5.1. The Eudaemonic Design Principle Matrix

Once the nine principles were finalized, they were retroactively analyzed against the foundational SDT and the elements of health. Although alignments included some overlap, especially when considering how all principles contributed toward a comprehensive interpretation of the three aspects of health, each principle coincided best with one SDT need (Autonomy,

Competence, or Relatedness) and one health aspect (Physical, Mental, or Social). This led to the representation of the principles in a balanced 3x3 matrix, as presented in Figure 2. Based on this study, it is possible to create homes that promote meaning while supporting comprehensive health and well-being if the nine ED principles are considered.
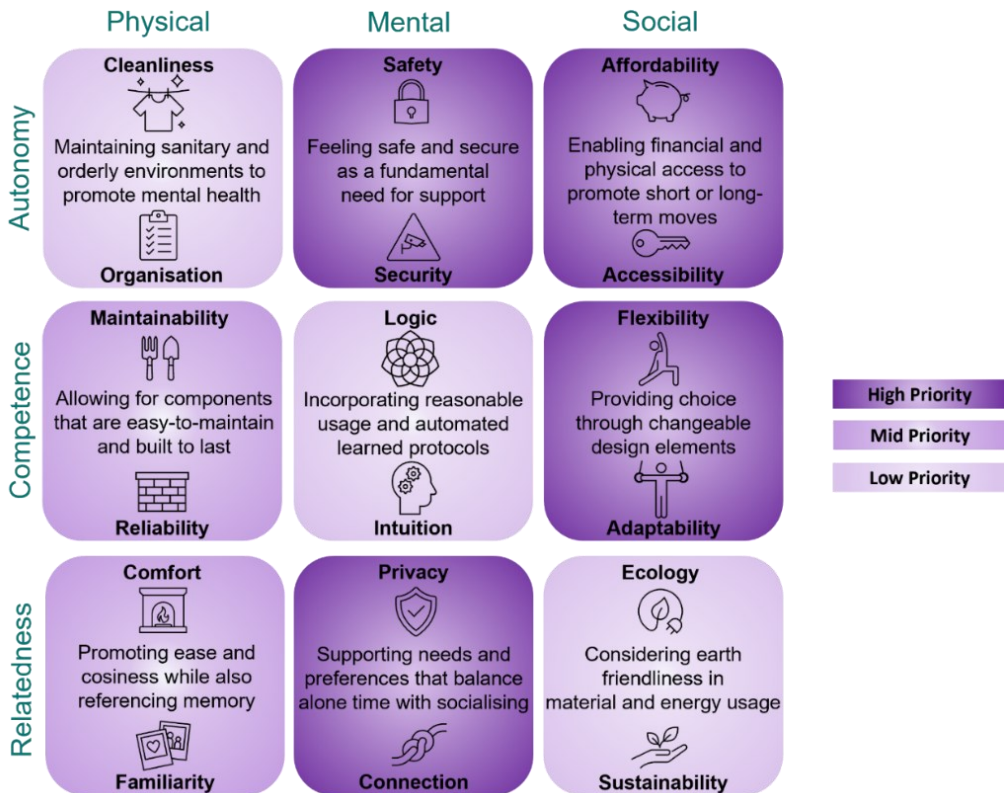
Figure 2. Eudaemonic Design (ED) Principles Defined, Prioritized, and
Aligned to Self-Determination Theory (SDT) and Health

In addition to resulting in the aimed-for co-created ED model (not shown) and principles (discussed here) that occupants and designers could reference to curate eudaemonic built environments, an unexpected finding was identified. Stories of realized meaning and motivation-spurred actions were shared by both participant groups during and following the research, with successes proudly discussed. These were unintended yet included tidied-up and biophilically-decorated homes; coursework enrollments; and deeper connections to friends, family, and nature. These results uncovered value in following the SDT-guided co-design process itself, thus

emphasizing the value of the methodological approach and the co-creative nature of the research.

5.2. Key Takeaways

Based on the outcomes of this study, the research team suggests the following as key takeaways when designing meaningfully for older adults:

- Design teams should actively engage the users for whom they design, applying creative methods and collaborative design efforts whenever possible as a means of ensuring inclusion while combatting loneliness.
- Although some of the ED principles can be satisfied by wellness-focused design and construction certification bodies (e.g., the WELL Building Standard, Fitwel), it should not be assumed that following such regulations alone will satisfy ED and result in an effective, balanced flourishing health design.
- Because there is no "one size fits all" approach to ED, it is necessary that co-design be employed to determine client preferences and therefore where on each continua clients wish to reside (e.g.., focusing more on maintainability and less on reliability).
- Even though the design approach is not prescriptive, designing for eudaemonia does offer a universal approach that works for a variety of occupants, no matter their age, gender, or race.

6. Conclusion

Buildings offer the key to curating a eudaemonically healthy and meaningful life. "Quality of life is greatly impacted by where a person lives; this is especially true as a person ages" (Benford et al., 2019, p. 4). It is vital that we understand how to design for older adults in the built environment, specifically in their homes, as these are the places in which they may age (in place), to which they feel the deepest connections due to the amount of time spent there (Sugar, 2019), and that hold their life's prized possessions (Brereton, 2013). Given these emotional connections (or interrelationships), an older person's home environment is extremely influential on their health—physical, social, and mental—and should therefore be designed deliberately to enable older adults to be their healthiest, happiest, best selves.

Designers, builders, and policymakers have an ethical and moral responsibility to ensure environments are designed, constructed, and maintained in a manner supportive of such intentions, combatting inequalities for occupants, including vulnerable groups. Older adults, especially those living alone, face challenges as they age, diversify, and constitute a larger subset of the population. They require and should demand environments that support their best selves,

encouraging them to not only have their objective physical, mental, and social health needs met but also their subjective eudaemonic desires satisfied.

ED serves as a basis of environmental design and can be realized by meeting nine identified principles—criteria which can be met by spatial and digital design elements (assuming the technology is implemented in a seamless way) to align with individual preferences and needs that change over time. Despite the theoretical promise of this ED approach, it would prove appropriate due diligence that the ED model be implemented and tested to assess its pragmatic potential when applied for better designed futures of this demographic and others.

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