



Build a better day
Dementia-friendly adult day-care center design

Congsi Hou

01

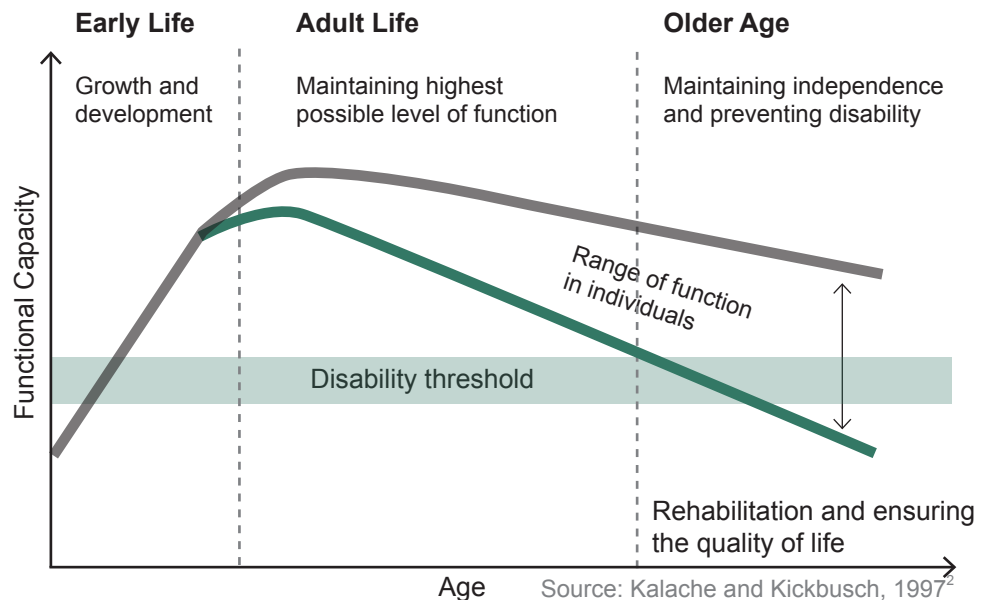
Architecture under demographic change

¹ Age 60 and older in 2050,
WHO, 2015



As many regions celebrate longer life expectancy as one of the major achievements of humanity, we recognize that the world is experiencing an unprecedented demographic transformation. At the global level, the number of those over age 60 is projected to increase from under 800 million today, to over 2 billion in 2050: more than 1 in 5 people will be 60 years or older¹.

A crucial component of successful aging is maintaining one's independence. This is a process that involves both the person and the environment. A supportive environment should be able to match the person's capabilities.



² Kalache, A., Kickbusch, I., A global strategy for health ageing, World Health , 50th year, No. 4, July-August 1997, p.4ff

An environment-behavior study on adult day-care facilities

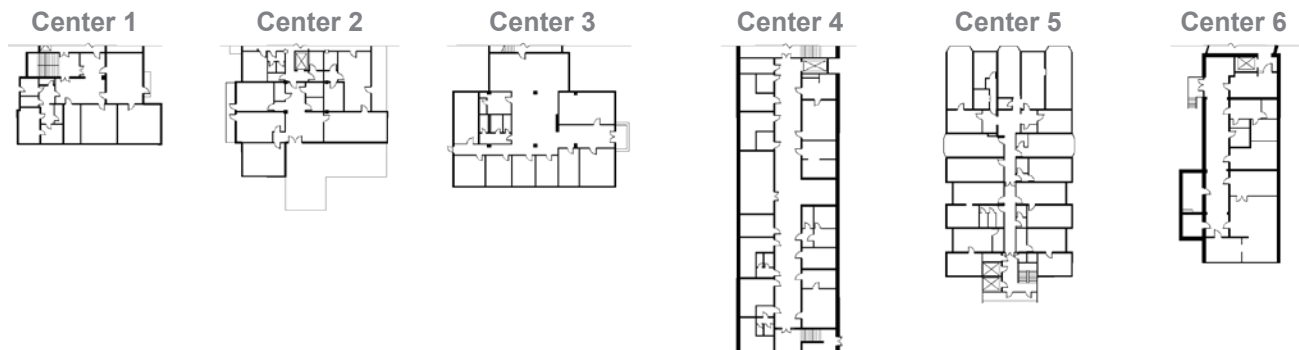
02

Adult day-care facilities, as one of the key providers of community care, provide day-time assistance to older adults and people with dementia. They are able to maintain the function status of the guests, provide relief for the families, delay nursing home placement, and reduce the care expenditure for society. The Norwegian Ministry of Health and Care Services has given priority to the establishment of day care centers in all Norwegian municipalities as a component of *the Norwegian Dementia Plan 2015*³.

³ Dementia Plan 2015 - Sub plan of Care Plan 2015 Norwegian Ministry of Health and Care Services
Publication number: I-1129 E

Through an environment-behavior study of six German adult day-care facilities, this project investigates the relationship between activities of people with dementia and several architectural properties of these facilities. The research findings provide architects practical recommendations about age-friendly design processes.

The six German day-care centers



03

An academic look at the indoor space

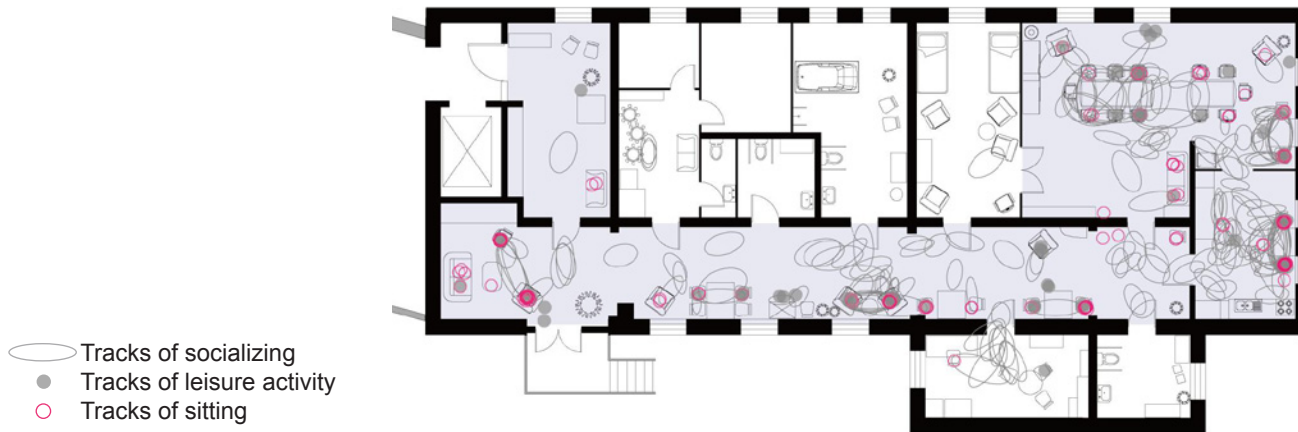
Rigorous academic studies on buildings and spaces give architects important perspectives on the built environment. They reveal the unseen facts of space usage and help architects consider the design process in a more comprehensive way.

Behavior Mapping

Behavioral Mapping is a type of systematic observation research method that tracks behavior over space and time⁴. Through behavior mapping, the original function of spaces may express their identities in a different way. For example, a corridor in a building is not only a transit area, but also a place where people gather and talk.

⁴ Sommer, B. B., & Sommer, R. (1991). Instructor's manual for a practical guide to behavioral research: Tools and techniques. New York: Oxford University Press.

The behavior pattern of three activities in Center 6



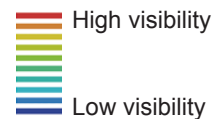
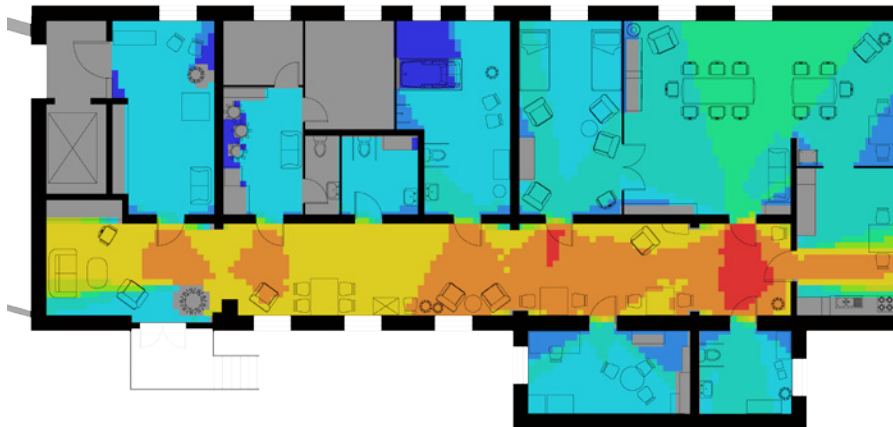
Space Syntax

Space Syntax⁵ is theory for quantitatively describing and analyzing the spaces of urban areas and buildings. Visibility Graph Analysis⁶ is the most broadly used parameter to perform Space Syntax analysis in architectural and urban systems analysis. It is a tool invented to calculate and graphically analyze the integration value of spaces, which is often used to interpret spatial visibility.

⁵ Hillier, B., & Hanson, J. (1984). *The social logic of space*. Cambridge: Cambridge University Press.

⁶ Turner, A. (2001). Depthmap: A program to perform visibility graph analysis. In: Peponis, J., Wineman, J. & Bafna, S. (Eds.), *Proceedings of the Third International Space Syntax Symposium* (p31, 1-9). Atlanta: Georgia Institute of Technology.

The spatial visibility of Center 6



04

Build a better day - selected results

Architecture is the combination of science and art that deals with the design, construction, and conceptualization of built environment. A successful spatial task requires deep comprehension and knowledge of its purpose. The architectural environment is not generated out of nowhere. It is gradually made from an understanding of its users' needs and the activities that occur there. More more importantly, it stems from an adequate knowledge of the relationships between the spatial needs and the environments.

This project offers answers to questions, such as: How do people interact with the built environment in adult day-care centers? How could architects and care practitioners apply such understandings in the design process? This knowledge helps to orient the architectural design as a holistic process.

“If there is one rule that can be applied consistently in dementia care, it is that there are no rules that can be applied universally.”⁷

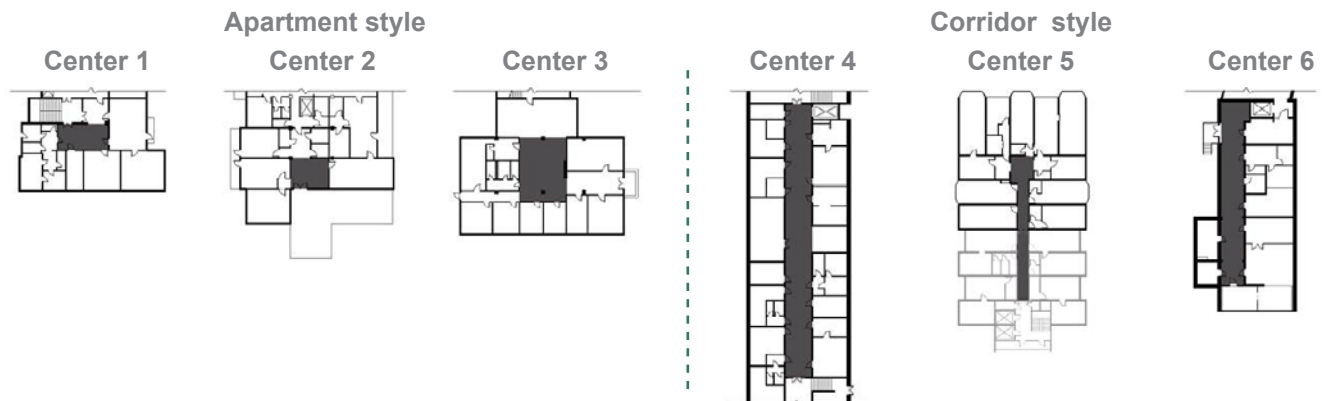
⁷ Zgola, J. M. (1999). Care that works: A relationship approach to persons with dementia. Baltimore: Johns Hopkins University Press.

1. Building layout

Building layout is often the first thing architects consider in design processes. Two typical building layouts for day-care centers are compared in this research: *the apartment type* and *the corridor type*. Several studies showed a negative impact from long corridors on residents' behavior in long-term care facilities, as they made some residents restless. However, this project suggested that with appropriate design considerations, corridors have a great potential to become a lively space.

“I like it (the corridor) very much because the chairs are put in groups here. They are in small groups and that is exactly the right atmosphere.” (Guest interview Center 6, Mr. M)

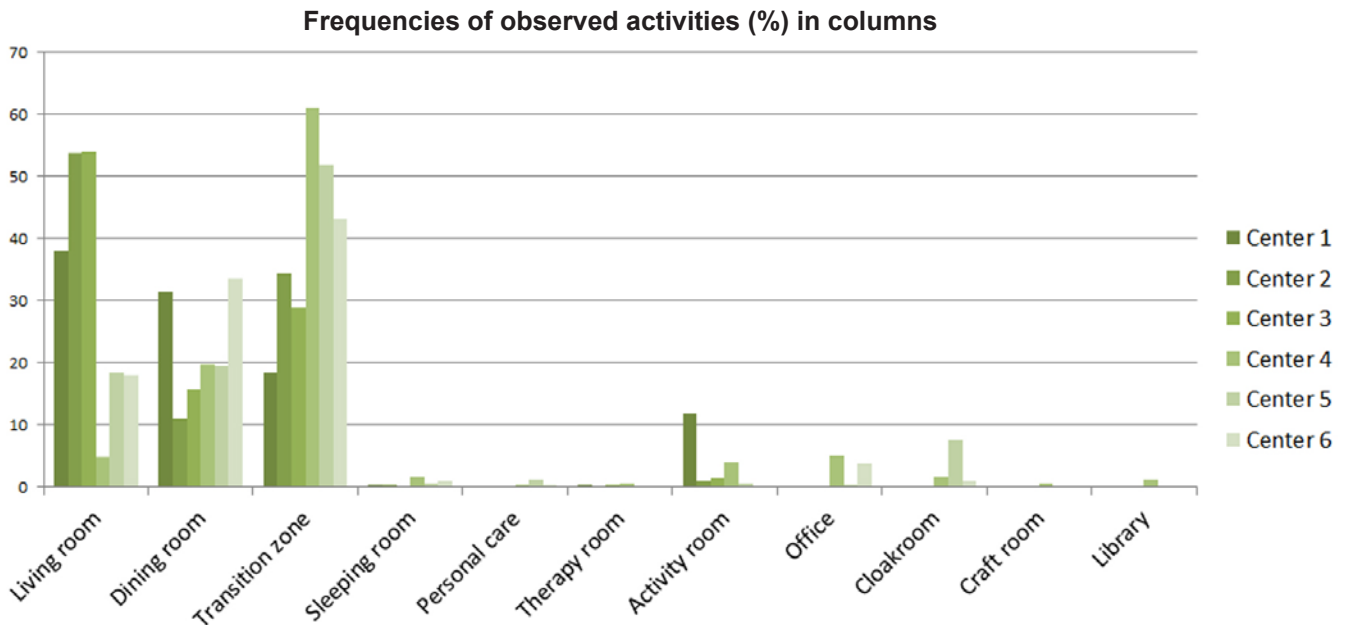
Two typical building layouts were studied in this research



2. Room function

Studies suggested that for people with dementia, care facilities should contain a variety of spaces that provide differing ambience, size and function. This project suggested that in day-care facilities, regardless of how many different spaces they offer, the guests seemed to use only three of them heavily: the living room, the dining room, and the transition zone.

This finding is important, especially for small scale care facility design. Architects should work together with stake-holders and project initiators as early as possible, to seek *a trade-off between the functional complexity and the room quality.*

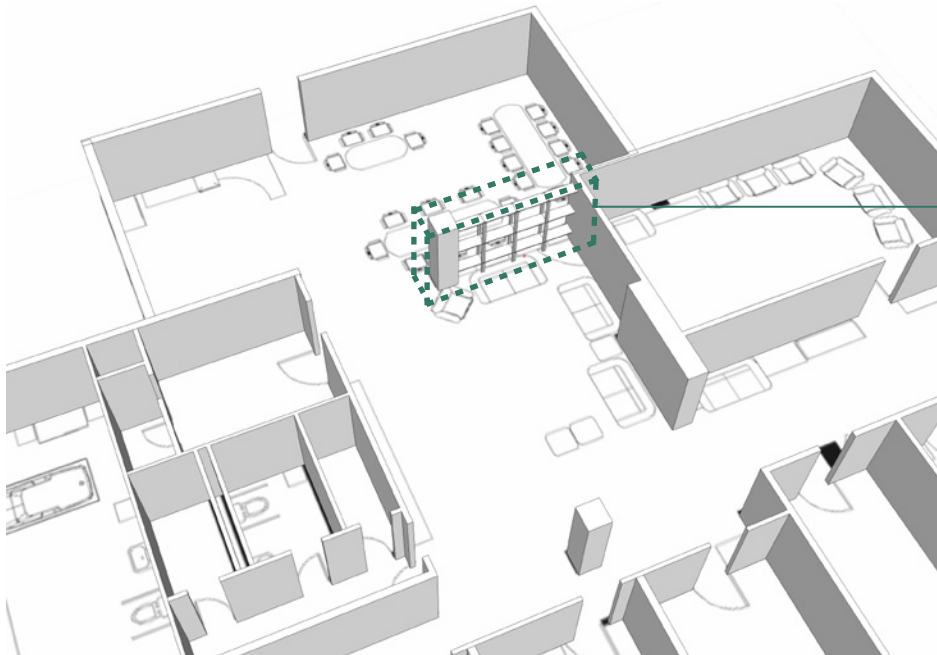


3. Spatial visibility

In care facilities for people with dementia, the residents should be able to see the features that are important to them from the location(s) where they spend most of their time. This project suggested that in day-care facilities, the guests use spaces with higher visibility more than spaces with lower visibility.

Appropriate design strategies should be considered for day-care center design. ***A common space with high visibility helps the guests to better navigate themselves. It also helps the caregivers to have a better surveillance of the guests.***

The open-designed living room in Center 3



→ Using sheves instead of partitions improves the visibility of the common space. Both the guests and the caregivers can have visual accesses to a larger area.

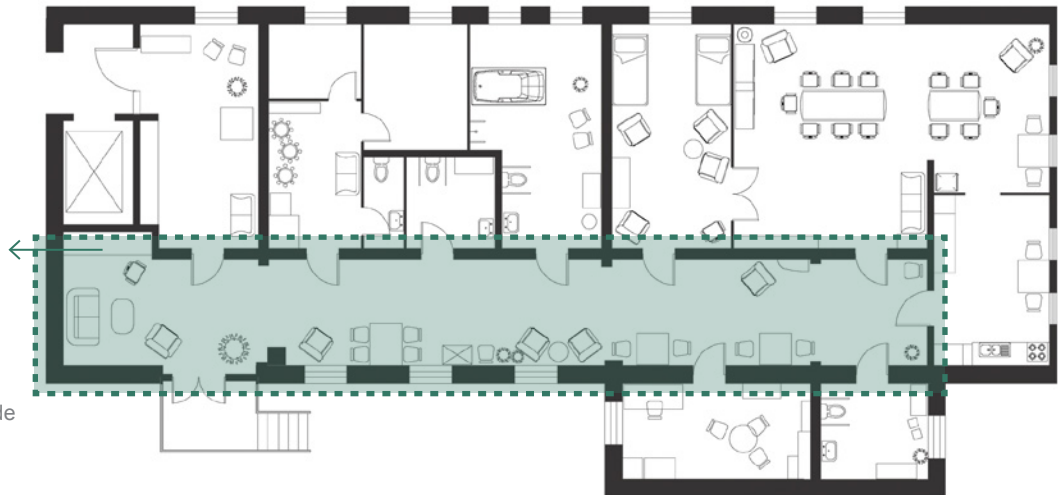
4. Room size

“Small and homelike” is frequently mentioned for age-friendly and dementia-friendly designs. However, this project showed that ***the guests in day-care centers seemed to spend more time in larger rooms.*** Both the guests and the caregivers expressed that with a larger space, they felt they had more options for different activities.

“The lounge is very spacious. It is nice for the guests to live here and have the great space.” [...] “A spacious place is also helpful for wheelchair users.” (Staff interview Center 4)

“The long corridor is good, big enough for me. Sometimes I want to move around. [...] I need space.” (Guest interview Center 6, Mr. G)

The spacious corridor in Center 6



More than 3 meters in width* makes the corridor not merely a passive space. It is a space for gathering, relaxing, and leisure activities.

* The German building code states corridors have to at least 1.5 meters in width.

About the author

Congsi Hou M.Arch

After working as a freelance architect and completing her Masters in Architecture in China, Congsi moved to Germany to gain insights into age-friendly design. In 2013, she started working as a PhD researcher and a teaching assistant at Technische Universität Dresden, Germany. Her PhD project is about adult day-care center design for older adults and people with dementia. Her research results had been published in several international conferences.

Selected conference presentations and publications:

2016, June. Presentation at: IAPS24 - International Association People-Environment Studies, Biennale Conference, Lund, Sweden.

2015, July. Presentation at: SSS10 - the 10th International Space Syntax Symposium, Biennale Conference, London.

2015, May. Presentation at: EDRA46LosAngeles - brainSTORM: Dynamic Interactions of Environment-Behavior and Neuroscience, Annual Conference, Los Angeles.

Hou, C. (2016). The impact of architectural environment on behaviors of people with dementia-a quantitative exploratory research on adult day-care centers. Peer-reviewed full paper in: Proceedings of the 11th International Forum on Knowledge Asset Dynamics, Dresden, 2016.

Hou, C. & Marquardt, G. (2015). Spatial layout and spontaneous behaviour for people with dementia: A study of adult day-care centres. Peer-reviewed full paper in: Proceedings of the 10th International Space Syntax Symposium, London, 2015, 19(1-15).

Developing age- and dementia-friendly design makes a difference to society. A supportive and welcoming environment can have positive effects on those who use care service and their caregivers - whether at home or in professional care facilities. However, there is still relatively little known about the design of adult day-care facilities. This research project emphasizes the relationship between activities of people with dementia and the architectural properties in adult day-care facilities. The result of the study offers evidence of dementia-friendly day-care facility design. This booklet introduces the project with several selected findings that can be applied in practice by architects.

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