

# Danish Sociocultural approach to lighting design.

- an inspiration for  
illuminating hospital wards

PLDC November 2013  
Lone Mandrup Stidsen



1. Introduction
2. On light atmosphere
3. Sociocultural aspects
4. Explorative studies
5. Pilot study
6. Conclusion and Perspectives



# Lone Mandrup Stidsen

Postdoc & Project manager for research in  
'Light and Psychiatric Healthcare'

2013\_ Phd, Aalborg University,

2006\_ Lostdesign

2006\_ Textile designer, Kolding School of Design

1999\_ Primary School teacher, Silkeborg



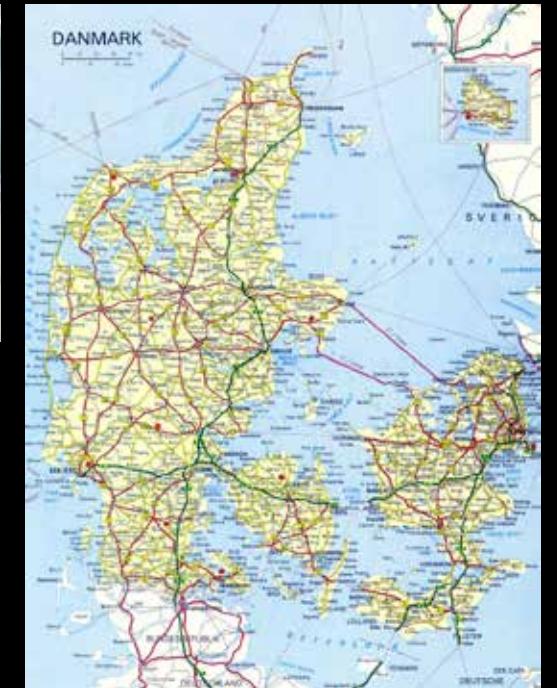
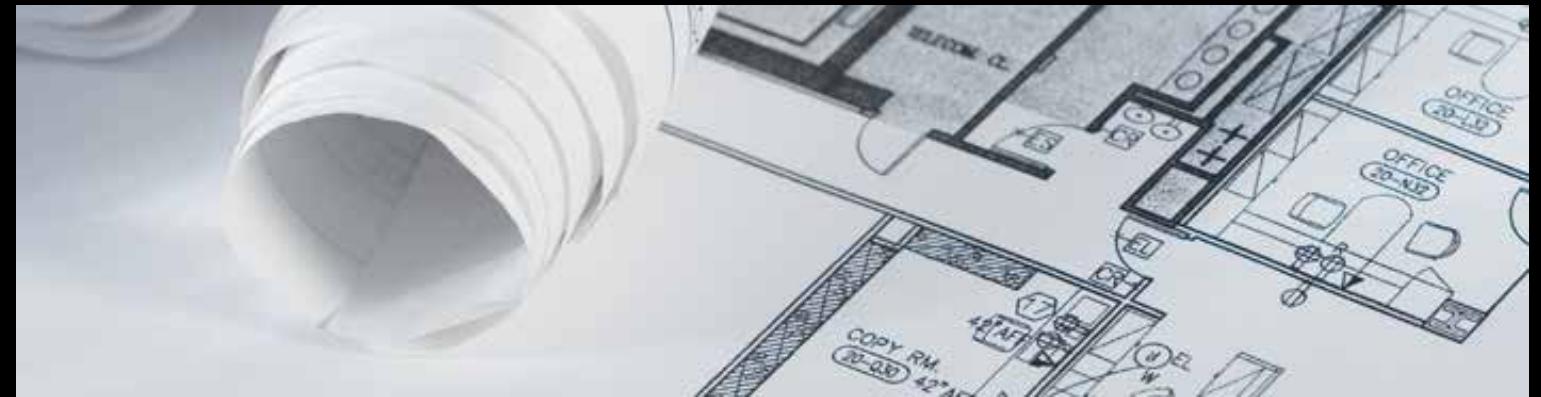
NORDLUX.DK



LE KLINT.DK



LOSTDESIGN

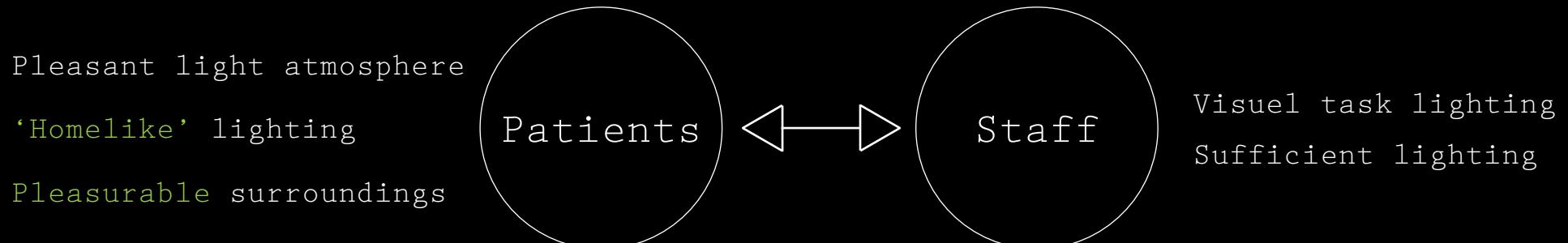


# Ph.D Project

'Light atmosphere in hospital wards'

16 hospitals 41 mill. DKKr.

Patients experiencing quality and coherence in the process



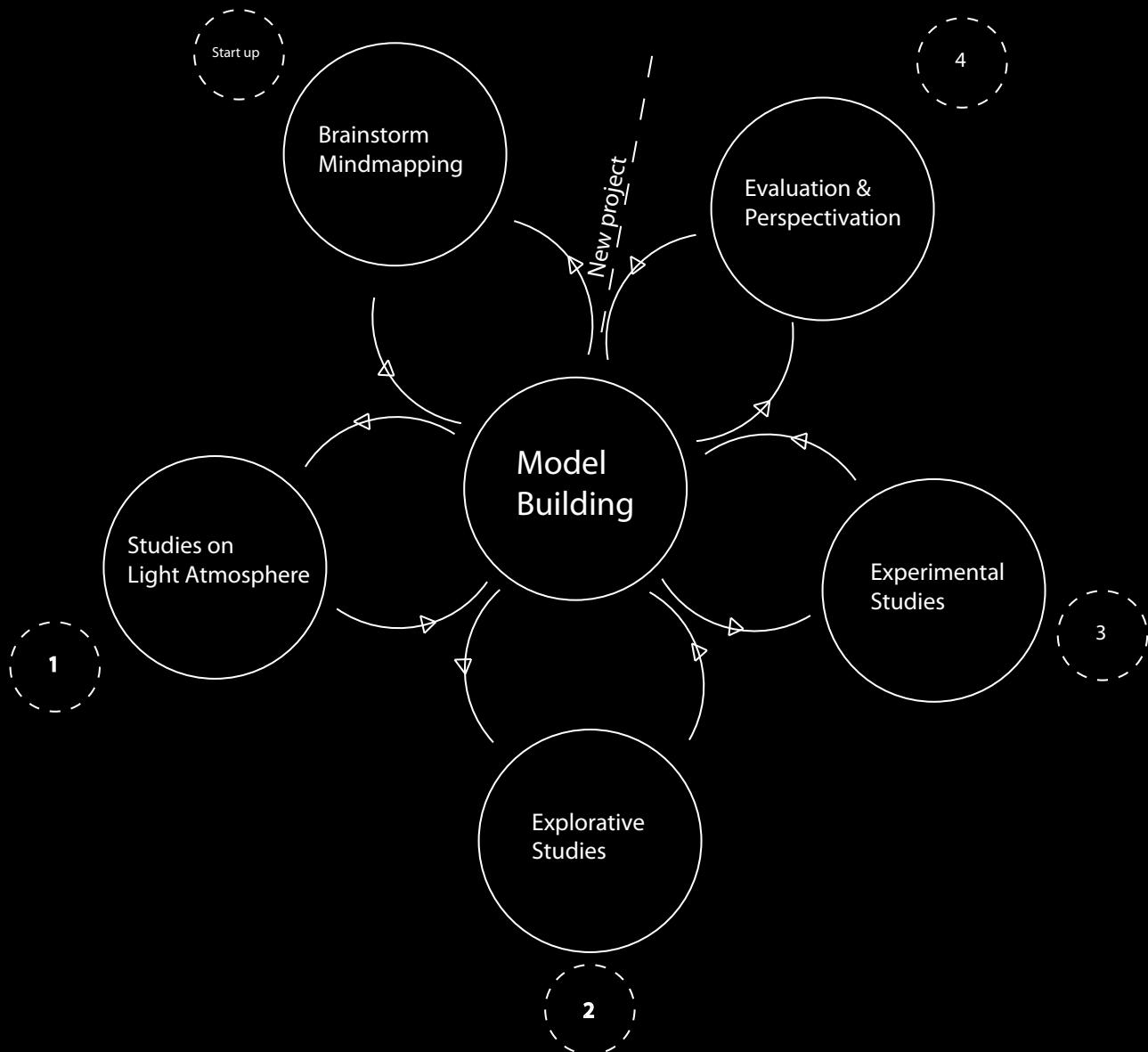
## Directions for Light in hospitals (DS703)

*(Dansk Standardiseringsråd , 1983)*

Patients has only few visual tasks. They require pleasurable surroundings supported by the illumination.

Staff however need sufficient lighting to perform work that is often highly visually demanding.

The light colour must be selected according to patients' needs for a pleasant 'homelike' lighting, which in most cases is colour temperatures no higher than 3000 K and a fairly good colour rendering of Ra> 80



*"Urban Atmosphere"*  
Albertsen, N. 1999

*'Atmospheres can not be seen - It must be experienced through other senses and an atmosphere occurs rarely through one sense alone, but in an interaction between several senses. Atmosphere affects people emotionally.\**



Afternoon in DK

Atmosphere is not a 'stamp of approval' for a good taste or a correct architectural understanding. Atmosphere is everywhere at all time, it is a momentary phenomenon.



Home, Denmark

## 2. On Light Atmosphere

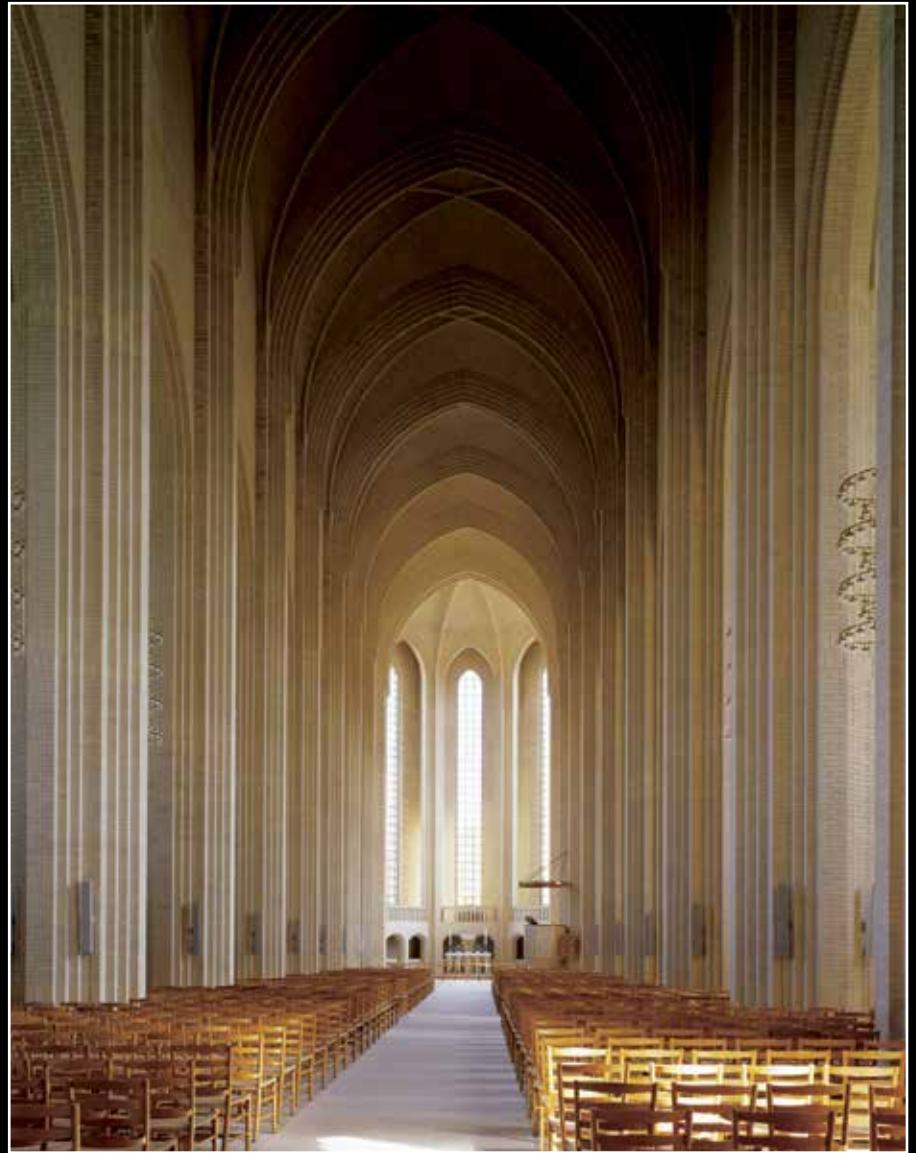
Atmosphere is not a 'stamp of approval' for a good taste or a correct architectural understanding. Atmosphere is everywhere at all time, it is a momentary phenomenon.



Cafe in Lagos, Nigeria

## 2. On Light Atmosphere

Atmosphere is not a 'stamp of approval' for a good taste or a correct architectural understanding. Atmosphere is everywhere at all time, it is a momentary phenomenon.



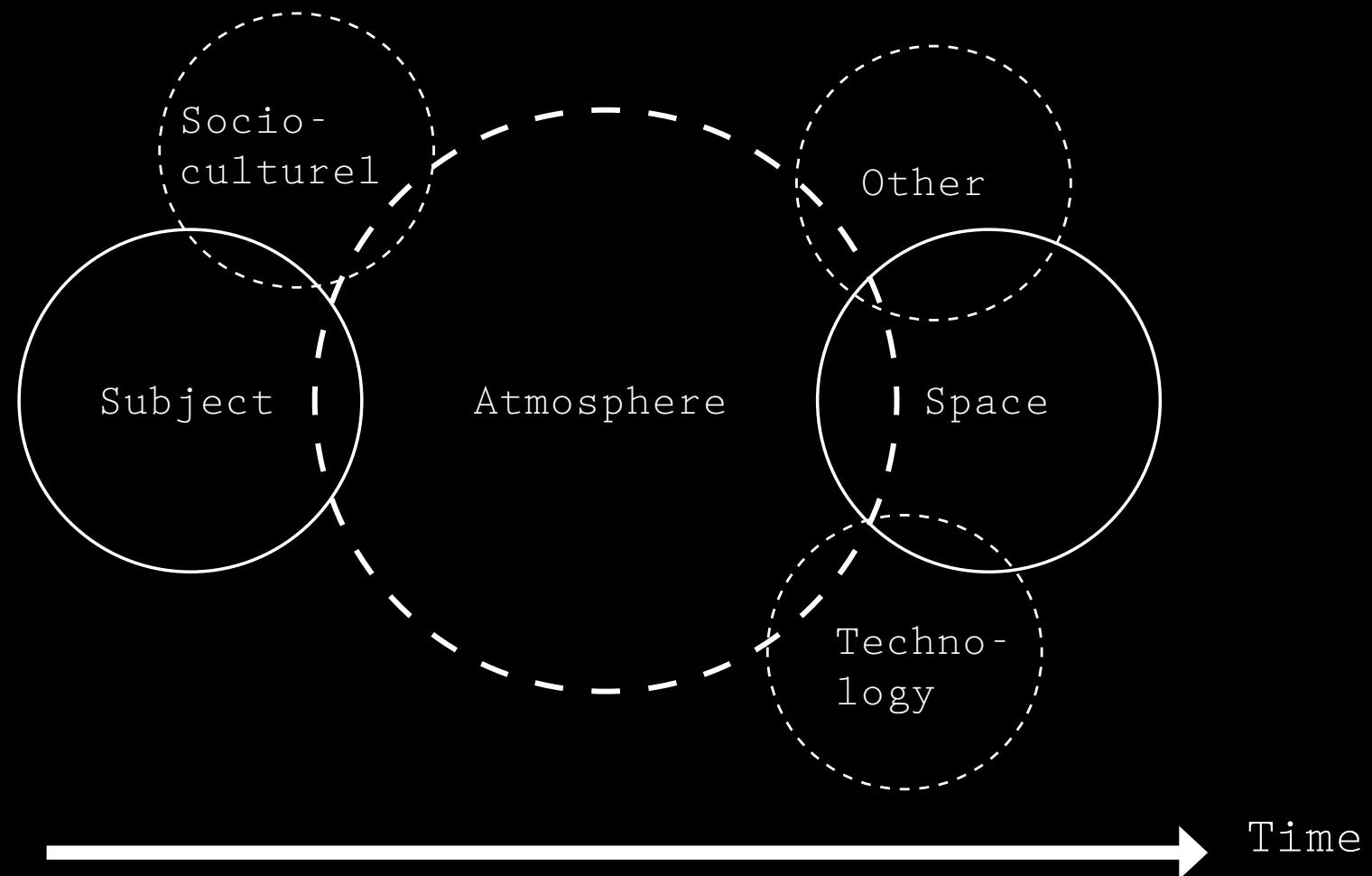
Grundtvigs kirken, KBH, KLINT

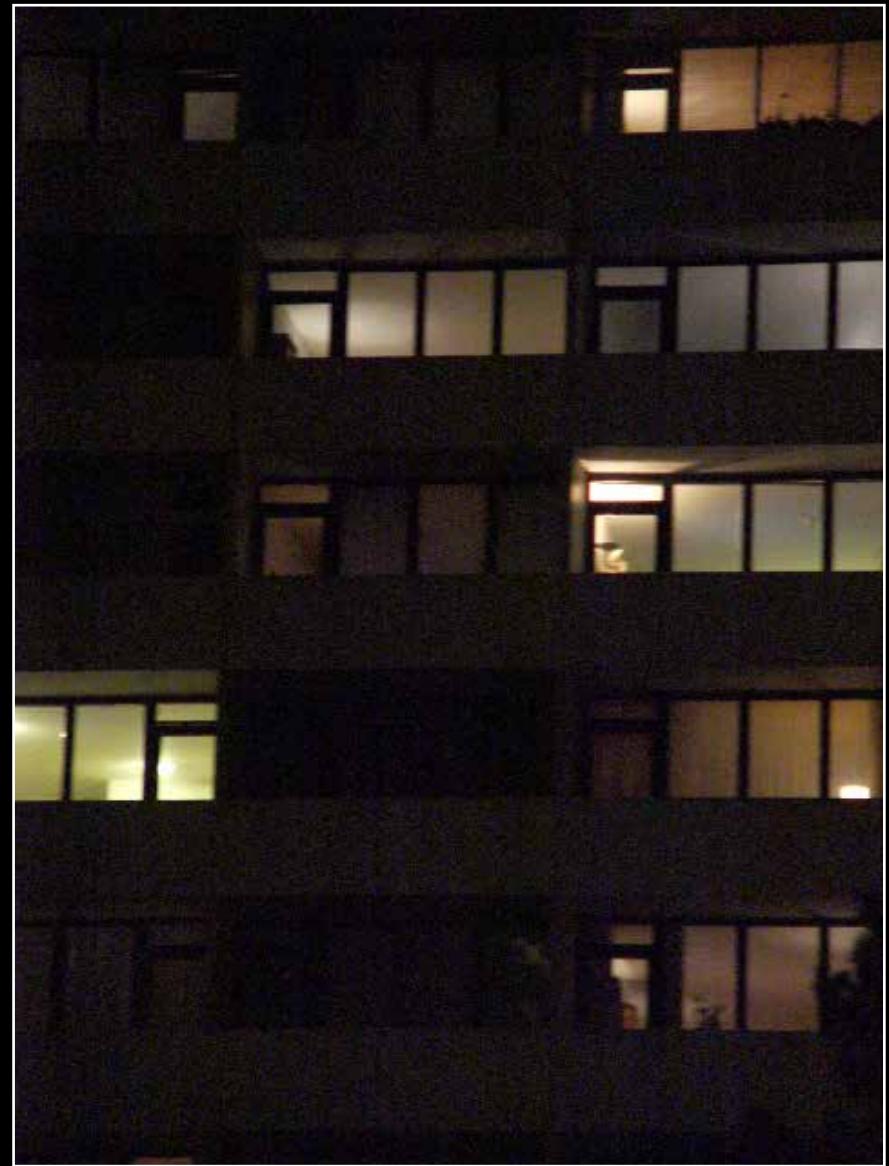
## 2. On Light Atmosphere

*'The concept of Atmosphere'*  
Böhme, 1993

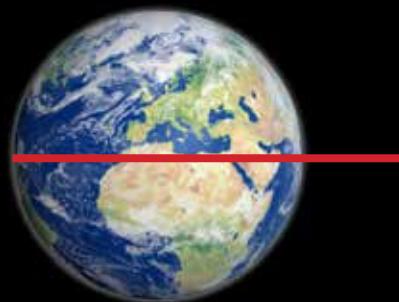
*'Staging Urban Atmosphere  
in interaction design'*  
Dalsgaard, Kortbak 2008

*'Socio Cultural aspect'*  
Stidsen, Bech 2009

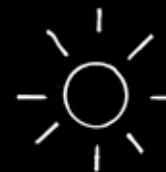




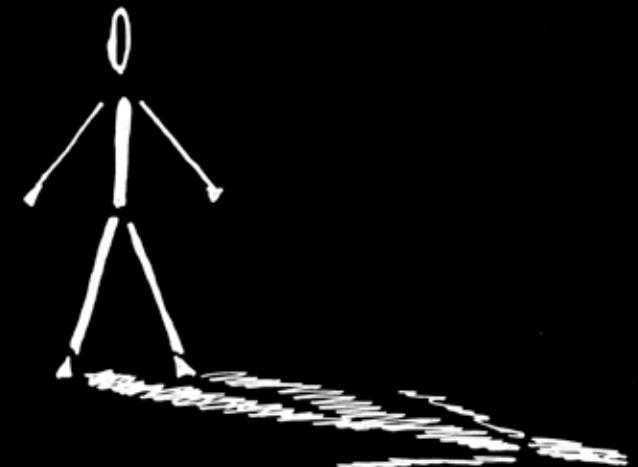
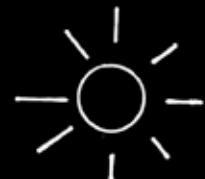
### 3. Socio Cultural Preferences



Equator



### 3. Socio Cultural Preferences



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'Three minutes of light  
information'  
18th of marts 2008

Overcast skies and  
change of weather condi-  
tions

### 3. Socio Cultural Preferences

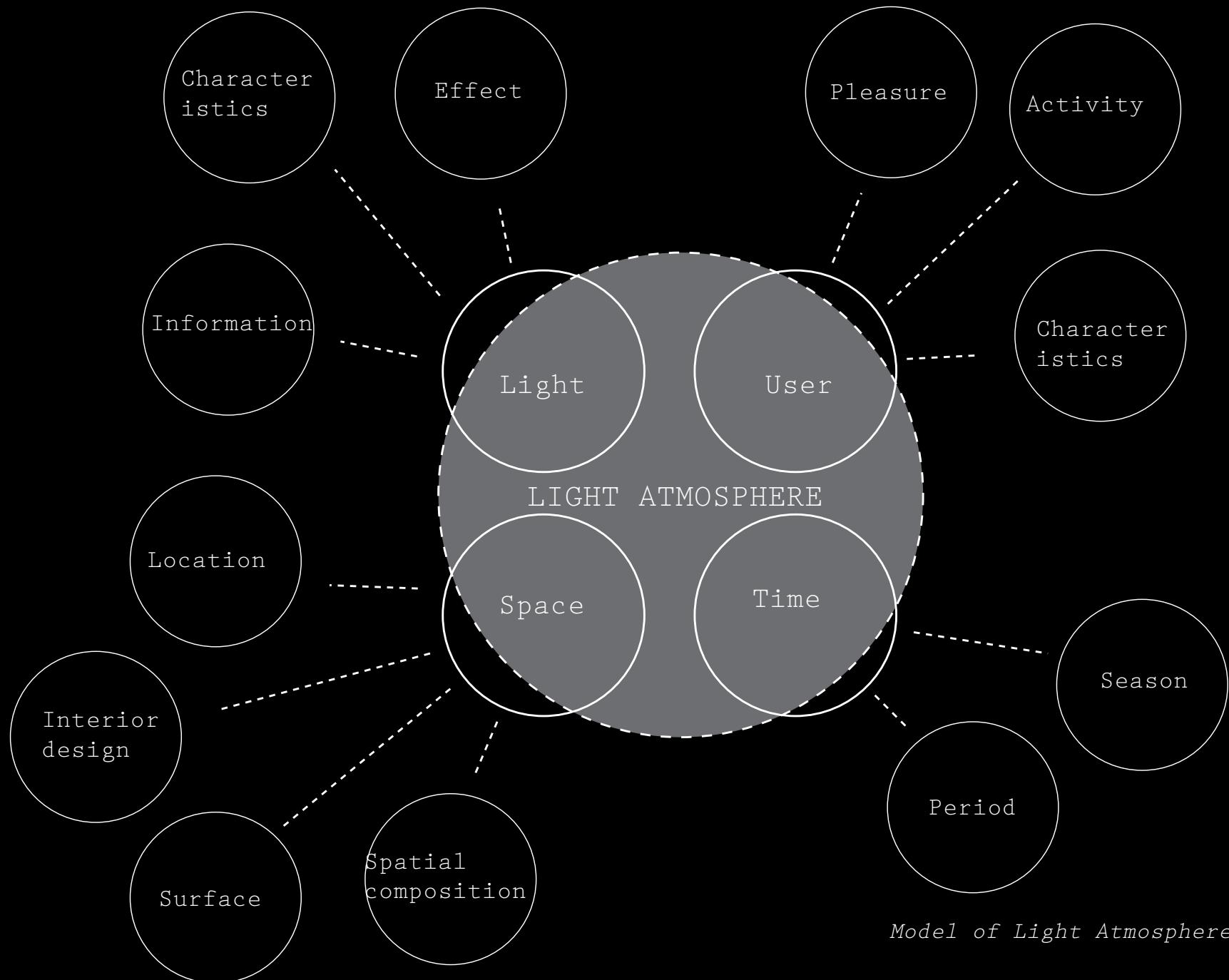


Jordan 'Reception room' Foto: Mikkel Bille, 2008  
Luminosity of Protections'



Danish 'Reception room' Foto: Raakjær

### 3. Socio Cultural Preferences



# ‘Homelike’ illumination

*Patients light preferences in hospital wards -  
related to light atmosphere in Danish homes  
Stidsen, Bjerrum 2010*

15 semistructured interviews  
Anthropological study  
Expand own understanding of a situation  
Photo album based on daily activities

Results:  
Vertically and horizontal zoning



# Lighting trends

*'mapping light atmosphere.'*

Stidsen, Thuesen, 2012

50 Vol BO BEDRE

1961-2010

3500 images

Room categories

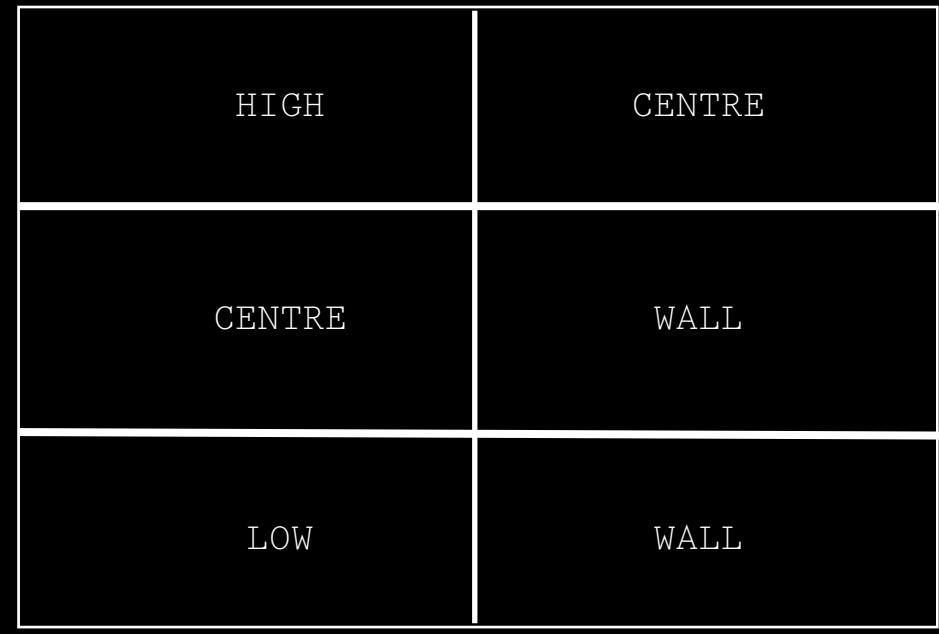
Horizontal and vertical zoning

Space appearance





Activity



Lighting Scenario

# Livingroom

Vertical zoning  
Centre zone as mainzone  
1990th - new technology

YEAR	No	High	Centre	Low
60 - 65	46	0.06	0.82	0.12
66 - 70	79	0.05	0.86	0.09
71 - 75	78	0.03	0.77	0.20
76 - 80	122	0.09	0.72	0.19
81 - 85	135	0.20	0.62	0.19
86 - 90	111	0.28	0.60	0.13
91 - 95	65	0.36	0.47	0.16
96 - 00	76	0.34	0.58	0.08
01 - 05	112	0.26	0.63	0.11
06 - 10	114	0.27	0.59	0.14

# 03 ➔

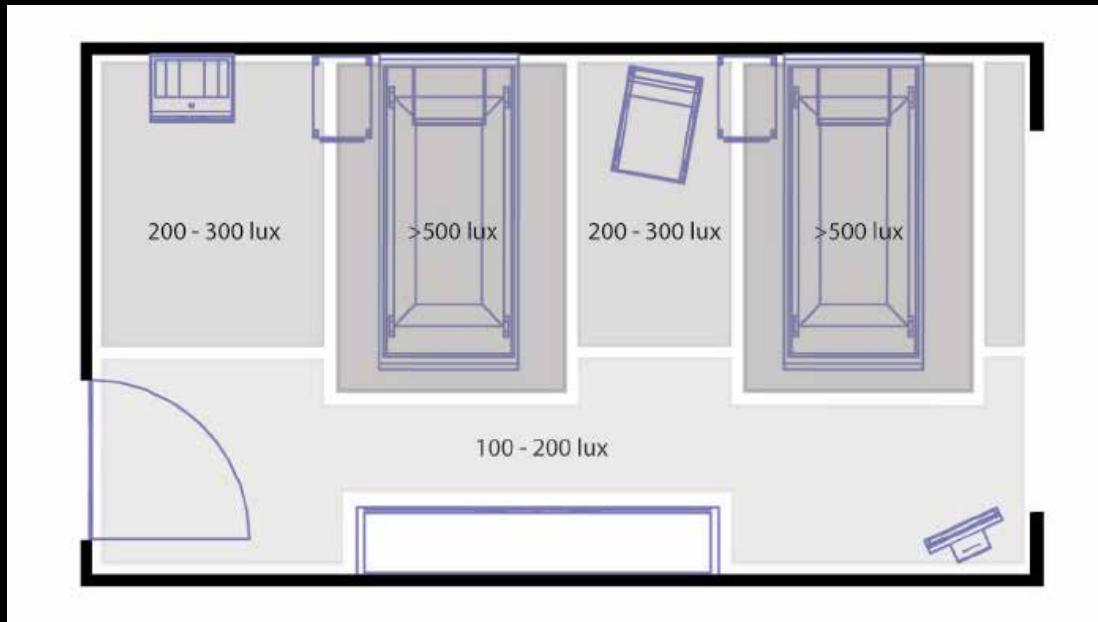


## Pilot study

Odense University Hospital  
Dep. Orthopaedical surgery

Patients experience of light atmosphere at the ward.

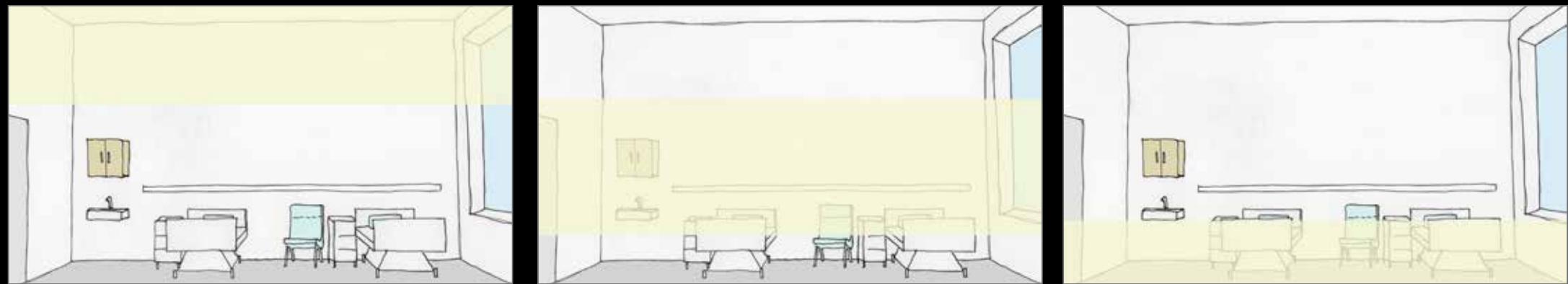




Odense University Hospital  
Department of Orthopaedical surgery

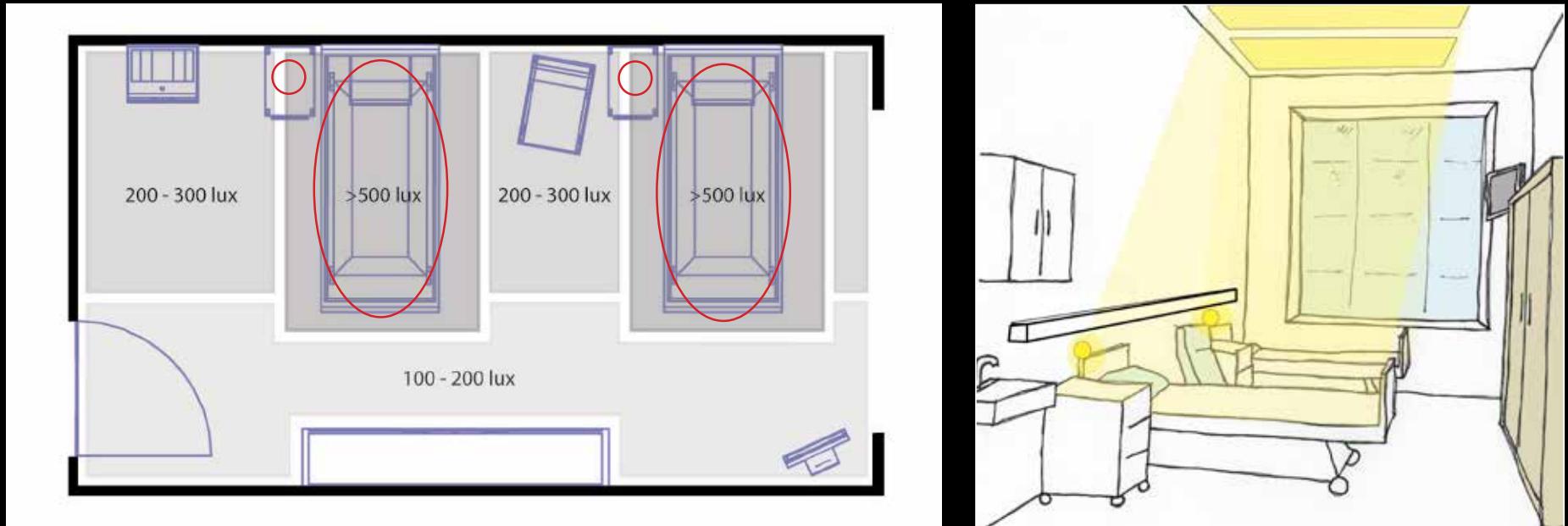


## 5 . Pilot study



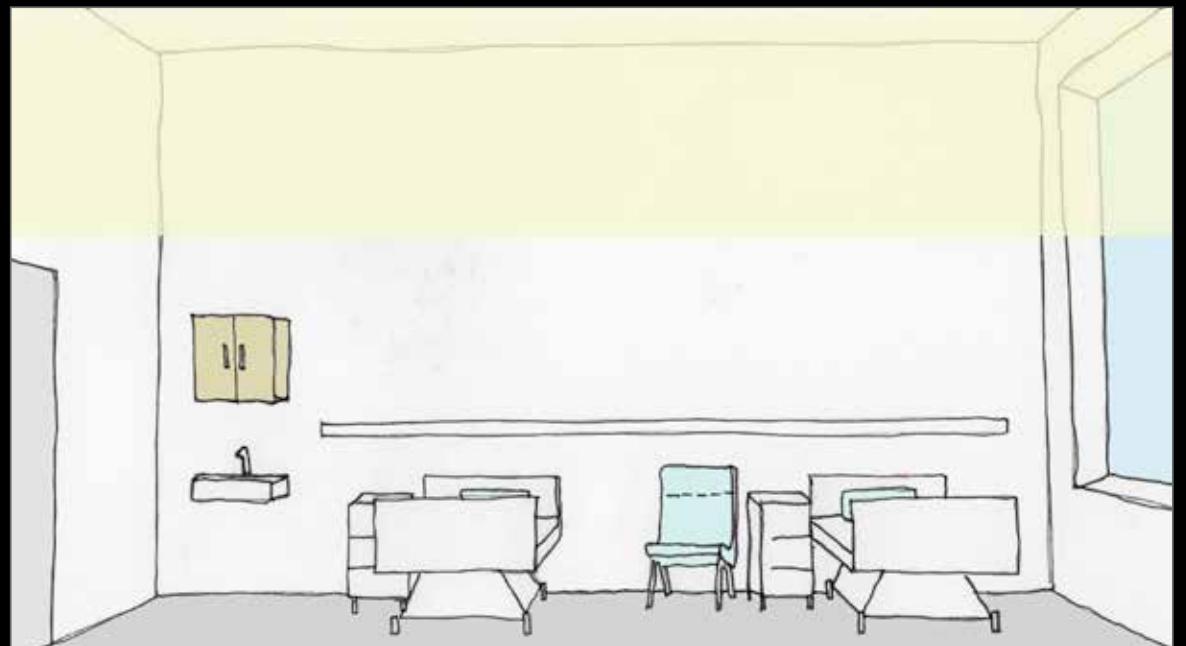
## Design concept

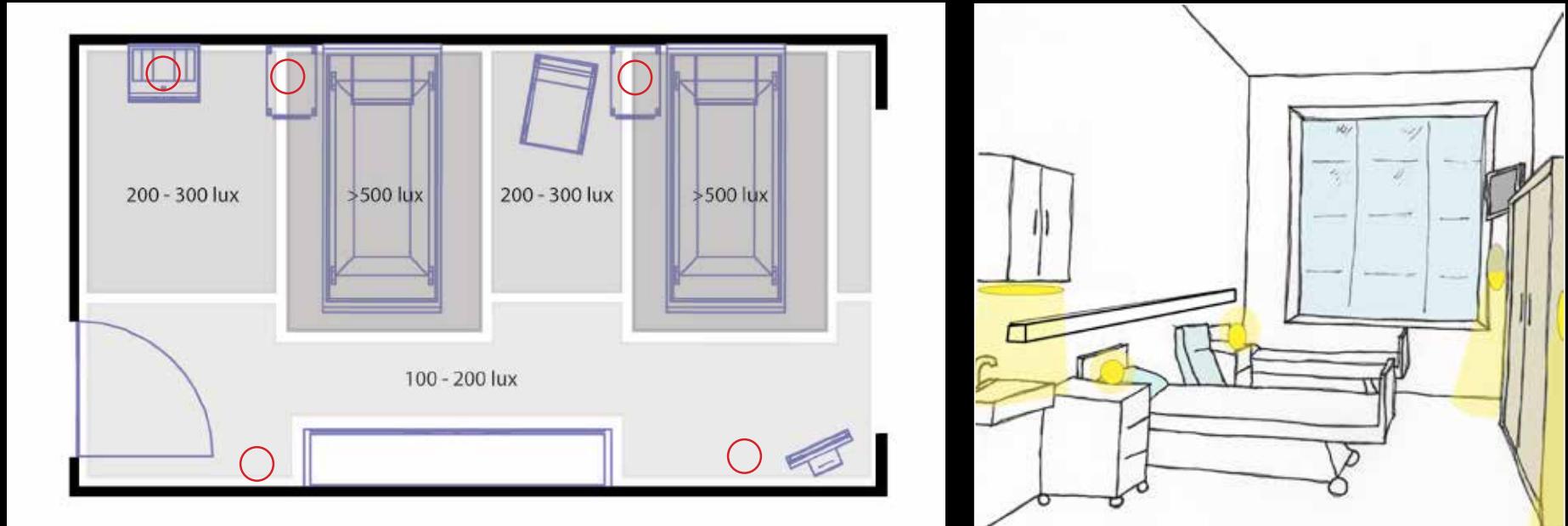
- ‘High Lighting Scenario’
- ‘Centre Lighting Scenario’
- ‘Low Lighting Scenario’



## High lighting zone

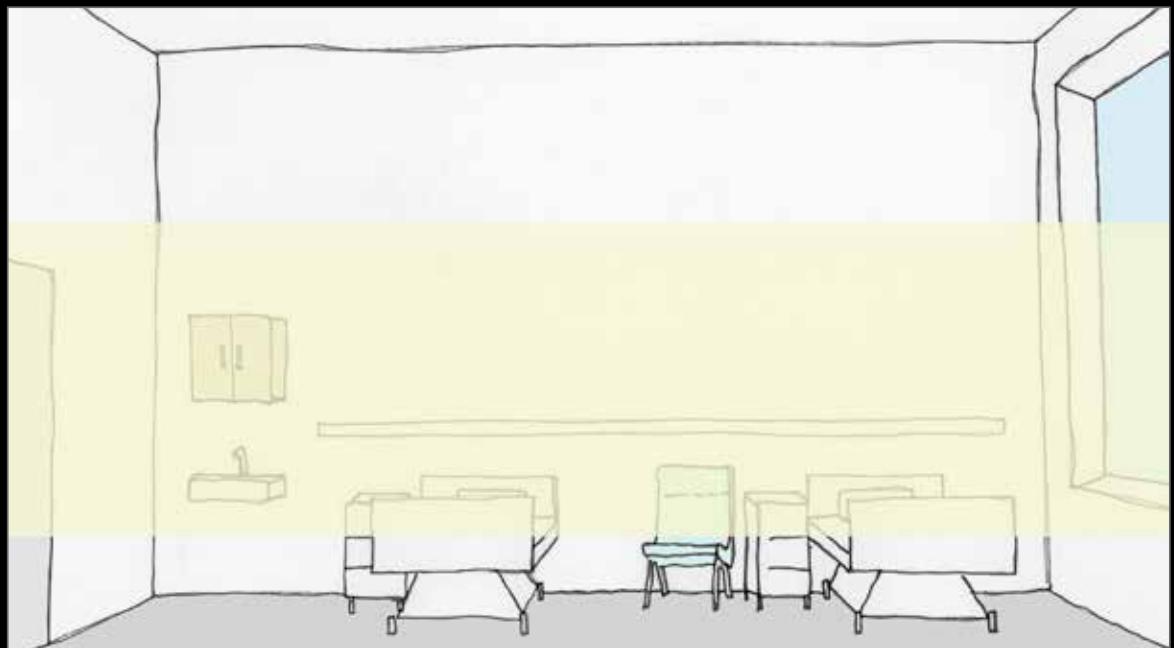
Upstanding activities  
Staff lighting  
Walking areas  
Energi boost

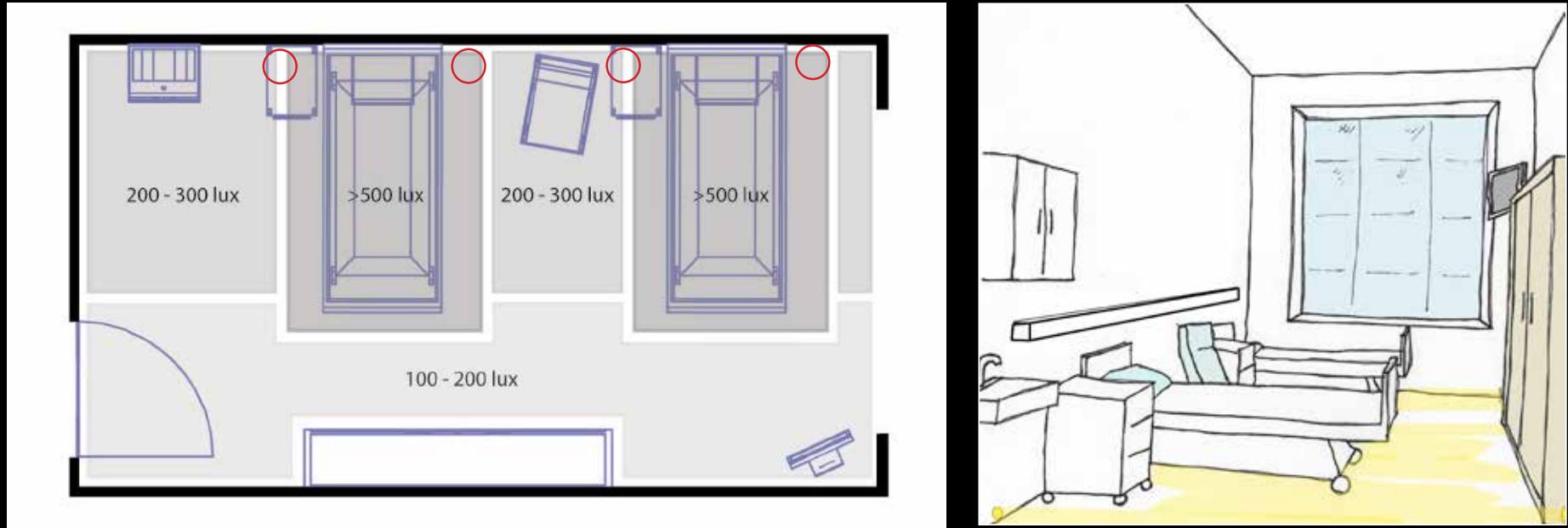




## Centre lighting zone

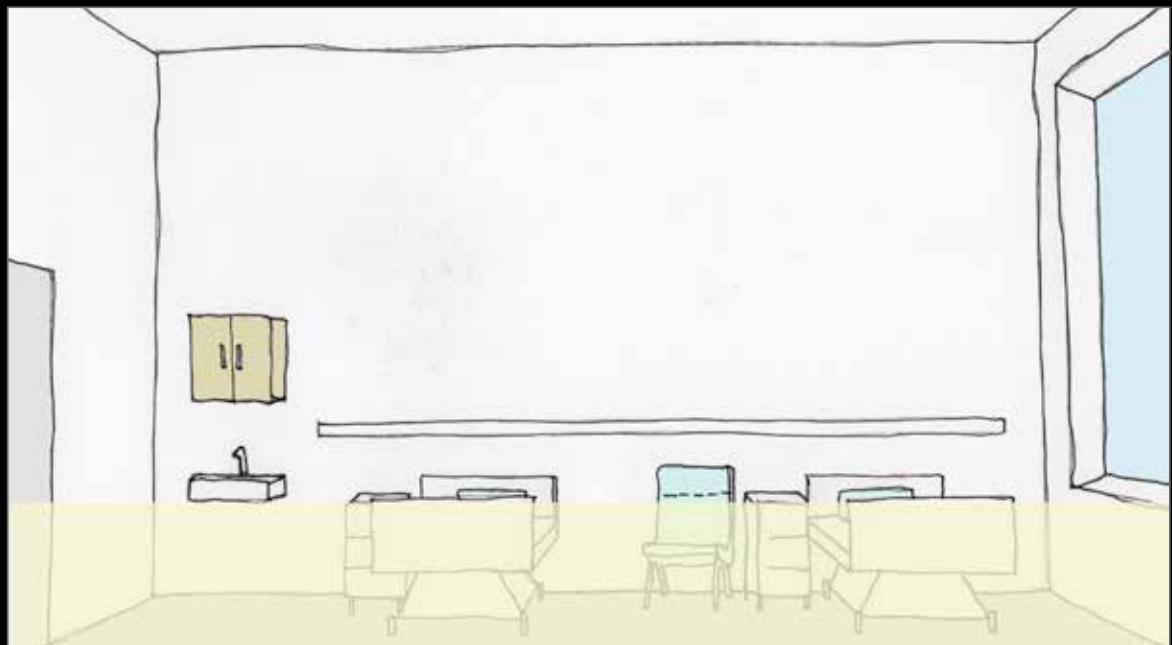
Relaxing /sitting activities  
 Patients lighting  
 Watching TV, Reading,  
 conversation

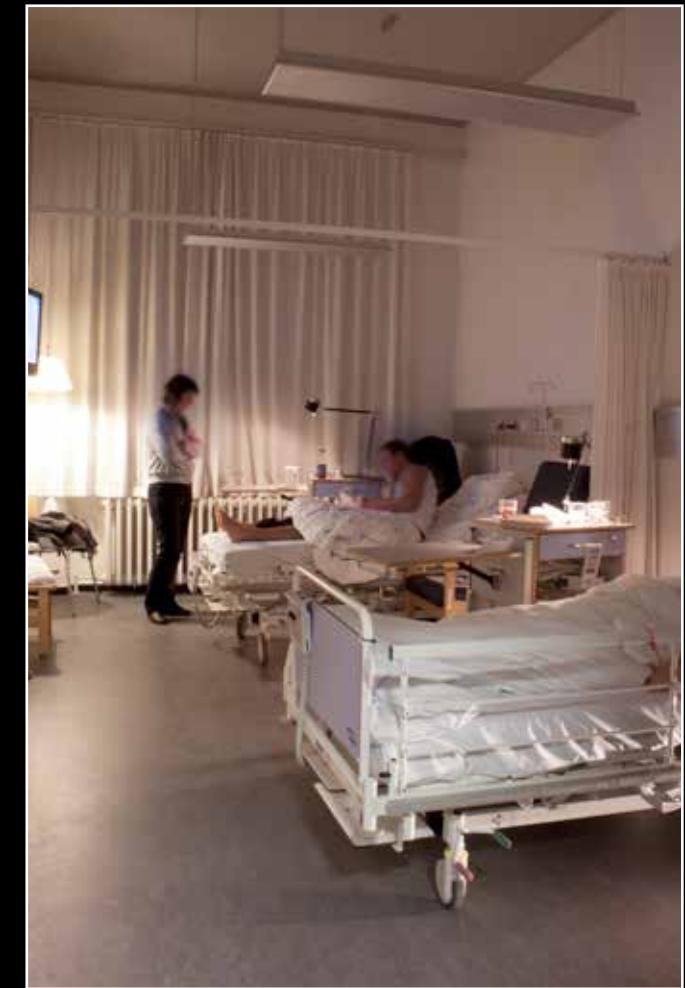




## Low lighting zone

Going to sleep  
Patients lighting  
Orientation light at night time





‘Centre Lighting Zone’

## 5 . Pilot study



‘High Lighting Zone’

## 5 . Pilot study



‘Low Lighting Zone’

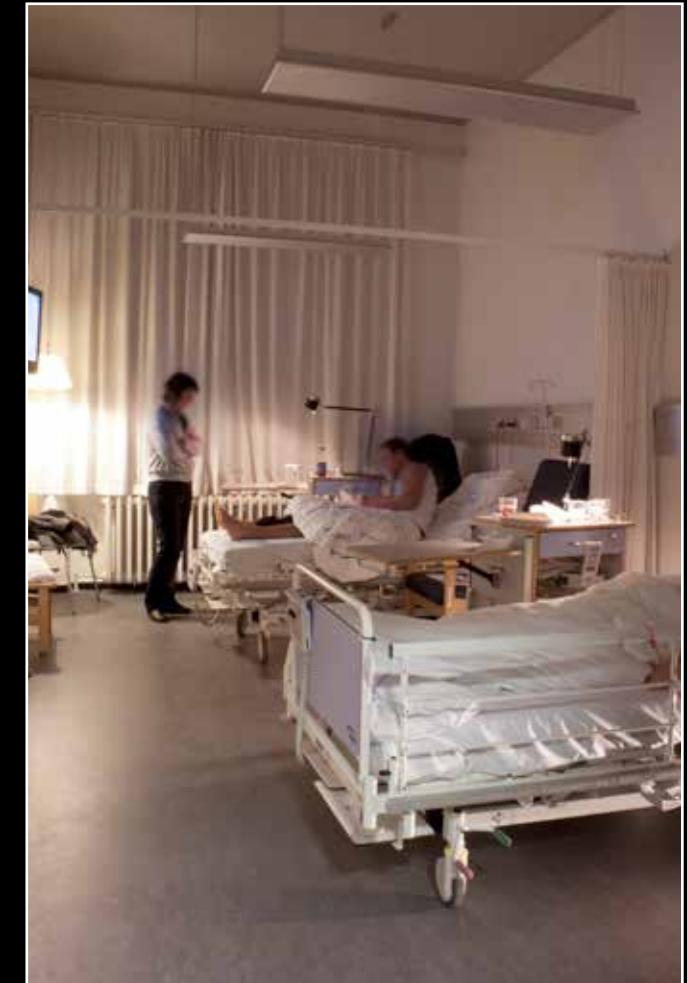
## 5. Pilot study

# Patient experience

TV-light  
32 patients  
Winter 2011/2012  
Evenings/after dark



Traditional ward lighting

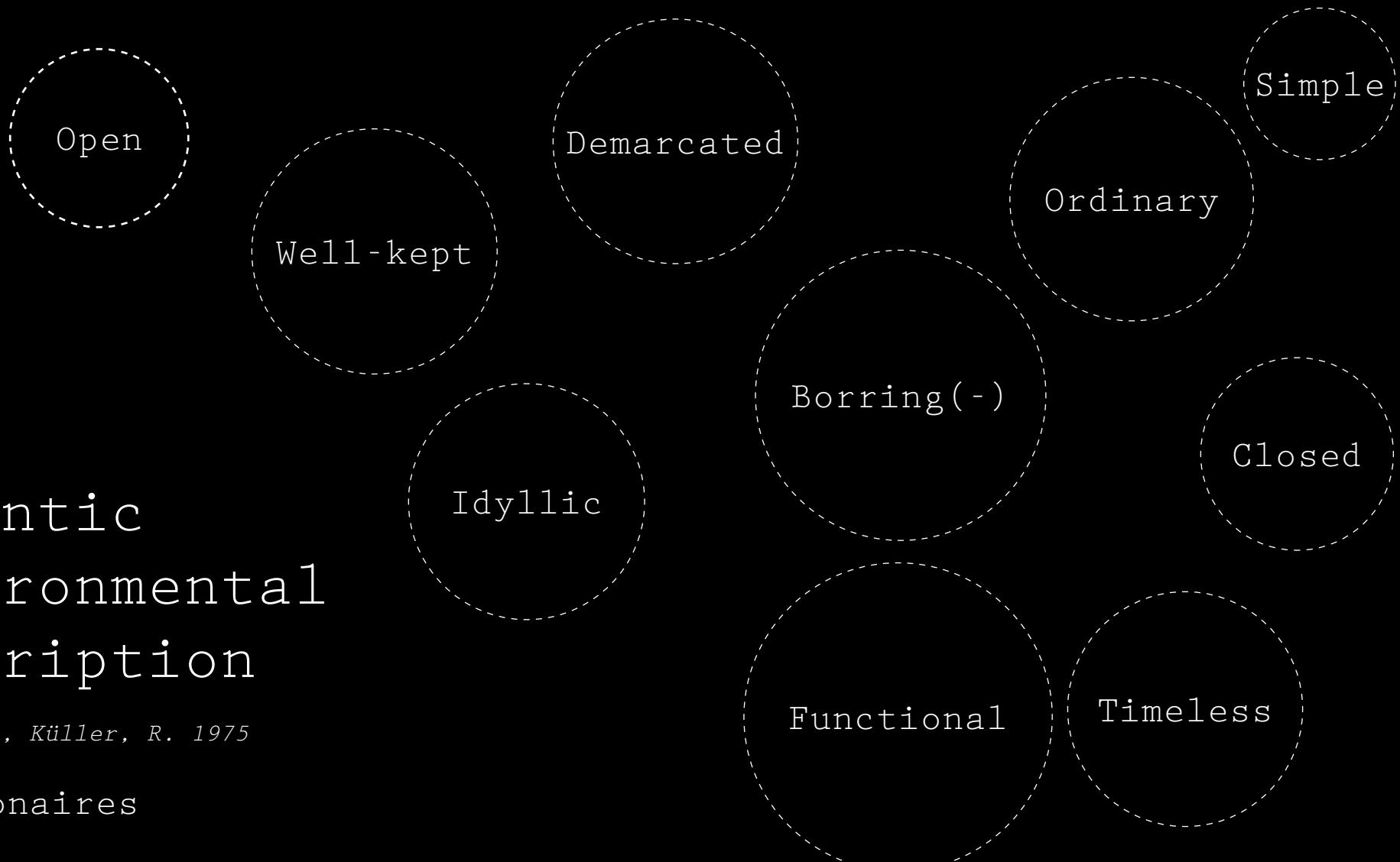


Designed ward lighting

# Semantic Environmental Description

*SED-Method, Küller, R. 1975*

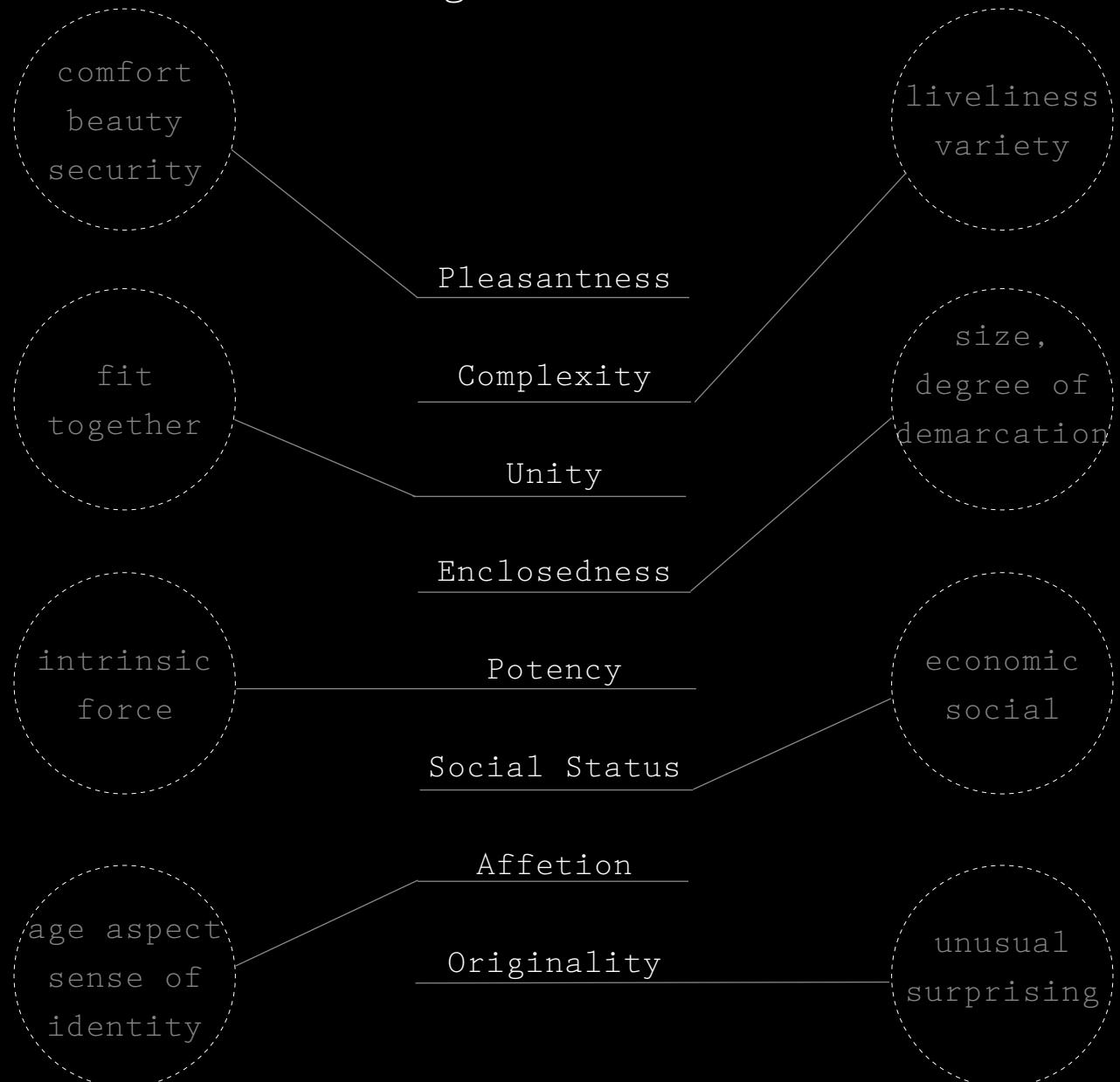
Questionnaires



# Semantic Environmental Description

SED-Method, Küller, R. 1975

## Physical Environmental Eight Factors

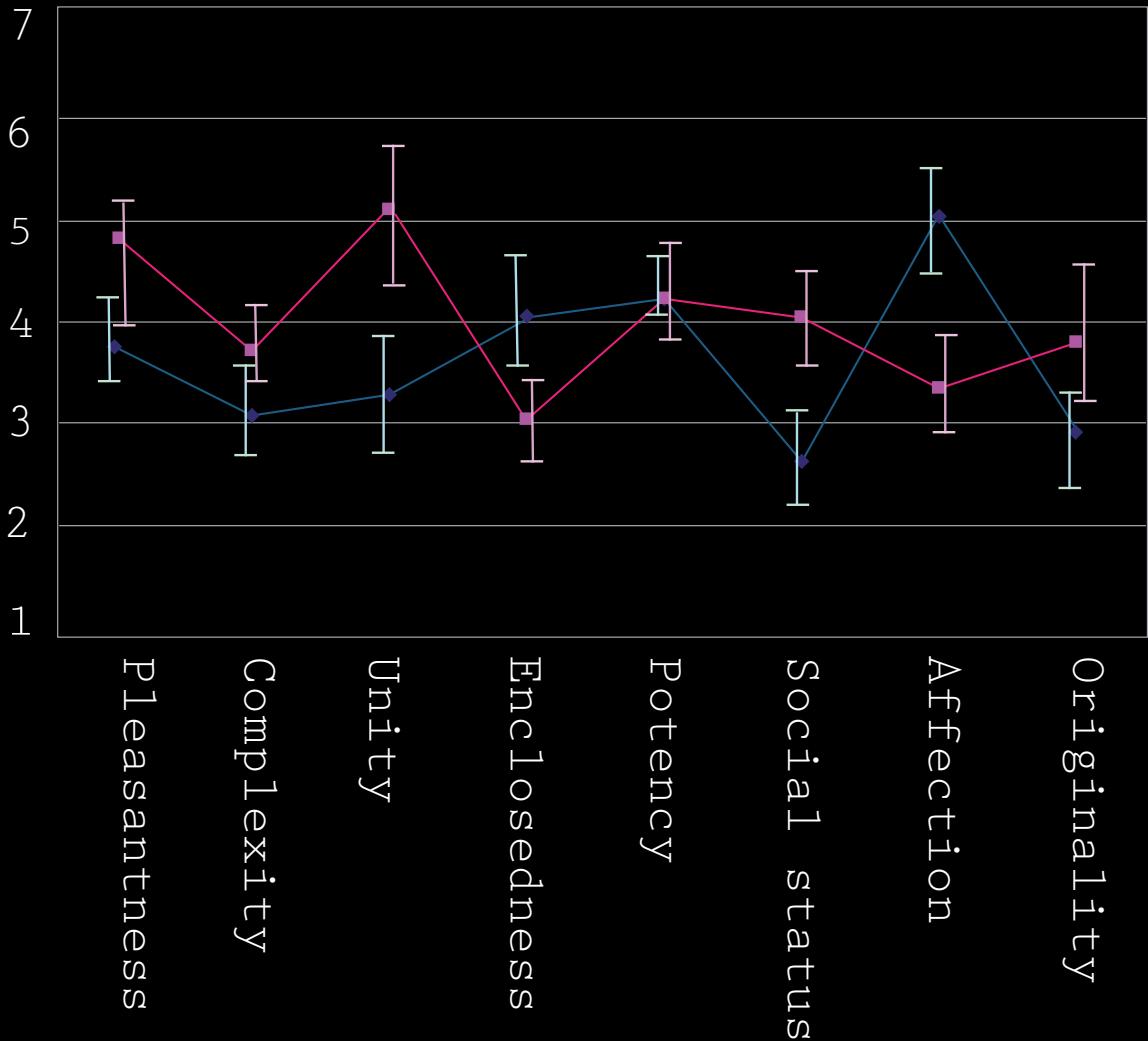


# Semantic Environmental Description

SED-Method, Küller, R. 1975

- Designed Ward lighting
- Traditional Ward lighting

## 5. Pilot study



The study:

Display aspects light atmosphere in a danish context.

Discuss 'traditional' approach to lighting design and introduce a socio cultural aspect.

'Model of Light atmosphere' separates aspects of light atmosphere. It can be a design-tool in creating pleasurable light atmosphere.



## ● Light Atmosphere in Psychiatric Healthcare

Aalborg University, Department of Civil Engineering  
Region of Southern Denmark  
Southern Denmark Health Innovation.

## ● Sociocultural aspects of Light Atmosphere



## 6. Conclusion and perspectives

Thank you!

