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Can Active House Become the Future Building Type?

– Examination of Active House as a Breakthrough Innovation through the User Experience –

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2 Introduction

2.1 Challenges We Face Today – Energy Consumption & Unhealthy Living Conditions

People spend 90% of their lives inside of buildings (Velux, 2015), thus our built environment has a huge impact on our health and wellbeing. Although people tend to assume that they have a healthy home environment, statistics point to a different direction. Only in Europe there are estimated 80 Million citizens that live in a home that suffers from damp, which approximately doubles the risk of developing asthma (Velux, 2015).

Beside the impact on the individual, our built environment also has a bigger, environmental impact that addresses our global society. Energy consumption has become a significant challenge in today’s life and we see incentives both on country as well as global levels to reduce our energy

usage. Buildings themselves account for about 40% of our energy consumption (Velux, 2015), thus energy efficiency of buildings lately enjoys great awareness of governments and international organs. Along with this, the European Union has made great effort to reduce Europe's energy consumption by creating the 2020 Energy Target, with the aim to reach 20% energy reduction within the next few years (European Commission, 2016). In a European perspective, better construction of buildings could effect in the use of half extracted materials as well as save up to one-third of all water consumption (Velux, 2015). But of course energy usage is a global phenomena and Europe is only „a small piece of the cake“, therefore a bigger, global collaboration is required.

Architecture has therefore responsibility to create sustainable living environment for people, where sustainability is to be understood in the social, economical and environmental context. This approach may be hard to maintain in a gadget-happy, goods-oriented, consumption-motivated society, that has been characterising our behaviour since the 1980ies. We may consider a lot of goods disposable and obsolete, which has the danger, that everything we throw away. We fail to value (Papanek, 1985). Among other areas, this trend has also reached the building industry. Especially characteristic for this kind of architecture are the introduction of modular and mass-produced housing. However, as a new trend, more and more consumers act against artificial obsolescence of consumer goods and are looking for quality and long-lasting value in the products, services or experiences they buy, for which they are also willing to pay a premium.

In order to shift towards a quality and value focused consumer society, designers and architects have responsibility in starting to plan goods for people's *needs* rather than for their *wants* (Papanek, 1985). In addition, designers, industry and government together must determine the societal and ecological harm that has been made. In connection with that pollution of products, which occurs in seven different ways, shall be reduced (Papanek, 1985, p.250):

1. Natural resources are destroyed, moreover, these resources are usually irreplaceable
2. The very destruction of these resources by strip-mining, open pit mining, and so forth, creates a pollution phase
3. The manufacturing process itself creates more pollution
4. This same manufacturing process also brings about worker alienation and anomie
5. Packaging
6. The use of the product creates more pollution and user alienation and user anomie
7. Finally, discarding the product creates even more lasting sources of pollution

In this context the aim of this thesis is to introduce an alternative building type – active house (AH) – that incorporates three aspects: comfort, health and environment. In active house quality of

human life and quality of the environment are closely linked, in a solution where environmental sustainability and a comfortable dwelling are in a positive relationship (Velux, 2015). One of the architects of LichtAktiv House (a model home in Germany) declares the following: “Sustainability is an integrated part of responsible architecture in our time. We have developed a design method that integrates sustainability from start to finish. This entails materials as well as social parameters.” (Velux, 2015)

2.2 Examination of the active house concept among the user-experience

The aim of my thesis is to examine, whether active house has the potential to become the „future of architecture“. The political and regulatory settings give a framework to understand the global background of this investment. However, the primary focus remains in gaining understanding of the user experience of active houses, since at the end of the day it is the people that may or may not be willing to invest and live in such a building type. Their attitude and relationship towards the concept therefore also determines the success or failure of active house on the global market.

According to a European study, comfort is the most important parameter influencing people’s choice of habitat as well as the main reason to make changes in a home. “A good home is a comfortable home.” – states the quantitative survey (Velux, 2015). The definition of comfort both includes physical parameters of the home (brightness, temperature, humidity, indoor-climate, noise level, etc.), as well as well-being of people. Well-being is a state of mind measuring the overall evaluation of one’s perception of the own housing situation (Velux, 2015). As a consequence - as human comfort is experienced both in body and mind - architecture must also appeal to the aesthetic sense.

Since comfort is the most important parameter for users, that drives their behaviour and purchase decision, I focus on this parameter of the user experience in my master’s thesis.

3 Introduction to the Active House Concept

3.1 Active House

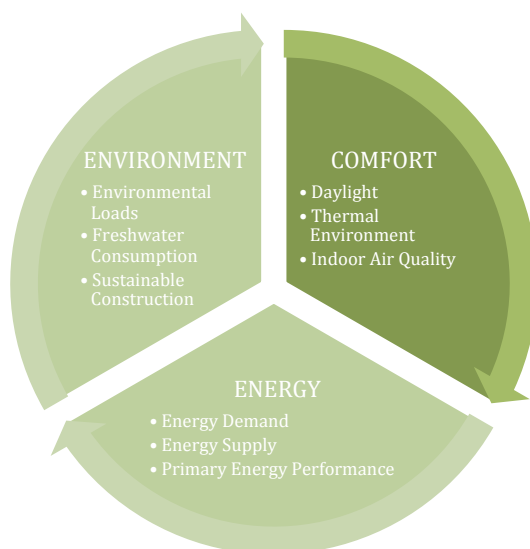
„Active House is a vision of buildings that create healthier and more comfortable lives for their occupants without impacting negatively on the climate – moving society towards a cleaner, healthier and safer world.“ (Activehouse, 2016). The success of a design is strongly independent on the design brief (Petersen-Phillips, 2011). The active house concept requires a holistic approach in terms of planning. Therefore, building design and performance are created via the collaboration of united parties. This concept is also to facilitate cooperation on building projects,

product development, research initiatives and performance targets (Velux Model Home 2020, 2015).

The active house concept creates value by incorporating its three main elements into an attractive whole and generating interaction between them: *energy consumption*, *indoor climate conditions* and *environmental impact*. (Velux Model Home 2020, 2015)

The aim with comfort is to create a healthier and more comfortable life for the inhabitants of the house. It is carried out by creating more comfortable indoor conditions of the house via ensuring a generous supply of daylight and fresh air. In the same time materials used must have a neutral impact on comfort and indoor climate (Velux Model Home 2020, 2015).

- High levels of daylight create better mood and higher level of well-being of people. In addition more windows allow an attractive view to the outside, which help people to connect with nature and follow the seasonal changes. Due to the higher amount of natural light electric lighting usage during the daytime can be reduced, which leads to a lower level of energy consumption (Activehouse, 2016).
- Similarly to daylight a pleasant thermal environment also has great effect on people's mood and wellbeing. In addition it also contributes to better performance and enables better relaxation at night. It is especially important for the elderly, since thermal environment influences their health by preventing and alleviating diseases. Active house creates an optimal indoor climate by minimizing overheating in the summer and winter months without any unnecessary energy use. Although one has to acknowledge that inhabitant's behaviour and routines can alter the energy usage of the house (Activehouse, 2016).
- Indoor air quality is both important for our health and our comfort. It can help prevent



respiratory diseases and illnesses as mucous membrane irritation, asthma and allergy. In addition it can also contribute to prevent cardiovascular diseases as well. Active house creates a good indoor air quality in the same time minimizes energy usage

of ventilation. It maintains natural ventilation where it is possible, or a hybrid – natural and mechanical ventilation system. As part of air quality, humidity shall also be taken into consideration, which is especially harmful if present on the long-term (Activehouse, 2016).

Energy shall be understood in terms of its positive contribution to the energy balance of the building. Active house is energy efficient. All energy needed is supplied by renewable energy sources integrated in the building or from the nearby collective energy system and electricity grid (Velux Model Home 2020, 2015).

- An active house keeps the energy demand low. Energy demand is calculated based on a holistic approach and including all the energy used by the heating, water heating, ventilation, air conditioning, technical installations and electricity (Activehouse, 2016).
- The idea of the active house is to base its energy supply on renewable and CO₂ neutral sources (Activehouse, 2016).
- The annual primary energy performance of the building is based on national figures on primary energy. It includes both energy demand and supply as well as renewable energy used and generated during the one-year period of time (Activehouse, 2016).

This building type has a positive environmental impact through an optimized relationship with the local context, focused use of resources, and its overall environmental impact throughout its life-cycle (Velux Model Home 2020, 2015). In order to meet this criterion, as designing, building materials and resources play an important role. Considering adaptation in architecture of the house to local building culture, traditions, climate and ecology is also a valid standpoint.

- One must consider all environmental effects and loads during the whole life-cycle of the building. The construction process itself already causes various emissions, which are also taken into account (Activehouse, 2016).
- As fresh-water is becoming a short resource, active house aims to minimize fresh-water consumption during the whole lifetime of the building. Some of the practices used here are installation of water saving tabs and easy-to-clean surfaces, as well as usage of grey- or rainwater for toilets and gardening (Activehouse, 2016).
- Last, but not least, also the construction of active house is sustainable. Here, recycled content and sourcing are evaluated. It includes pre-consumer, internal and post-consumer recycling and is taken into consideration for 80% of the building. As part of it, certified sourcing is used in terms of building materials for example (Activehouse, 2016).

In an active house the integration of the above-mentioned elements should provide further value (Activehouse, 2016):

- The integration of demands of comfort, energy, environment and ecology into an attractive

whole.

- The architectural quality and human well-being.
- The interactive systems and spaces adding to human enjoyment and supporting environmentally responsive family life.

In order to live up to all these high standards, active house radar has been created, which allows measuring the performance of individual homes based on the active house principles. It helps architects and engineers calculate on which level their design is to meet active house standards. Active house today is not a copyrighted term, but the legal protection of the concept is already in progress. As a result, in the near future only houses that are in compliance with the active house radar can be called an active house.

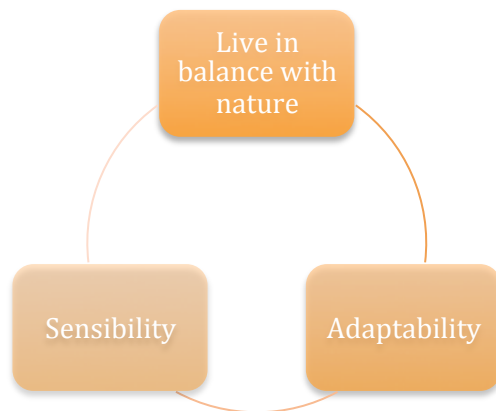
3.2 Further Enhancements of the Concept: the Circadian House

Following the concept of the circadian house allows further enhancing of health and comfort of buildings. It has a primary focus on energy, light and life, while taking into consideration the social, sociological and environmental dimensions of daylight (Velux (b), 2016).

Today many dwellings are renovated with the aim of ensuring a more sustainable and efficient energy performance of the building. These investments usually include better thermal insulations; better energy-performing windows as well as a more efficient heating, cooling and ventilation system. However, these renovation projects have little consideration about the increase of health and comfort of the inhabitants, although the original function of a building is mostly related to these terms: it has the function of giving shelter, provide safe and enjoyable living environment. Therefore welfare of the inhabitants shall ideally also be considered in addition to environmental impacts (Thedaylightinsite, 2016).

The circadian house is a healthy home that supports the different biological needs of its occupants in particular including their circadian rhythms and sleep-wake cycles. In practice these dwellings synchronise the circadian rhythms of their inhabitants to the 24h day-night cycle and the seasonal changes of day length (Circadian House, 2013). The circadian rhythm according to ISO 16817:2012 is a characteristic periodic change in a living organism or life-related process. A circadian rhythm is an approximate daily periodicity, a roughly 24-hour circle in the biochemical, physiological or behavioural process of living beings, which may be influenced by optical radiation (light) (Circadian House, 2013).

This architecture has three key principles and ten key factors (Circadian House, 2013):



FACTORS	Variation
	Stimulation / absence of stimulation
	Outdoor/indoor relation
	Light / darkness
	Electrical lightning
	Cool / warm
	Silence / sounds
	Rest / activity
	Flexibility related to the season
	Control

HWBI	Emotional Attachment
	Size
	Modernity
	Breightness
	Neighbourhood
	Heating Control
	Energy Consumption
	Humidity
	Sleeping Comfort
	Ventilation

These factors are also closely related to the ten housing well-being inventory (HWBI) dimension of well-being in active houses that has been based on a pan European survey „Healthy Home Barometer“. The survey has included 12.000 respondents from 12 different countries, researching how people perceive their homes and behave in their homes. These 10 dimensions of well-being shall be seen from a holistic perspective, since all of them must come together and only the combination of these make up for well-being (Velux, 2015).

Comparing the HWBI to the ten factors of the circadian house, one can see that a few elements are equivalent or closely related. Such elements are Brightness – Light/Darkness & Electrical Lightning, Ventilation & Heating Control – Cool/Warm, Sleeping Comfort – Silence/Sound, Cool/Warm & Light/Darkness. While the active house dimensions are more related to the active house principles centred on sustainability, the circadian house factors are rather reflecting human’s relation to nature and environment. It can be explained with the idea that humans are seen as biological beings. The circadian house concept does not contradict with the active house concept. On the contrary, it can be incorporated in the same building and used to further enhance the health and comfort parameters of the active house.

4 Political and Legal Background for Active House Investments

Political and legal environment for active house investments can vary in each country. In the following chapter I am going to introduce the regulations of the two countries (which are included in my primary research): Missouri State (The United States of America) and Kingdom of Denmark. Whether an environment promotes or at least is neutral to (in the sense that it does not hinder) active house investments, will be examined in the way that national energy plans will be presented with the focus of the depth and scale they contain and reflect upon the nine active house principles (environmental loads, freshwater consumption, sustainable construction, energy demand, energy supply, primary energy performance, daylight, thermal environment, indoor air quality). If at least five out of nine is present, an inviting political environment is assumed, which enables to move forward the penetration of active house constructions.

4.1 United States of America – Missouri State

In Missouri State buildings are responsible for about 50% of total energy consumption. According to forecasts of the U.S. Energy Information Administration (EIA) this will further increase, and by 2040 additional 12,3% growth is to be expected, which routes in population growth and the need for additional structures. The multi-family sector has the biggest potential to become appealing for energy efficiency improvements, but as far only a fraction of such investments has been realized. Although, improving the energy efficiency of these households could also lead to improved stability of vulnerable households, most of which are renters, who typically spend larger percentage of their income on energy bills (Naseo, 2015).

The most energy consumed on a national level is used for heating and cooling of the households. In Missouri, 51% of homes use natural gas as heating fuel, 34,8% electricity, while 9,3% rely on propane (Naseo, 2015).

An increase of energy efficiency has appeared between 2000-2005, where 14% reduction occurred compared to earlier data. However, there is further chance to increase energy improvements via usage of more modern technology and products, furthermore via installation of energy codes (Naseo, 2015).

On February 20, 2015, the Missouri Home Energy Certification (MHEC) program was announced, which encourages Missourians to reduce energy usage by making improvements or upgrades to their homes. MHEC is a voluntary program designed to promote energy efficient homes through clear and meaningful recognition (Naseo, 2015).

The following table incorporates active house principles compared to initiatives (presented in form of quotation) of EIA.

AH PRINCIPLES	BUILDING CLASS 2020
Daylight (Comfort)	N/A
Thermal Environment (Comfort)	N/A
Indoor Air Quality (Comfort)	N/A
Energy Demand (Energy)	<p>“Efficiency as the least-cost resource. The Missouri Energy Efficiency Investment Act sets a platform for the state to achieve energy efficiency reductions through demand-side management programs implemented by the state’s investor-owned electric utilities. While MEEIA serves as a good first step, there are opportunities for policy modifications that would encourage more aggressive, and mandatory, targets. Other benefits could be derived from allowing natural gas IOUs to voluntarily participate in MEEIA and exploring opportunities for better accounting for social and environmental benefits into cost-effectiveness tests that are used to screen technologies.” (Naseo, 2015, p. 97)</p>
Energy Supply (Energy)	N/A
Primary Energy Performance (Energy)	<p>“Missouri has significant potential to reduce dependence on fossil fuels for these uses by increasing the use of ground source heat pumps, currently underutilized in the state.” (Naseo, 2015, p. 97)</p>
Environmental Loads (Environment)	N/A
Freshwater Consumption (Environment)	<p>“Significant amounts of energy are used in the treatment of water and wastewater and its delivery and distribution. Increasing efficiency at water treatment facilities through the installation of more efficient pumps, motors, and other equipment, can help reduce the burden of energy cost. In addition infrastructure improvements to the distribution system could prevent the loss of purified drinking water as well as the energy resources associated with its treatment and distribution.” (Naseo, 2015, p. 98)</p>
Sustainable Construction (Environment)	N/A

AH PRINCIPLES	BUILDING CLASS 2020
Daylight (Comfort)	<p>“Daylight in the home has a positive effect on our general well-being and is thus an important part of a good indoor climate. Good access to daylight can improve our concentration and improve our mood. It can also be a positive experience just to look out of the window at the surrounding countryside or garden. In addition to the advantages of good access to daylight in terms of comfort, it also shows up on the energy bill. Increased and conscious use of daylight can save electricity used for lighting in the workplace and the home.” (Energy Styrelsen, 2012, p. 13)</p> <p>“... Good lighting conditions, so requirements for a minimum area of glass have been introduced for homes, day-care centres and office buildings. Living areas and kitchens/general purpose areas and working areas in institutions and offices must have a window area corresponding to 15 % of the floor area, provided that the glass has a light transmittance of at least 0.75.” (Energy Styrelsen, 2012, p. 13)</p>
Thermal Environment (Comfort)	<p>“Previous experience with low-energy buildings shows that in some houses, uncomfortably high temperatures can occur. These high temperatures partly occur due to large south-facing windows, which in many cases are badly shielded against sunlight, and partly due to poor ventilation... the thermal indoor climate on sunny days must be documented through calculations for homes, institutions, offices, ° etc. The thermal indoor climate must not exceed 26°C apart from by a few hours during a normal year. The 26°C limit for homes must not be exceeded by more than 100 hours annually and 27°C must not be exceeded by more than 25 hours annually.” (Energy Styrelsen, 2012, p. 13)</p>
Indoor Air Quality (Comfort)	<p>“Danes stay indoors approximately 90 % of their time, so a good indoor climate in both new and existing buildings is of great importance to our health and general well-being. A good indoor</p>

	<p>climate also results in fewer sick days, less stress and better well-being. The indoor climate is affected by a number of different factors including air quality, temperature, daylight etc., which are already requirements in the Building Regulations. Particularly strict requirements for indoor climate in Building Class 2020 will make the low-energy houses, office blocks and institutions of the future attractive to their residents and users.” (Energy Styrelsen, 2012, p.12)</p> <p>“Demand controlled ventilation in homes and other buildings ensures that the ventilation suits the actual requirements. Demand controlled ventilation can thus contribute to savings on the electricity bill while at the same time providing the necessary air change.” (Energy Styrelsen, 2012, p. 14)</p>
Energy Demand (Energy)	<p>“The difference between windows and the rest of the building envelope is that there is both additional solar radiation as well as heat loss through the windows. Solar gain through the windows can be used to cover part of the heat requirements of the house” (Energy Styrelsen, 2012, p. 11),</p> <p>“Significant technological advances in the window industry in recent years have meant that leading manufacturers can already deliver products with positive solar gain. These advances are expected to become widespread within the industry in coming years. For this reason, stricter requirements for solar gain through windows have been introduced” (Energy Styrelsen, 2012, p. 11)</p>
Energy Supply (Energy)	
Primary Energy Performance (Energy)	<p>“... Opportunity to create interesting low-energy buildings of high architectural quality even though requirements for the energy consumption of the building are now considerably stricter. These apply right from the start when designing a new building, where the design and siting can be vital in terms of energy consumption and indoor climate. There is therefore a focus on the design process and the energy reducing considerations” (Energy Styrelsen, 2012, p.15)</p>
Environmental Loads (Environment)	<p>“Building Class 2020 stating that warm air must</p>

	not be the only source of heating in buildings.” (Energy Styrelsen, 2012, p.14)
Freshwater Consumption (Environment)	
Sustainable Construction (Environment)	

Missouri is one of nine states in the country that do not currently have enacted building codes, and therefore there are large efficiency potentials in the building sector that remain untapped (Naseo, 2015, p.98). Although there are recent incentives to reduce energy consumption, one can assume that these regulations are still in less advanced form and are mostly not directly connected to active house principles. Therefore such home improvements (if any to come) remain mostly voluntary.

The reason for the choice of this this location, is that the Smith residence in Missouri State is the first and only active house in the United States. Expanding the European horizon to a global scale by incorporating The United States of America into the study allows looking at energy consumption as a global phenomenon. However, further expanding that scale would not be sufficient, since not every part of the world is ready to tackle yet due to climatic challenges and differences of level development. It is therefore interesting to look at the legal background of possible further active house investments in the USA, although it must be acknowledged that there might be state differences in the regulations.

4.2 Kingdom of Denmark

In 2012, The Climate-, Energy- and Buildings ministry of Kingdom of Denmark has introduced a National Plan for nearly-zero energy buildings; Danish compliance with Article 9 of Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings. According to the plan compared to the 2006 level, a reduction of 75% of energy consumption of buildings is determined by 2020. The restriction of the Energy Agreement is extended to the new buildings (Energy Styrelsen, 2012).

In 2010, the 2010 reduction target of energy consumption in buildings became law. The new energy target requirements were presented in the 2010 Building Regulations (BR10). At the same time a voluntary low-energy class was also introduced: Low-Energy Class 2015, which became binding from 2015. The energy frameworks of this class were already 57% lower than the 2006 level. Finally, a building class of 75% reduction was also prepared in 2011, with the intention to complying with the requirements of nearly-zero energy buildings in Article 9 of the Building Directive. It was introduced as another voluntary class – Building Class 2020 – in the building regulations (Energy Styrelsen, 2012).

In the following part Building Class 2020 – nearly-zero energy buildings will be compared to the nine active house principles, which are summed up in the following table, where the active house principles are matched with relevant quotations from the energy framework.

According to the Energy Plan (2012, p. 7), “Low-Energy consumption, a healthy and comfortable indoor climate and exciting architecture do not necessarily contradict each other. On the contrary, well-insulated buildings benefit their inhabitants because cold and draughts are no longer present. Similarly, there are many examples of low-energy buildings providing their inhabitants with beautiful and aesthetic surroundings. “

As it can be seen in the table almost all considerations of active house are reflected in the Danish regulations. It suggests an inviting legal environment for active house investments. As an example therefore, Kingdom of Denmark is a relevant choice of country.

4.3 Conclusion

Even though examining only two countries does not allow concluding on a global level, energy plans create different background for AH investments. Some countries, like Denmark, are more forward-looking with a more advanced legal background that sets higher standards, and is guiding towards more energy sufficient building investments, as even incorporating many of the AH principles in the national directives. On the other hand other countries leave a bigger playground as it comes to building regulations and move slower on the same path.

However, the political and regulatory environment itself is only one side of the coin. It creates incentives or forces people to act in certain ways, by reducing the options of what and in which form can be built at a certain place.

Nevertheless, consumer behaviour is at least as important as the regulatory background. Consumer’s needs and preferences will affect their willingness to buy or to invest in certain architectural forms or concepts. What kind of home environment do they find comfortable. What do they prefer as their habitat? And finally, whether they would be willing to choose a certain type of architecture all over again. The next chapter therefore aims to understand the consumer behaviour as it comes to consumption of architecture. Firstly, I aim to describe today’s consumption culture in general. Secondly, how design innovation can create value for today’s consumers. Finally, what causes a good architectural experience and leads to aesthetic pleasure. Joy and architectural pleasure than may lead to consumer loyalty, emotional bond and advocacy, increasing the probability of active house to become the future of housing.

5 Theory: Consumer Behaviour in Architecture

5.1 From Experience Economy to Transformation Economy (Personal Transformation)

Experiences are embodied mental phenomenon (Hutchins, 1999) they cannot be stored, since they happen in people's minds. They are determined by external stimuli and elaborated mental awareness from earlier experiences, mental needs and personal strategies. Experiences can be released by stimuli affecting all the senses and they can rather be conscious or unconscious (Sundbo – Sørensen, 2014). The optimal experience is defined as flow (Csíkszentmihályi, 1990). According to Pine and Gilmour (1999) four different experiences can be distinguished: escapist, entertaining, educational and aesthetic.

Our society is formed on the basis of meaningful experiences, interests, values and hobbies, rather than political reference and class (Boswijk et. al, 2007). This is also reflected in the shift of attention of marketers from products and services to experiences. As a consequence, today we define our economy as experience economy. Products and services fulfilling our basic needs are taken for granted in our societies, while higher levels of needs (Kotler-Keller, 2012) can be better satisfied via experiences. Experiences are personal; we all individually have our unique needs, belongings and motives. The experience is processed via sensory perception that is turning into emotions, which then can lead to meaningful experience. Meaningful experiences share the following characteristics: (1) they involve all ones senses, (2) they require heightened concentration and focus while they happen, (3) ones sense of time is alerted, (4) one is touched emotionally, (5) the process is unique for the person and has an intrinsic value, and finally (6) one has contact with one's environment by doing things and undergoing things (Boswijk et. al, 2007). In connection with that, as creating meaningful experiences, the focal point must be on the individual and the second priority on the social context. (Boswijk et. al, 2007).

The growth in terms of national Gross National Product (GNP) produced by the experience economy, and thus the return on investment in the creative sector has not reached its forecasts. Another critic of the idea of the experience economy is that not every creative profession creates wealth. In addition there is great difference in terms of growth via experience economy in more and less developed countries. For instance, in Scandinavia the experience economy has already reached its top, and a new phenomenon is to come – the transformation economy (Kristensen-Horváth, 2012). The transformation economy can be described as the highest level of value creation that is based on an individual search for improvement both physically and spiritually. Transformations are defined as one-time experiences that change the character of need-

satisfaction; they are irreversible and cannot be undone. Nevertheless, transformations often concern the consumption of culture (Kristensen-Horváth, 2012). Transformations require three elements to be present in order to be carried out. These three are (1) a creative person (the initiator and influential), (2) a domain (rules and mechanism containing system) and (3) the field (people, who act as gatekeepers to the domain). Value is created as the raw material is transformed into a new concept – in this case the individual is transformed himself, allowing a process of sustainable value creation (Kristensen – Horváth, 2012).

The success of the active house concept is therefore highly dependent on whether:

- a) It can become a meaningful experience and
- b) It can transform previous home experiences, creating new perception of a comfortable home.

Active house is as much a new innovation as a design concept. Therefore the next two subchapters aim to describe how design can create value for consumers today in an experience and transformation oriented marketplace contributing to a successful innovation.

5.2 Innovation of Housing – Active House as a Design Innovation

What is the route of architecture, and what is its purpose? Is architecture art? What is its relationship to other related professions such as engineering?

Artworks have been described very differently throughout the time. First of all with the theory of cultural history: art as fixed relative to criteria connected to temporal and cultural context. Secondly, art can also be seen in psychological and social context: art as psychological mechanism inside the human body, (which has been also proved by cognitive psychology and neuroscience). Finally, there is a psycho-historical approach combining those two considerations (Bulot, 2009).

Dickies (1997, 2000) constructivist, institutional theory – which is more reflecting the first consideration of art – claims, that in creation of art five roles must be present: the artist (the creator of art), a work of art (the piece of art), public (audience), the art world system, and art world itself. It highlights the importance of the social revolution of art world system, which makes it quite impossible for different creations, such as engineering products to be considered as artworks. On the contrary, architecture is seen as qualified for becoming an artwork. According to interpretation of art, a building planned by a „star-architect“ is seen, as an artwork, but a building primarily being functional and secondarily aesthetical, is not. Aesthetics can be defined as a trifecta of freedom, beauty and pleasure (Postrel, 2004).

This anesthetisation (innovation only through aesthetics) of buildings and the focus on primarily aesthetic improvement of buildings sets in my point of view a barrier to innovation of architecture. The purpose of design today is not only giving form, but a way of providing affordances to the user and enable him or her better understand and satisfy his needs (Kristensen, 2015). In Heskett's view design can also contribute to routine, incremental value creation as well as to value creation through radical innovation (Kristensen, 2016) (Where value is seen as circumstances and context dependent). The development of residential buildings and the building industry in general throughout the time is considerably slow compared to other industries – just looking at the rapid improvement of the telecommunication industry for example. Phones have not existed hundred years ago and today we all have smartphones allowing us not only to satisfy basic needs of communication, but assist us with diverse functions via apps in our everyday life as well as offering the possibility to social interaction and networking on the web. They are one of our first sources of information and a constantly present and available entertainment. On the contrary, buildings we create today do not differ radically from the ones our ancestors have built 300-500 years ago. They are based on the same materials – brick, stone, wood, glass, and have similar functions with small adaptation to social change and individual needs. The innovation of buildings is primarily carried out by the innovation of the form, but less in a broader perspective incorporating other aspects such as technology, new trends, new meaning, etc.

The ancestors of active house (or rather parts of the active house concept) already appear in the 1930ies. One of those engineered houses is the Villa Girasole near Verone, planned by Angelo Invernizzi in 1935. The idea of the house is to follow the sun in order to maximize daylight and fresh air in the house. The building is centred on a tower and is based on two diesel motors that enable the rotary notion. This way the building is in the meanwhile also transforming into a surreal giant clock (Heathcote, 2016). This building-machine is one of the first realizations of the idea of healthy indoor climate and comfort, incorporating the comfort and health aspects of active house. Another example is the over-engineered Tudor villa of Lord William Armstrong that was the first house powered by hydroelectricity, already in 1869 (Heathcote, 2016). This house was mostly based on green-energy predicting the obsolescence of coal and pointing toward alternative energy usage of buildings, thus incarnating the environmental aspect of Active House.

Design can be the fuel of growth engine and innovation, but only if it is applied in a holistic sense. Only styling is considered to be less successful (Stamm, 2013). Innovation is often driven by the ability to see connections and opportunities and act upon them (Bessant – Tidd, 2011). Breakthrough innovation often routes in (1) using new technologies to (2) realize consumer needs that they do not even realize they have, (3) by radically changing the meaning of their category (Verganti, 2011). This kind of innovation is best examined by answering the questions whether the

new technology enables us to create new products and services that people find more meaningful than existing ones, and whether they can transcend existing needs and create new reasons for people to buy (Verganti, 2011).

Whether active house is a successful innovation, is highly dependent on the acceptance of people. This will be examined by evaluating the highlighted questions:

- Do its users find active house as more meaningful than other building concept?
- Does active house create new needs or realises needs that consumers were not aware of having before living in these houses?
- Does active house change the meaning and its users perception of housing and home environment?

5.3 Design as the source of value creation

Design can be understood in three levels: (1) syntactic dimension – the appearance of an object that can be described by its size, dimensions, colour, etc., (2) pragmatic dimension – which is the interpretation, the logic of the object, (3) semantic dimension – the relationship between the object and what it signifies – the meaning behind. It can be understood in two levels: a denotative, rational signification, and a connotative symbolical signification (Mozota, 2006). Accordingly, consumers interact with design in different levels, there is an intellectual implication, meaning the eagerness of the consumer to improve his or her knowledge and expertise. Then there is an emotional implication where the possession of the product reinforces the ego and the idea of oneself. And finally, design has a social context, the picture the consumer signifies of his or herself toward the bigger society, where the product represents an affinity to belonging to a particular group (Mozota, 2006). Design is today moving from the abstract and ideological to the personal and emotional. In this sense there has been a shift from previous understanding of design and the idea of “form follows function” is not seen valid anymore. Instead of that “form follows emotion” is found to be relevant today – suggesting that we find something functional that appeals to us emotionally (Postrel, 2004). People, as natural, visual and tactile creatures want to enhance their sensory experiences, but in the same time they also wish for something more, they want to express their personalities. We can see consumption as a holistic experience and the consumer itself both a rational and an emotional being (Østergaard – Jantzen, 2000). Today, mostly consumer is seen as a precedent in nature, serving his needs and giving meaning to its life (Kristensen, 2016). Consumer not only consumes the product itself, but culture, and the same time culture becomes a marketable product.

Is value something assigned by the people or is it embedded in the product and recognised by the user? Value can be defined in many ways, one definition would be to understand value as the monetary value that people sacrifice to purchase a product (Boztepe, 2007). However, this definition overlooks the user situation, time and effort, which are other important elements in assessment of value for people (Boztepe, 2007). In my research I am less interested in the economical definition of value, neither am I focusing on the embedded value (like building materials, price of the ground, price of energy saved, etc.) of active houses, but rather the recognised value, and value as an abstract notion: the social and cultural aspect of value containing symbolic meaning. Value, that emerges from the experience of the user. It has both an operative and a reflective dimension: how we use the product and what meaning we give to it (Boztepe, 2007).

According to Holbrook different types of user-value can be differentiated, based on 6 dimensions of experiences:

- Intrinsic – extrinsic,
- self-oriented – other-oriented,
- active-reactive.

The following figure shows the value of active house aims to create for its users among these parameters (Boztepe, 2007). One can conclude, that active house is a successful design concept, if it manages to fulfil value creation in the below-mentioned ways:

	Extrinsic	Intrinsic	
Self-Oriented	<i>Utilitarian</i> Efficiency (e.g. convenience of the mechanical ventilation system, by avoiding sensory unpleasantness)	<i>Emotional</i> (e.g. feelings of safety, comfort, warmth, coziness)	Active
	<i>Excellence</i> (e.g. quality of the house – sustainable building materials, quality of the system – positive energy usage)	<i>Aesthetic</i> (e.g. Architectural pleasure derived from the new form)	Reactive
Other-Oriented	<i>Social</i> (e.g. fulfilling the role of being innovative, being green)	<i>Altruistic</i> (e.g. Ethics - being responsible for ourselves, our family and the society)	Active
	<i>Esteem</i> (e.g. possession of the house – one of the first houses of the new concept)	<i>Spirituality</i> -	Reactive

Apart from that an architectural experience can also be examined in an unconscious, behaviouristic manner. The next chapter offers an introduction of human's relation to space and highlights the elements of architecture that can lead to a pleasurable aesthetical experience.

5.4 Origins of Architectural Pleasure: Prospect- Refuge Theory in Architecture

Human's behaviour and relationship towards the environment have been examined for many decades. According to the ethological approach (which has been introduced by Konrad Lorenz) „we reconnoitre, seeking, before we leave our cover, to gain from the advantage, which it can offer alike to hunter and hunted – to see without being seen (Appleton, 1975, p. 58).“

Dewey has made great progress in examining the experience as an implicit process to understand the aesthetical pleasure one can find in it's visual environment. This approach is process-oriented towards the composition of landscape, not only reflecting upon our sensory experience and the physical sense-organs, which is genetically embedded by the forebears, but also detecting similarities in behaviour – how we move around in our physical environment. Raising another question as observing the behaviour of living-beings at their natural environment: whether the behaviour could be justified by the genes (embeddedness), the parent's training (learning) or the observed own experience of trial and error? As a result it was laid down that some of the behaviour characteristics are capable of being genetically transmitted, and they have a role to play in the individual's relationship towards it's environment (Appleton, 1975).

As examining behaviour, one can differentiate between four primitive behaviours (Appleton, 1975, p. 63):

1. **shelter seeking behaviour,**
2. ingestive behaviour – including eating and drinking,
3. sexual behaviour and,
4. investigatory or exploratory behaviour.

Shelter seeking is the activity as one is seeking optimal environmental conditions in order to avoid danger. It is one of the most basic behaviour that characterises of animals, and is very closely connected to the environment. In connection to that if one agrees with an atavistic argument (homo sapiens are seen as related to monkeys and apes), it can be concluded that humans also follow a shelter seeking behaviour, which is genetically embedded.

There is a human individual sense of relatedness to its environment, and if its importance is ignored, it perils ones physiological well-being. According to habitat theory we find pleasure in our environment and perception of the landscape features as shapes, colours, spatial arrangements, and other visible attributes, based on a sign-stimuli indicative. The reason for that is, that it ensures us the ability to satisfy all our biological needs. As part of the habitat theory, the prospect-refuge theory is the most relevant to examine our shelter-seeking behaviour. It is based on our survival mechanism and the two roles accordingly: hunter contra escaping. In both roles the success the survival is hugely dependent on **the ability of seeing without being seen** (Appleton, 1975). By

prospect Appleton means a condition in which one can see over a considerable distance, and by refuge he means a place where one can hide. In combination they reinforce one another, creating the ability to see without being seen (Hildebrandt, 1994, p. 15.). Where this condition is present, their perception is attended with pleasure, anxiety is set aside, and relaxation is possible (Appleton, 1975, p. 71).

Buildings could be understood as a refuge for modern people. How do we distinguish between beautiful and ugly in architecture? One could suggest that it is the concept of order, symmetry, proportion that makes the distinction. If it were so, we could expect a regulatory planned settlement to be more satisfying to us. But as we look at great architecture or urban planning one can conclude that is often not the case. Therefore it seems more adequate to look at architecture from the perspective of the prospect- refuge theory, to find explanation to aesthetical pleasure derived from architecture.

Grant Hildebrand, who has examined Frank Lloyd Wright's houses from a prospect-refuge point of view, has researched architectural pleasure. Wright's houses have been very beloved by their occupants, some of them were even bought back by the same people who had built and sold them, simply, because they felt they could not live in any other. According to interviews and questionnaires his clients are extraordinary enthusiastic about and love their homes. But not just them, it also appeals to the bigger public in general. Why does the design, created for special needs of individuals also appeal so much to the public? According to Hildebrandt, Wright has been very successful in applying many of the prospect and refuge symbols in his houses, which is the main reason of the great pleasure he creates with his architecture. He has successfully developed a pattern, a particular repetitive configuration of key elements that often characterise his houses planned after 1900: entry, fireplace, ceilings, solid and glazed walls, openings to adjustment interior and exterior spaces and terraces.

In Wright's architecture the fireplace has a central setting in the house. It establishes and opens to the internal edge of the living room, which on each flank opens to continuous spaces: the dining-room and something else. Opposite the fireplace in each scheme there is a wall of windows and French doors; beyond which is a terrace of generous size serving both as an extension of the living-room and as viewing platform for the land beyond (Hildebrandt, 1994, p. 19). Later the fireplace is also often added in addition to the living room to the dining as well.

This example suggests that there might be a pattern, which enhances the architectural experience. Active house, if not at this level, but also includes certain elements that are typical for this housing type and can be connected to prospect-refuge theory. An example is the increased number of

windows (much more than in other building types), and especially the high amount of roof-windows with automated system.

The feelings about being present in a room have big impact on the acceptance of the architectural concept. If the experience of the room and the home is pleasant, it can lead to satisfaction and an emotional bond. The importance of this emotional trigger in customer loyalty will be highlighted in the next part of the thesis.

5.5 Embodiment: Experiencing the world, Attention & Cognition

Consumers' decisions are influenced in three different layers, which are all connected to different parts of the human mind. One perceives (1) attributes determining functional and rational consequences in the cortex. The second layer is connected to the limbic system and covers both our (2.a.) socio-cognitive/emotive levels through mental models, and the (2.b.) socio-cultural level meaning symbolic meaning and symbolic interaction. Finally the deepest layer is the (3) embodied cognition, which is connected to the reptilian system. Embodied cognition is connected to contextual stimuli: colour, temperature, group, consent, smell, sight, etc., this way physical experiences and mental processes are linked with each other (Ringberg, 2015).

We experience the world via our five senses: haptic, olfaction, audition, taste and vision. As one knows, sensation and perception are stages of processing of the senses. Sensation is when the stimulus impinges upon the receptor cells of a sensory organ – it is biochemical (and neurological) in nature. Perception is the awareness or understanding of sensory information (Krishna, 2012, P. 333-334). In Krishnas definition perception is depending on the sensation, and is in connection with one's emotions and cognition. (Cognition can be defined as a process as we give meaning to our environment and experiences (Krishna, 2012, P.333.) Other researchers also defined perception as containing more elements. After Hofmeister-Tóth (2008, P. 119.) perception is determined by two elements: the stimuli containing its physical appearance such as size, colour, taste, etc., and the characteristics of the receiver, for instance the characteristics of one's sensory organs or the person's earlier experiences, feelings, attitudes. (Based on the neuromarketing paper).

Our thinking is organised around six major cognitive acts: perceiving, attending, classifying, assigning meaning, remembering and reconing time. Each of these acts is performed by specific individuals with certain personal cognitive idiosyncrasies (Zerubavel, 1997, p. 21).

It is especially valid for today's environment, that people are bombarded with information therefore attention plays an increasingly important role in the individuals' perception. Each second we are exposed to 11 million bits of information while a human can only process around 50 bits of them (Plassmann et al., 2012, P. 19). Attention is focusing the mind. We select some things in cost of

the others, and we process the chosen object in an improved manner on cost of the others left out of the selection (Ramsøy, 2015). According to recent neuromarketing studies, one can have two different kinds of attention: top-down and bottom-up attention. Bottom-up attention is fast, automatic and non-volitional. Attention is driven by the inner senses: e.g. sight that orients response, or through body sensation (e.g. pain). In addition, attention can be stimulated through the outer senses. It can be created based on a pop-up phenomenon via salient stimuli such as unexpected shape or colour. Besides, exteroception can be driven via surprise. On the contrary, top-down attention is controlled, slow and mobilising. The main difference between the two is that in case of bottom-up attention the senses drive the process, while top-down attention is controlled by the self (Ramsøy, 2015).

Experiences can generate feelings and emotions. Emotions are an organism's expression of an inner/bodily state: a bodily response to an event with a mechanical, stimulus-response basis. It is occurring before or without consciousness. Feelings are a person's experience of being in a certain emotional state. It is conscious and introspective meaning that we can look at it and explore (Ramsøy, 2014). Organisms are driven to maximize reward and minimize pain. Though this can occur both in the present or delayed. The main difference between emotions and feelings in this term is that emotions are connected with early reward and pain while feelings are both connected to early and delayed outcomes (Ramsøy, 2014).

5.6 JOY – the Way to Customer Loyalty

The customer experience is formed by managers via conceiving, designing, implementing and managing touch points with the central goal of developing a compelling experience with the customer at all touch points (Dhebar, 2013). „Brands are built from the customer's entire experience with a company, its products and its services... Every business enterprise touches and is touched by customers in different ways at different touch points: points of human, product, service, communication, spatial, and/or electronic interaction collectively constituting the interface between an enterprise and its customers.“ (Dunn and Davis, 2004). With the active house concept not only one, but more brands can be connected. The aim of the thesis is not the examination of active house as a branding platform, therefore the customer journey will not be seen as a tool to understand the strength and weaknesses of active house seen as a brand extension. However, it is still important to consider this theory, since it plays an important role in preference and possible loyalty of current and future users towards active house as an architectural concept.

The customer experience blueprint contains three phases: pre-purchase phase (problem awareness, problem analysis and solution selection), purchase phase (purchase), and post-purchase phase (delivery, use, supplements, maintenance, and disposal) (Heding et. al, 2009).

Consuming an active house might touch all these phases, but with a difference that the consumer does not only interact with one single company, but with many different shareholders and a bunch of companies throughout the process, from the stage of the problem awareness, to the end of the active-house life-cycle or moving out.

However, we can apply the theory of the customer decision journey, which starts with the consideration of many brands – in this sense, different options of housing. Then, via different cognitive processes and consideration the consumer ends up selecting one single option to purchase (Edelman et. al. 2010). The after purchase phase becomes extremely important in terms of further evaluation of the purchased housing type, where through enjoyment the user can become advocate of the active house and bond to the concept. Of course, if active house is to become the future housing type it is extremely important to offer a pleasurable user experience that can lead advocacy of the innovator and early adopter user groups (Kotler-Keller, 2012). Creating positive word of mouth and awareness around active house increases the chance of attracting more and more people to join the consumer group. Besides, through creating emotional attachments of consumers via enjoyment of the use through a perceived pleasant home experience consumer loyalty can be built (Edelman et. al. 2010). According to that, the first step of the after-purchase phase – enjoyment – plays possibly the most important role in the success of active house. The thesis is therefore aiming to further examine this part of the customer journey and have a focus on the user experience.

6 Research Methodology

6.1 General Description of the Research

In my research, I aim to take an interpretive perspective with the goal of providing in-depth understanding of the active house user experience. Instead of focusing on a few quantitative truths, general knowledge or facts, my focus was on individual stories and a rich insight was generated. Shifting the attention to the individuals from the masses is the most important characteristic of qualitative research. This approach is especially useful in the understanding of underlying reasons of human behaviour which enables us to understand whether active house makes sense in the context of people's lives, and whether they find it valuable. Also, this approach can be used if one aims to further improve an offering or to drive innovation (Polaine, et. al, 2012). Aligned with that, in my research I am aiming to gain understanding of the users on an individual level, since according to the prospect-refuge theory architectural experience itself is based rather on a universal-cognitive level (Zerubavel, 1997). The research aims to understand the values and meanings active house creates to its users as well as the general user behaviour (how the house is used in the everyday life), as well as perceptions and feelings about the life in such a home.

Since my thesis has an inductive empirical approach, the research question remained open in the beginning of the data collection. Through following an iterative process I had the chance to leave everything a subject to change throughout the research process, this way gathering and analysing additional data as it was necessary and building on initial findings and understanding. This kind of data collection is relevant as one examines a process that is happening while simultaneously researching the field or in case there are no immediate explanations or reasons before data is collected regarding a certain question. Since the home experience of active houses was a rather unknown field of research, no previous theories or hypothesis were existent. This approach allowed me a certain flexibility to navigate throughout my research.

In my research I was interested to discover and gain deep insight in the following areas:

- **How is the active house user experience perceived in terms of comfort?**
 - **How does the architecture of active houses influence the activities carried out in such a home in an everyday setting?**
 - **Which feelings and emotions occur and are most characteristic throughout the day? Which of them occur in conjunction of the comfort principle of active house?**
- **Which additional benefits, values and meanings does active house have for its users compared to other, common home experiences?**
- **Does life in active house transform the meaning of home experience for its inhabitants?**

As I was researching the active house experience, I had two previous assumptions as well:

- Previous expectations about the performance of active house have an effect on perceived comfort.
- Differences of the active house experience compared to other home experiences might first reach consciousness as it is compared with alternative, maybe previous or later home experiences.

During the research I have used ethnographic techniques, interviews and observation. These qualitative techniques were further improved with photographs and diaries of users.

I had three participants: two active house inhabitants from two different homes and different countries and a participant from a non-active house. This choice of participants allowed me to make comparisons in their user experiences. My first house participant was Cameron (9 years), from The United States of America. Having a child participating in my research had two advantages: children have a different perception of the world and I could gain insight in the home experience through a child's eyes. In addition, children tend to be reliable sources, since they do

not have an incentive altering their answers according to certain perceptions about pleasing the interviewer, but always express their true meaning. My other active house participant was Anders (35 years) from Kingdom of Denmark. While Cameron's active house is a new construction, Anders is living in an active house renovation. The home has originally been a traditional Danish family house that was then renovated to become an active house. It allowed me to both examine the life in a new construction and renovation of the researched construction type. The representative of non-active house users was Lone (64 years), from another part of Denmark. Lone lives in a somewhat new (15 years old) architect designed family-house that, similarly to active houses, also contains more than average number of windows, as well as roof-windows. While the high amounts of windows create a similar experience of daylight in the home than active houses have, there is a significant difference between Lone's home and an active house: her windows are not controlled by an automated system. Due to this fact, other active house principles are not achievable in her home.

The limitation of my research lies in its qualitative character: neither are my findings statistically significant or correct. Therefore no assumptions can be made about the behaviour and perception of large number of users based on the findings of this research. I am describing individual stories of different user experiences that shall not be projected to anyone else than the research participants themselves.

6.2 Ethnographic Research

In an ethnographic research the researcher participates in the everyday life of the research participant. It involves a particular social setting as the researcher collects data by using a set of ethnographic fieldwork methods. Such methods are for example participant observations and in-context interviews (Moisander - Valtonen, 2011). The advantage of this method is that it allows an in-depth understanding of the ways, in which people use their home and give meaning to active house in their everyday life. This is only possible by entering into a face-to-face setting with the participants in their everyday life. The strength of the method is allowing me to record mundane incidents, practices and activities of everyday life of the active house users. Were those only asked in interviews, they have most probably not been able to talk about routines and patterns or feelings and impressions that often remain on an unconscious level.

Ethnography is often used to highlight social context and its influence on ones way of thinking and acting. However, in my research I rather concentrate on the self than on a socially defined group of people or common characteristics of a certain consumer tribe. The reason for that is that first of all no tribe can be detected at such an early phase of the development and spreading of the active house concept. There exist hardly a few more than twenty active houses in forms of residential and

non-residential functions. Therefore there is only a very limited group that has personal experience with the concept or have awareness about the existence of this architecture. On the other hand the focus of my research is to understand the user experience, which is seen in a universal level, true to any human, rather than something dependent on social context.

6.2.1 „A Day in the Life“

“A day in the life” method is an ethnographic tool, which gives an overview of a typical day of a person’s life. It allows gathering great deal of background information about thoughts and feelings of how consumers interact with a certain service or product. In addition, it also enables researchers to uncover people’s everyday problems and solutions. Finally, one can also generate valuable insights of people’s drivers and motivators (Polain et. al., 2012).

There are two similar methods to use: the day reconstruction model (DRM) and the experience sampling method (ESM). DRM has a potential to carry out well-being research: how people experience the settings and activities of their home experience and how they use their time at home. Also the satisfaction can be measured, that people derive from their activities by discovering time-use and the subjective experience of the specific situations. While ESM has a stronger focus on emotions: it does not only record what is happening and when, but also captures the feelings of people (Kahneman et al., 2004). In order to be able to capture the holistic user experience, I was combining the two methods, since according to my assumptions, the accurate picture of experiences were to be associated with both activities and circumstances.

I have asked my participants to write me diaries about one day of their life (containing the time that they have spent at home). As they were writing the diaries, they were asked to think of their day as a continuous series of scenes and episodes in a film, where each episode lasted until a new activity, actor or scene occurred. They were asked to give brief names to each episode of their day and describe them according to the following parameters: what happened, where, when, who was present, and how they felt.

They were asked to dedicate time writing their diaries four times throughout the day: right after the morning ritual, after lunch, in the afternoon or early evening, and finally before going to sleep. This way the everyday activity was not disturbed or altered by recordings. As another advantage the experience of the activities were still fresh when they were recorded, allowing the participants to recall them in rich detail. I (the researcher) was not present throughout the day, this way the participants were not disturbed by the presence of a stranger in their home. This fact allowed the collection of more valid data, since the research participants did not have an intention to act different from normal.

As giving the task, a small brochure was prepared to each participant personally adapting in its language to whom I was communicating with in order to create enthusiasm about the task. Here, I could explain the task in depth and allow them to have the opportunity to have a guideline to look up in case of uncertainty about the task throughout the day of research. This document was sent to my participants and we scheduled a meeting about discussing their tasks, allowing them to clarify questions regarding the research. However, no template was given to them, but they were enjoying complete freedom as writing their diaries. In my perception a template would have guided their thoughts and maybe even suggested certain elements of their experience to emphasize, that they otherwise would not have considered as important. This way it was ensured that their perceptions were not influenced.

In general, describing feelings may be rather a difficult task for people. Therefore they were given a list of feelings that they could choose from and apply for each moment of their day. Twelve feelings were given to them, out of them seven were positive and five negative. The feelings were selected according to their relevance in terms of perceived comfort and well-being in a home setting. The list containing the feelings also included matching illustrations of facial expressions describing the feelings in order to avoid misunderstanding and make the selection easier. Following feelings were listed:

- Feeling responsible, being in power
- Feeling safe
- Feeling relaxed
- Feeling of coziness or warmth
- Feeling of togetherness
- Enjoyment of time alone (being satisfied with oneself)
- Feeling of fit or resonance with once surroundings / situation
- Tiredness, feeling of deconcentration
- Dissatisfaction
- Being disturbed
- Being stressed
- Anger

In addition participants were asked to take pictures of their home throughout the day as they were carrying out their activities. As a device their mobile phones were used. This way the home environment was captured from their perception, which allowed me to understand the spatial environment, the amount of light, as well as their position in the room and what they could perceive in terms of sight from their environment.

The limitation of this methodology was that participants described details in depth that were irrelevant for my research, while other times they were short-spoken about relevant ones. Also, as they were taking pictures, they sometimes created cozy settings of objects on the pictures to express certain aesthetic enjoyment, or were taking the pictures from different angles or positions that they found most appealing instead of simply picturing their home as it was.

6.2.2 Contextual Interviews

Compared to the above-described technique – which rather gives insights of consumers' everyday home routines and rituals – in-depth interviews have the strength to allow exploring the ways consumers make sense and attach meaning to their activities. The aim of this ethnographic interview technique is to understand „consumer's worlds“ both internally and externally (Bajde, 2015 (a)).

Contextual interviews are conducted in the same environment where the process of interest occurs. Therefore they have the advantage compared to other, traditional interview techniques that they also enable observation. Making observation of consumers allow validation of certain insights gathered during the interview, while the interviewer also has the opportunity to gain insights of the interviewee's social and physical context. In addition, more specific details can be recalled in such a setting. All in all, a more holistic picture can be built (Stickdorn-Schneider, 2015).

Using this research technique allowed me to gain better understanding and a more holistic picture of the home environment of my research participants. In addition, since I myself had the opportunity to gain first-hand experiences of their homes and make my own discoveries, the method allowed us to open discussions about further details that otherwise would have been overlooked. Unfortunately due to significant distances I was not able to apply this technique in every case. Thus, I had to rely on the pictures made by my research participants only. Accordingly, I conducted a contextual interview with one of my active house users (Anders) – who lives locally – while my other two participants were interviewed via Skype.

Another important benefit of my contextual interview was that I had the opportunity to personally gain an impression of the active house home experience. Due to the fact that I have made my first experience of being in an active house, I was more aware of certain characteristics of the space. This allowed me to include additional questions about the home settings which occurred to me due to my own experience. The fact, that Anders and I both simultaneously had the same sensory experience of the space, also allowed smoother communication.

The success of this technique is highly dependent on whether the interviewer manages to make the interviewee feel comfortable in the situation. I have conducted the interview with Anders in his kitchen, where he was sitting at his favourite spot in the house.

In addition to my contextual interview, I have also received a guided tour in the house, while we both were taking pictures of different parts of the home. This way I made sure that my participant was not taking pictures of arranged settings, but captured the real atmosphere of the home. His true perception of space therefore was more successfully captured and reflected, than the ones of my other two participants.

The interviews were in each case led up with open grand tour questions, which initiated an open discussion. They served as a good warm-up to the interview, since they are easy to understand and respond to. Such questions were: "Would you describe me your house?", "What is your favourite spot in the house?" etc. The grand tour questions were followed by planned prompt questions, already focusing on specific issues, like „Have you had any particular expectations concerning active houses?“, „Compared to your previous living circumstances, which differences do you see?“, „Is it easy to understand how the house works?“, etc. Finally, throughout the whole interview, floating prompts were used to clarify and elaborate on what the participants have shared with me and encourage them to share even more. In addition, these kinds of questions were used as clarifying insights gathered in the diaries and to follow up on some interesting details (Bajde, 2015 (a)).

6.3 Coding

The interviews have been audio recorded in every case. In addition, the contextual interview has also been recorded with photographs. After that, the interviews have been transcribed in their full length on a word-by-word basis in order to avoid loss of information and misinterpretation of the message. Irony and sarcasm were not typically used paralinguistic features. On the other hand strong emotions were expressed which are also marked with punctuation and contextual notes (King – Horrocks, 2012). As coding, the system of thematic analysis was applied which includes three elements: descriptive coding, interpretive coding as well as overarching themes (King – Horrocks, 2012). The analysis of qualitative data started with creation of comments on the transcribed interview texts and diaries. In descriptive codes relevant materials were highlighted and attached to the brief comments. As a second step, the shared meaning of the so generated codes was defined and interpreted through interpretive codes. Finally, the insights gained via the above described two-stage coding were organised in eight overarching themes in a higher abstraction level: safety, light, windows, togetherness, space, active house, comfort, PR-Theory – out of it the last three were "a priori" themes (King – Horrocks, 2010). Throughout the analysis of

data, attention was paid to balance out within-case and cross-case analysis by also highlighting both the similarities and the differences of the individuals' comfort (King – Horrocks, 2012).

What people say is explicit knowledge that can be detected through interviews. Peoples' behaviour can be observed and the most efficient technique to use is observations. Their dreams and feelings are tacit and latent knowledge, which can be revealed via generative sessions (Aricó (c), 2015,). According to that, insights can be gathered on three levels: low (what people say), middle (what the researcher saw) and high (what it means). My thesis research can be defined as a middle level research, combining more different techniques and field observations to generate relevant insights. The insights could have been further enhanced by increase of number of research participants, more iterations (generation of new insights based on initial findings and further research of relevant sub-topics) or by more detailed testing the validity of generated research insights (Polaine et. al., 2012).

To ensure quality of data, I have accessed three levels of triangulation. Firstly, data triangulation: I have involved a variety of data sources – children's' participation, a father with two children and a women close to become an empty nester – all with different cultural backgrounds. Secondly, I have applied methodological triangulation, including a combination of three different qualitative methods to address the research problem. Thirdly, I have fulfilled the criteria of investigator triangulation, since I have presented the insights of a quantitative research addressing peoples' perception of home comfort, which allow comparison with my qualitative results (King – Horrocks, 2012).

7 Key Findings

7.1 Analysis of Individual Experiences: Customer Profiles, Service Blueprints and Visual Data

This chapter serves as an introduction to the individual home experiences of my three research participants described with the help of three tools: (1) customer profiles, (2) service blueprints and (3) visual data. Their customer profile gives information about their personalities and values as well as their needs and frustrations as it comes to their home experiences. Based on their diaries, I have prepared service blueprints to provide deep understanding of their user experiences made with their homes. The pictures they took expressed tacit knowledge of the individual perception of their home environments.

(1) Customer profiles usually contain the same six elements: a picture of the person as well as a key representative quote, basic information (age, family situation, occupation, etc.) and key elements representing the sampling criteria (length of their user experience and location of their home), and – most importantly – their needs and pain points as it comes to living (Aricó (b), 2015).

(2) Service blueprinting is customer focused, helping the visualization of the service processes, points of customer contact and the physical evidences associated with their service, while also connecting these with the underlying support processes of the organisation (Bitner et. al, 2007). Even though I am not describing a classical service experience, I found this tool very helpful in presenting the home experience of people, since it can easily be described among similar criterion than service experiences. Accordingly, five components of a typical service blueprint can be listed (Bitner et al, 2007):

- *Customer Actions* – All steps that consumers take part in the service delivery are listed chronologically. This is the main part of the blueprint. In my blueprint it is the episodes of peoples' lives that they have described in their diaries.
- *Onstage/Visible Contact Employee Actions* – Every time a consumer-employee action is realized a "moment of truth" occurs. In my blueprint the moments of truth are describing the different feelings of users connected to the activities and space of occurrence. In addition the user experience chart is showing the strength of these feelings. If applicable, I also included a further part describing feelings and thoughts connected to the activity of focus in detail.
- *Backstage/Invisible Contact Employee Actions* – Actions which happen below-the-line of consumer visibility. In my figure, to this part corresponds the line explaining whether the actual feeling is linked to the active house concept or rather has a different origin.
- *Support Processes* – All those activities that need to be carried out in order to realize the service, but are not done by contact employees. To this part in my blueprint two lines relate: the list of other participants involved in the activity, and the place where the action occurs.
- *Physical Evidence* – All tangible evidence of service. Instead of listing physical evidence, I have a focus on opportunities connected to the activities.

A service blueprint allows identification of processes as well as isolation of fail points – one can clearly see where the system goes awry. (Shostack, 1984). Therefore it is a great tool to gain deep understanding of the user experience, as well as the frustrations of people, thus point out possible future improvements and opportunities. The main benefits of this tool lay at its visibility and flexibility. One should first define the holistic user experience by anticipating the home users' own viewpoint about it. Usually as creating a blueprint, both a cross-functional team and consumers are involved. In my research the team setting was unfortunately not possible. However, high level of consumer involvement of the process enhanced to quality and amount of insights gathered.

(3) As analysing non-interview data like observation or other visual data, coding is sometimes less appropriate and more holistic analysis is needed. However, a systematic process of the analysis,

enabling data reduction and focus on relevant insights, is necessary. Information of visual rhetoric can be for example gained through semiotic analysis. This contains three parts: content (central message), form (position, sequence, relation) and delivery (style, tone, emphasis) (Bajde (b), 2015), which I have followed throughout my analysis.

7.1.1 Customer Profiles

7.1.1.1 Profile of Cameron Smith

USER PROFILE

CAMERON SMITH

NEEDS

- Loves to have big space and many rooms
- Loves spending time with others, therefore she sits a lot in the kitchen where she also does her studies
- Tech –savvy, likes to spend her free-time with her iPad
- Feeling of safety is important to her, especially when going to bed
- “Cameron’s Corner”

FRUSTRATIONS / PAIN POINTS

- Climbing up and down the stairs and carrying diverse things upstairs

BACKGROUND

Age	9 Years
Occupation	Student in the local elementary school
Family Status	Only child, lives with her parents & her dog
User Experience	3 years
Location	St Louis, Missouri, USA

KEY QUOTE

“... it is (the house) more clean and stuff, it is more modern and I think it has more resources...”

FAVOURIT SPOT IN THE HOUSE

“Cameron’s Corner” – to play and hide
Cameron likes to play at her corner under the staircase, where she can see the whole room and people coming down. It is a bit darker, than other parts of the room and a good hiding place

My first research participant was Cameron. She lives in the first active house that was built in The United States of America. She has moved into the new-built home together with her parents and her dog three years ago. Cameron has been looking forward to move to the new home. She was expecting it to be much more spacious and she considers moving a significant but also a positive change in life.

In connection to that having big space and many rooms with different functions is one of the most important advantages for her in the new house. She spends significant part of her free time in the

common spaces. One of those places is the kitchen where she likes cooking with her father and usually writes her homework. Another such place is the living-room, where she likes watching TV or playing on her iPad. *„I do all my technology stuff there“* – Cameron describing her activities in the living-room.

She has used her iPad and other technical devices frequently throughout the day she described to me, which made the impression that she spends a significant part of her free time with using or being around technological devices. This represents the tech-savviness character of her generation well (BCG, 2016).

The feeling of safety is very important to her, which becomes an even more characteristic need of hers when she is alone at home or around bedtime. This feeling is enhanced if her dog, Bailey, is around. In addition, Cameron enjoys playing in the basement instead of playing in her bedroom where she has a whole room to carry out that activity. Here, she has a special place called „Cameron’s Corner“, which she describes as her favourite place. This is located just under the staircase in the basement. Cameron talks about her special corner followingly: *„...well if you are under the stairs you can kind of see the room, but it has a covered part because of the stairs. But if you are at the open part where you come in, you can basically see the whole room.“* *„I can probably be seen... but if someone doesn’t know about it, you can probably hide there a little bit more and then, if people come down, you can see the hills because the stairs are open and you can see through the stairs.“* *„The corner is darker than the open space, because the stairs are shading, but you can still see pretty well...“* As it seems, Cameron’s Corner is a perfect manifestation of the prospect-refuge theory, a place where you can see without being seen. In this effect not only the location of the place, but also the light conditions play an important role. The place provides a safe feeling that allows her to relax and play without being disturbed.

Cameron does not have much dissatisfaction with her home. The only thing that she finds unpleasant is carrying different objects up on the staircase, which she describes as a workout. Since it is hard physical activity for her, she usually tries to get over with it quickly or delegate this task to other family members, like her mother. With this action she follows a typical human behaviour as she tries to avoid or limitate carrying out activities that she dislikes.

Overall, Cameron is happy and satisfied with her home experience. She perceives her home as a clean and modern house with a lot of resources. Even the active house concept is clear to her. She can use the system and she understands how the house functions and produces energy.

7.1.1.2 Profile of Anders Søndergaard

<p>USER PROFILE</p> <p>ANDERS SØNDERGAARD</p> 	<p>NEEDS</p> <ul style="list-style-type: none"> • Fresh air, light and big space • More space to separate house functions better • He likes to enjoy a coffee while sitting in his favorite corner in the kitchen and listens to radio • Wants the best for his family, taking over responsibility • Likes the idea behind the house, that it is thinking and taking care of itself <p>FRUSTRATIONS / PAIN POINTS</p> <ul style="list-style-type: none"> • Better user interface is needed • System is difficult to make fit to his needs • Windows open at the wrong time of the day when it is disturbing • Shuts down the system if it gets hard to control 											
<p>BACKGROUND</p> <table border="0"> <tr> <td>Age</td> <td>35 Years</td> </tr> <tr> <td>Occupation</td> <td>Creative Director at GroupM Marketing & Media Agency</td> </tr> <tr> <td>Family Status</td> <td>Lives with his 2 sons and his girlfriend</td> </tr> <tr> <td>User Experience</td> <td>1 year</td> </tr> <tr> <td>Location</td> <td>Hellerup, Denmark</td> </tr> </table>	Age	35 Years	Occupation	Creative Director at GroupM Marketing & Media Agency	Family Status	Lives with his 2 sons and his girlfriend	User Experience	1 year	Location	Hellerup, Denmark	<p>KEY QUOTE</p> <p>“People living in the house are the most important not the system...”</p>	<p>FAVOURITE SPOT IN THE HOUSE</p> <p>Anders likes sitting in the corner of his kitchen, enjoying a cup of coffee while listening to the radio. He has a view to the kitchen, diner and living-room from his spot. He sits on the last chair at the right side of the table. He turns the chair and sits with his back towards the wall.</p> 
Age	35 Years											
Occupation	Creative Director at GroupM Marketing & Media Agency											
Family Status	Lives with his 2 sons and his girlfriend											
User Experience	1 year											
Location	Hellerup, Denmark											

Anders works as a creative director and lives in Hellerup, Kingdom of Denmark. He has moved to his house approximately a year ago with his girlfriend and two sons. He has bought it as an old family house, and through a first renovation he has created satisfactory living conditions in an otherwise old building. Then, he needed to change the roof, since it was dysfunctional, and as a former VELUX employee (market leader selling roof windows and one of the initiator of the active house concept) he was aware of the idea of instalments of roof windows in a loft area and the active house concept. Nevertheless, even though he was told about the effects of the over-average number of roof windows, he never expected it to be as strong as he actually experienced it to be after the renovation works were finished. *„So the expectation was actually just to get a nice new roof. So we were very surprised how much light it gave us and how much we can use the room now.“* He and his girlfriend both had very strong emotional reactions to the new conditions. While Anders loved it from the first moment, his girlfriend was first less positive: *„... my girlfriend actually started crying, because she hated it. She hated it so much, she thought that everybody could see everything and it was very strange for her to be in such an open room. But now she loves it. But when it started out, the first week, she hated it.“* This shows that the new light

conditions and the over-average amount of windows have a strong effect on people. First, the radical change can be quite overwhelming, but as one gets used to it, the experience of the place becomes pleasant and it generates strong and positive feelings in the users.

Anders especially likes at his home that there is constantly fresh air and light. He values at his windows that they create a feeling of more space and allow them to utilize their living space much better. Since they create pleasant conditions, the rooms become inviting places to spend time at. As a consequence the family uses the rooms upstairs in a much larger extend then they did before the renovation. However, he would like to have even more space, therefore a third building project – an extension of the diner and living-room area – is planned. They aim with the creation of more space is to separate functions as well as to win extra place for the children to play. In the meanwhile Anders and the girlfriend can sit at a larger distance from them and carry out different activities.



Anders highly values family and likes thinking and acting in a responsible manner as it comes to taking care of them. In addition, he is a visionary person, who finds the idea of active house very appealing. *„I like the thought of it, I like the idea behind, that the house is thinking and taking care of itself...“*

However, Anders sees serious shortcomings of the system. He feels that the system overrules the everyday life and does not fit his needs. It is not user-friendly and he finds the software *„ridiculously bad“*. *„The system needs to have a better user interface. When the system is (turned) on and it's working – of course it's nice. But than the system is the most important thing. And of course it's not. I mean the most important thing is the people living in the house...“* He even gave examples of dysfunctions of the techniques: when the windows open at night in winter time, or when they open in the evening, just as he is trying to put the children to bed. It causes him difficulties to figure it out, how he could stop this inconvenient actions, therefore he chooses to turn off the system as it becomes uncomfortable. He usually turns it off for the entire winter period.

Anders' favourite spot in the house is in the kitchen. He likes to sit at the kitchen table with turning the chair around. This way he is having his back to the wall, while he has a sight over the entire diner, kitchen and living-room areas. He has some rituals he likes to do here, such as drinking coffee and listening to the radio. He returns to this place more times throughout the day for relaxation and spending there some time alone. This setting fits the prospect-refuge theory just as well as Cameron's Corner. It is a safe spot, which offers the possibility to have a sight of the surroundings while also being protected from behind.

Anders' home experience is also generally positive. In spite of the shortcomings he is happy for living in an active house, and even proud of the interest that it raises in people and gives them a topic to talk about.

7.1.1.3 Profile of Lone Norlander Smith

<p>USER PROFILE</p> <p>LONE NORLANDER SMITH</p> 	<p>NEEDS</p> <ul style="list-style-type: none"> • Lots of daylight • Personalization of space, authenticity, traditions, family • Looks for meaning in the surrounding objects • Cozy corners • Extra space – guest room, home office • Having a wide view to the outside • Feeling of safety at home <p>FRUSTRATIONS / PAIN POINTS</p> <ul style="list-style-type: none"> • Colder temperature in the bedroom • Automatized window-system would be more convenient • Windows take so much place, no walls to decorate (missing place for family pictures) • Active house would be too expensive to invest in • Too many windows makes the house becoming too warm at summer time • Needed to invest in heat protection extra 											
<p>BACKGROUND</p> <table> <tr> <td>Age</td> <td>64 Years</td> </tr> <tr> <td>Occupation</td> <td>Pensioner</td> </tr> <tr> <td>Family Status</td> <td>Husband and 2 children (son still lives at home)</td> </tr> <tr> <td>User Experience</td> <td>0 years</td> </tr> <tr> <td>Location</td> <td>Aarhus, Denmark</td> </tr> </table>	Age	64 Years	Occupation	Pensioner	Family Status	Husband and 2 children (son still lives at home)	User Experience	0 years	Location	Aarhus, Denmark	<p>KEY QUOTE</p> <p>“I come to other houses where there is not so much light and I think: how can they live here?”</p>	<p>FAVOURIT SPOT IN THE HOUSE</p> <p>Sitting at her favorite corner at the living room makes Lone feel safe. She describes the place as a “little cave”. She enjoys the wide view to the garden. Lone has a certain routine, that she likes to do at her favorite corner</p> 
Age	64 Years											
Occupation	Pensioner											
Family Status	Husband and 2 children (son still lives at home)											
User Experience	0 years											
Location	Aarhus, Denmark											

Lone lives with her husband and son in her house (her daughter has moved out a few years ago) in Aarhus, Denmark. Lone's house is a non-active house, but the building has a special feature: it contains the same amount of windows than an active house, just without the automatic system.

Lone finds having large amount of windows very special. *„...there is a lot of daylight all the year. And even in the winter, when it is really dark at other places, or when it rains. And even than we have light here. And I love it!“* *„...if it is more bright inside, it makes you more happy. I sometimes come to other houses, where there is not so much light and I think: oh, how can they live here?“* The way Lone describes her special living conditions suggests, that she is emotionally attached and generally happy about the special home environment the windows create. The higher amount of light the greater value is created for her. In general, she finds lots of joy in her roof windows. She reasons that they are able to make moments of everyday life special by offering a view to the

sky. For instance, when she wakes up in the morning she is able to look up the sky and see the sun. As another example, when sitting in the bath in the evening Lone has a sight to the sky. Looking up to the stars makes her feel relaxed and the moment special.

Having so many non-automatized windows have some shortcomings as well. The most significant issue for her is the extra heat. The windows do not control the temperature or the ventilation of the house. Therefore Lone also needed to invest in additional elements such as curtains and shutters in order to have heat protection.

In addition, Lone enjoys sleeping in a cold bedroom: she often keeps the windows of the bedroom open for the entire night, even during the winter period. If she could have more influence she would prefer the temperature of her bedroom to be even cooler.

Lone is aware of the active house concept and she also has a very positive attitude towards it. She feels that it could create extra value for her. She finds the features of being environmentally friendly, monetary benefits of the energy system and most of all the increased convenience and comfort thank to automatization of the windows most appealing. The only reason that hinders a possible investment of turning her home into an active house is monetary: she finds it rather expensive. But if there was no such burden, she would be willing to change.

In terms of preferences, Lone loves having lots of daylight and sight to the garden. She has more places in the house that she describes as very special because of the view. One of them is a small room on the first floor: *„... if you go upstairs, we have a perfect room. It's not too big, but it's just like a little tower, where we have a big couch and a balcony. When I sit in the couch or go out to the balcony, I can have a look all around the area! I can see the ocean and the big city Aarhus, and I can see many-many things! I have a big-big view!“* *„...many nice things and a lot of windows (installed) in, and we have two doors where we can go outside here to the garden...we can go out to the garden in the summer. So, when we open it, it is a very open house in that way...“* The little „tower“ also contains the elements of the prospect-refuge theory by offering a safe spot with great sight over the surrounding area. In addition to that, the high number of windows and doors create a feeling of having a connection to nature. If the weather is nice it is even inviting to go outside. She explains that she loves having a view to the nature and she generally feels safe at her home.

In addition, Lone highly values personalizing her home with objects of family heritage. She looks for authenticity and meaning in things surrounding her and she has a preference for mixing old and new elements in the interior in order to create a unique atmosphere. *„...my house is very special. I have a lot of things from my family that has died. My mother, father, grandmother, grandfather... It's a very personal house. Most of the things I have in the house have a history. I love to have it. It's not what you buy all new in the stores. Here, everything really has a history!“*

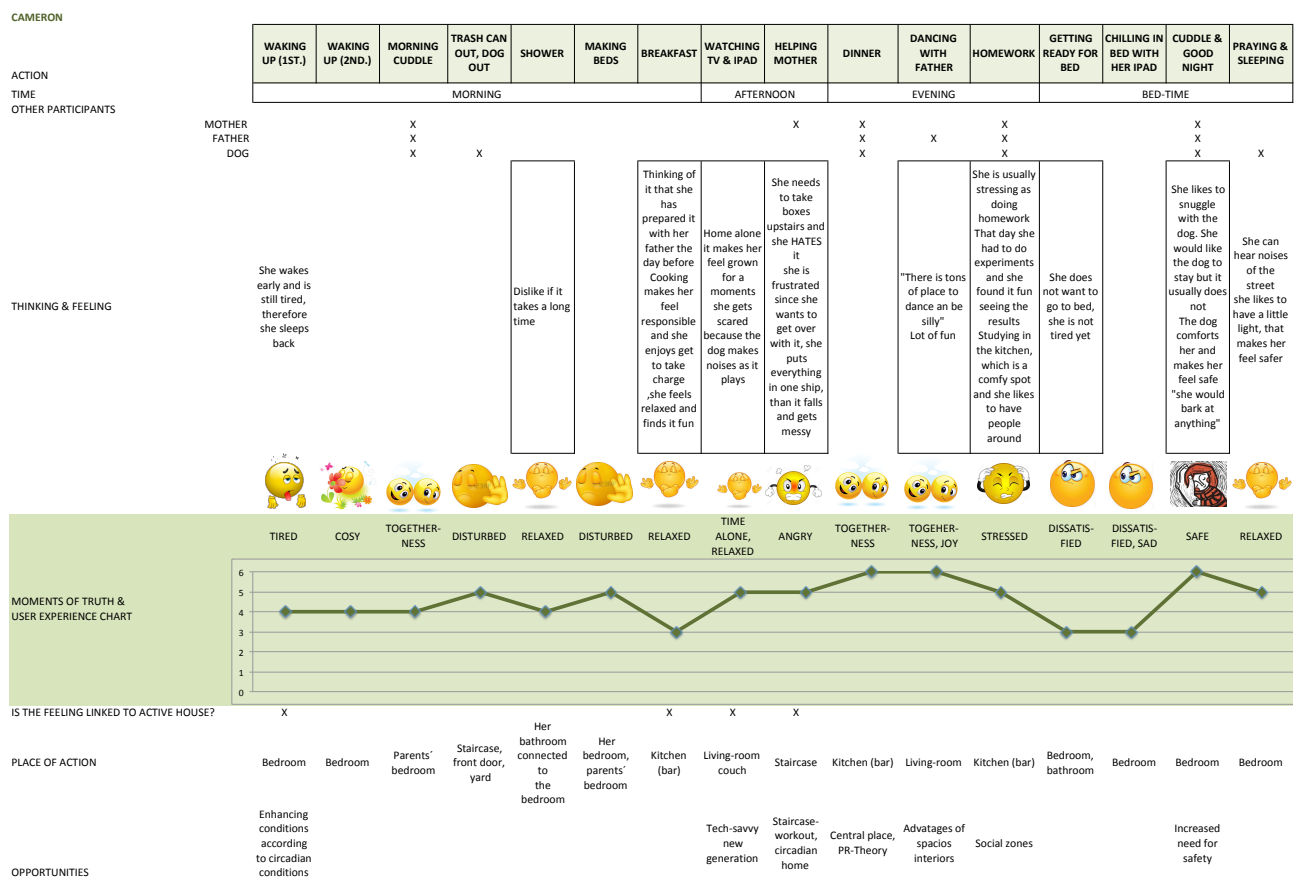
Lone also likes cozy corners. Her favourite spot in the house is one of them. It is located in the living room, surrounded with many doors and windows offering a good sight to the garden. She likes sitting here, talking on the phone, reading, relaxing, spending time alone or sharing a wine as talking with her husband. When she is alone, she likes having her dog around which comforts her and enhances feeling of safety. Similarly to the other two cases, Lone's favourite place is also a safe zone with good conditions for relaxation in compliance with the prospect-refuge theory. She describes it as „*a little cave*“ as well as a place that „... *feels very safe*“.

To sum it up, Lone expressed that she loves her house. The features she values most are the excellent light conditions, her personal objects and cozy corners as well as the extra place and rooms with special functions. Access to more space creates a luxurious feeling.

After a general introduction to the research participants, where I presented their overall home experiences, their concrete experiences will be visualized in the next sub-chapter. It is based on the insights gathered from their diaries and pictures that they prepared for me.

7.1.2 Blueprints of the home experience

7.1.2.1 Blueprint of Cameron Smith



Cameron has spent most of her time at home throughout the day. Around lunchtime and early afternoon she left the house in order to run errands with her mother in the city. At home she was mostly following typical activities that she often does at home. Except for dancing with her father in the living-room in the evening, what caused her big joy.

Cameron woke up early and felt tired. Therefore she decided to sleep longer. Her bedroom is not in perfect compliance with the circadian conditions. However, temperature and air quality of her room are adequate, thank to the automatized window system of AH. But as she is lying in her bed, she can hear noises coming from the street. It is due to the fact that her open windows are facing the street. Apart from that, she prefers sleeping with a little reflected light because it makes her feel safer. That suggests that the prospect-refuge theory in her case overrules the desire of fulfilment of optimizing circadian needs.

Throughout the day there is a balance between the time she spends alone and shares with other family members. She finds enjoyment at both of them. When she is alone, she feels grown and responsible. However, at this time (similarly to her bedtime) she has stronger preference having her dog around her. The presence of the animal comforts her and creates feeling of safety. This in fact is also connected – although less directly – to the prospect-refuge theory. In this case the dog works both as a signal to danger and as certain protection against it. Cameron describes the behaviour of the dog the following way: „*she would bark at anything*“. This suggests that the dog raises awareness if someone is approaching and it is also able to serve as protection. The fact that Cameron plays attention to the dogs signal is also proven by her behaviour, as she gets scared when the dog starts to play with a plastic bag and makes loud noises. Besides, the dog also confirms the ability of signalling as someone is approaching with its behaviour: it immediately starts to run and greet Camerons' mother as she arrives home. Cameron's' trust towards the dogs' perception of danger and the way she relies on it can also be explained with the fact that animals have a more improved sensory system. This improved condition allows them to recognise danger from a greater distance than humans.

The time Cameron spends alone allows another conclusion to be driven. During the day she described to me, Cameron has not spent significant amount of time with playing in traditional ways in her free time. (As she otherwise suggests doing at „Camerons'Corner“.) She has rather spent this time on her iPad with „*doing technology stuff*“. This may be connected to the fact that Cameron's' generation spends significantly more time with finding entertainment through technology than earlier ones (BCG, 2016).

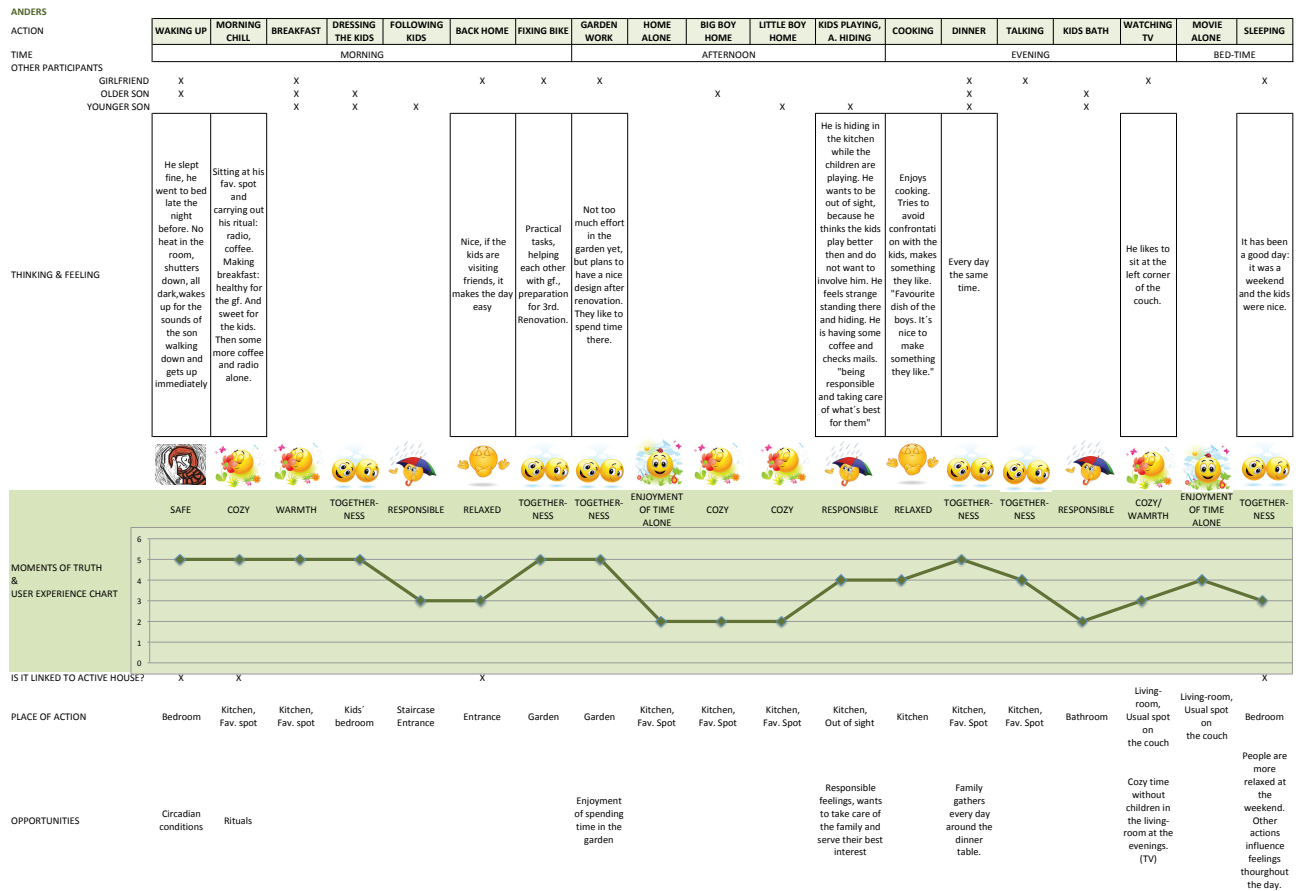
As spending time together with her parents, they usually gather at the couch in the living-room or around the bar in the kitchen. The bar is located centrally in the half open space of the joined

kitchen and living-room area, creating a little island in the middle. There can be detected a significant difference in the preferred position inside, depending on being alone or together with others. The family is usually gathering in the kitchen during the evenings, as they usually share a meal together around the bar table (not the diner). Apart from that, the parents like sitting and relaxing in the living room after dinner: resting on the couch and watching TV. The location of the couch is very similar to the bars'. It is also centrally set and serves as a partition element between the kitchen and the living room, with a sight towards the TV. It has a central setting, facing the first source of entertainment of the house. On the other hand when being alone, Cameron prefers a safe position. She likes to sit in her bedroom at the bottom of her bed. Due to the fact that it is located in the first floor, it is harder to find and access if the house is unknown. At the same time she has a good view from there to the entire room. In addition to that she often plays at Cameron's Corner. Otherwise, she sometimes sits in the living room, where she is surrounded with technology. She then has a preference for having the dog around.

Cameron has carried out the following activities throughout her day: she has both started and finished her day with cuddling with her parents and her dog, which generated positive feelings as safety and togetherness. Then she has carried out a few practical activities around the house and helped her parents: she took out the trash and let the dog out, made all the beds and carried up different objects in boxes to the first floor. All these activities usually caused her feelings of disturbance and anger. Apart from these negative feelings only writing the homework was unpleasant for her and made her feel stressed. The feeling of relaxation was connected to taking a shower, eating food or chilling in her bed in the evening. Apart from that, the most significant positive feeling was togetherness, which besides the cuddling she also felt during dinner, as she was dancing and while spending some entertaining time in the kitchen and living-room with her mother and father. In her free time she also enjoyed some time alone. Then she surrounded herself with technology. It was a pleasant feeling for her till her parents asked her to stop doing so, which caused her some dissatisfaction.

All in all, Cameron has had a pleasant day which she spent with both social and individual activities. She had some duties to finish which usually did not serve as source of joy for her, but she also had some free time to enjoy alone or to share with her parents.

7.1.2.2 Blueprint of Anders Søndergaard



Apart from a short period of time (when Anders was following one of his sons to his friends' home), he has spent all his day at home. This is also thank to the fact that the day he has chosen to describe to me has been a last Sunday of a holiday.

He woke up for the noise of his son, as he was going down the stairs. Anders usually sleeps well in his bedroom. This is also in accordance with the fact that following his description his bedroom is functioning aligned with the circadian principles.

As a first thing, Anders went down to the kitchen and took place at his favourite spot in the house, where he was following his typical routine activity he likes to carry out: he had a coffee while listening to the radio. Throughout the day Anders returned to the same place several times and has spent some time alone with the same or similar activities, which allows him to have some time alone and relax.

He has also spent a significant amount of his day outside, in the garden. Here, he has been fixing his girlfriends' bike, while she was painting some parts of the roof. Then they both worked on preparing the garden for a new renovation that was supposed to start the week after. Anders felt togetherness throughout this time. He remembered that there was a warm and sunny weather

which stimulated the activity to take place. They spend quite a lot of time in their garden, where the children play soccer, while him and his girlfriend are enjoying a glass of wine as they are looking at them playing. The garden is a place both offering entertainment and demanding some effort and work to be invested in order to look nice. Anders believes that the garden design could be further enhanced but he wants to wait with those improvements after the third renovation is finished. He thinks that they would spend even more time outside afterwards, when it makes a better visual impression.

There are more activities throughout the day that suggest to be connected to his responsible role of being a father or a boyfriend. In connection to that he is assisting his sons in a lot of practical activities, prepares food, helps his girlfriend, and even hides in the kitchen not to bother the children as they play. All these activities are connected with positive feelings such as feeling of coziness, responsibility, togetherness and relaxation.

The peaks of his day are typically also connected to some of these activities, when he spends time with his girlfriend in the garden or with the whole family at dinner. Also, another very pleasant period of his day is his morning, which he also describes as one of his favourites: the morning rituals at his favourite spot in the kitchen. The feeling created in this period can be best described as enjoyment of time alone.

Throughout the day Anders only has positive feelings at home. He also states that he had a good day, due to the fact that it was the holiday and the children were behaving well. A day free and quality time spent with his family without any confrontation makes a day become a good day for him.

7.1.2.3 Blueprint of Lone Norlander Smith

LONE

ACTION

TIME

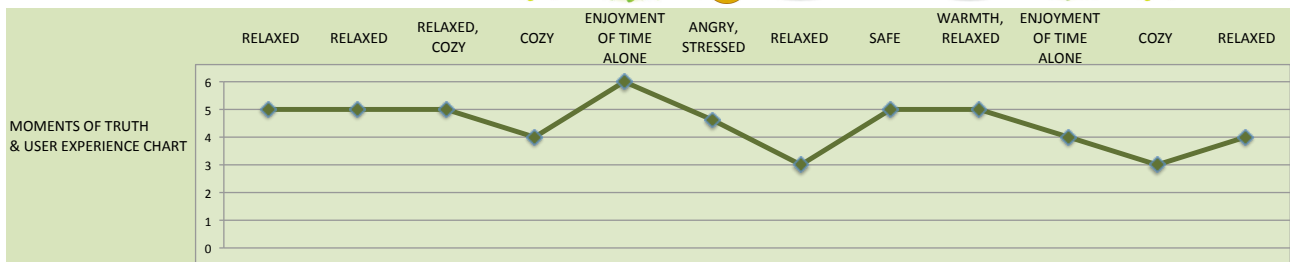
OTHER PARTICIPANTS

HUSBAND
SON
DOG

WAKING UP	GETTING READY	BREAKFAST & FEEDING DOG	HOME AFTER WALKING DOG	CUP OF TEA	PAPER-WORK	LUNCH	BACK TO HOME	MAKING THE HOME COZY	DINNER	WATCHING NEWS	GOING TO BED & SLEEPING
MORNING							AFTERNOON				BED-TIME

THINKING & FEELING

She loves waking up and looking up to the sun. She sleeps usually well, just wishes to have colder temperature in her room	She loves the daylight in the bathroom	She likes to have the dog around, it makes her feel cozy and safe. The dog is usually around her all day long. She is looking out of the window to the garden and feels relaxed	Likes to arrive home, she loves her home, she thinks it is cosy and safe	She is sitting at her favourite couch that makes her feel warm. She has a lot of memories, since the couch is from her mother. "it has a history"	First just smaller frustration, which grows to big anger		She is hungry and it is dark. But she still thinks her home is cozy. She decides to light it up with candles and make it feel safe and relaxed	She usually uses candles or takes a hot bath and looks up the start through her windows. That day she decides to make the home cozy with using light.	She does not make a big dinner if her son is not at home.	She usually rather reads books, listens to music or calls her friends and family. Today she decides to watch the news, but it makes her angry. Then she goes to bed upset	She is looking at a meditation CD that she has bought in the cinema the same day. She decided to make some meditation the next day. It calms her down and puts her in a relaxed mood. She thinks she had a good day at home and in the cinema.
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IS IT LINKED TO THE HIGH AMOUNT OF WINDOWS?

PLACE OF ACTION

OPPORTUNITIES

x	x	x	x	x		x	x				
Bedroom	Bathroom	Kitchen	Entrance	Living-room, Favourite corner	Kitchen	Kitchen	Entrance	Kitchen, Living-room	Kitchen	Living-room, Favourite corner	Bedroom
Light conditions in the morning influence the mood	Being aware of brightness	Enjoyment of looking out to the nature		Attachment to the favourite spot Personalized object create additional value and emotional attachment			Making effort to create a cozy home atmosphere	Rituals around cozyness and relaxation in the home	Sharing food is an important social activity when the family gathers.	Rituals connected to her favourite spot	Visual stimuli creates a relaxed feeling

Lone's day that she has shared with me can be divided into two parts. The first one would be time alone, which she typically experienced at her home environment. Then the second one is time spent with others and socializing, which Lone experienced outside of the house that day. This is partly due to that fact that Lone's husband works in Copenhagen, while they live in Aarhus, therefore he is only home three days throughout the week. Besides, Lone has a teenage son, who spends quite a lot of time out of the house and an older daughter that has already moved out from the parents' nest. On the other hand, Lone came across as a social person, who has lots of

friends with whom she likes to organise different programmes with. That day they have been going out to the cinema. Therefore Lone has spent about half of her day at home.

The time Lone has spent at home, her dog was around. She finds the presence of her dog very comforting and it makes her feel safe. She had a few activities connected to taking care of the dog, like feeding it or taking it for a long walk in the morning (which is another social activity for Lone). These activities are usually connected to the feelings of coziness and relaxation.

The peak of Lone's day was connected to her tea ritual at her favourite place in the house, when her dog was also around. The most unpleasant activity was doing some paper work which made her feel angry and stressed.

The most characteristic feeling throughout her day was being relaxed. It is not only connected to the activities she is carrying out, but also to her environment and mostly to the light conditions of the house and the view to the outside – to the garden, city, sea and up to the sky. She is often conscious of her environment and she finds a lot of joy in it while she is waking up, getting ready, eating breakfast, sitting at her favourite corner and when she is entering her home. Throughout these activities she mostly felt relaxed, cozy as well as an enjoyment of time alone and safety.

To sum it up, Lone had a very positive home experience during her day. She found a lot of joy in her home and also consciously made an effort to create a cozy environment around herself. She likes to relax and she was also very excited about a relaxation movie that she has bought the same day. Although she has not watched it, only by looking at the cover and making plans for the next day using it put her in a good mood. This and her relationship to her environment suggest that her mood is highly influenced by visionary experiences that have a great effect on her mood.

7.1.3 Analysing Non-interview Data: Observation & Semiotic Analysis of Visual Rhetoric

7.1.3.1 Anders' Favourite Spots – Evidence of the PR-Theory



There are two places in Anders' home where he most likely enjoys relaxation. One of them is Anders' favourite spot in the house, the corner of the kitchen. He has taken a picture as sitting on his favourite chair from the perspective he has on the room from there. One can see that Anders can both enjoy a sight over the kitchen (smaller picture) and the living-room (larger picture). He can see all the doors being open to the rooms and he also has a sight over almost all the windows that open from the room. This way Anders has a relatively good sight over his near environment and he can in every case see who has entered or left the room – "who is approaching". In addition to that, as he sits with his back towards the wall, Anders can have a certain protection, since he cannot expect danger approaching to him from that side. Similarly to that, the other place on the couch also covers the sight over the diner, the whole living-room and even the sight over the working corner of the living room, including a sight over all doors and windows of the room. According to these facts his favourite places in the house both correspond to the essence prospect-refuge theory: to see without being seen.

Both pictures suggest that Anders is in a sitting position, observing from a slightly deeper perspective as having a sight over the space.

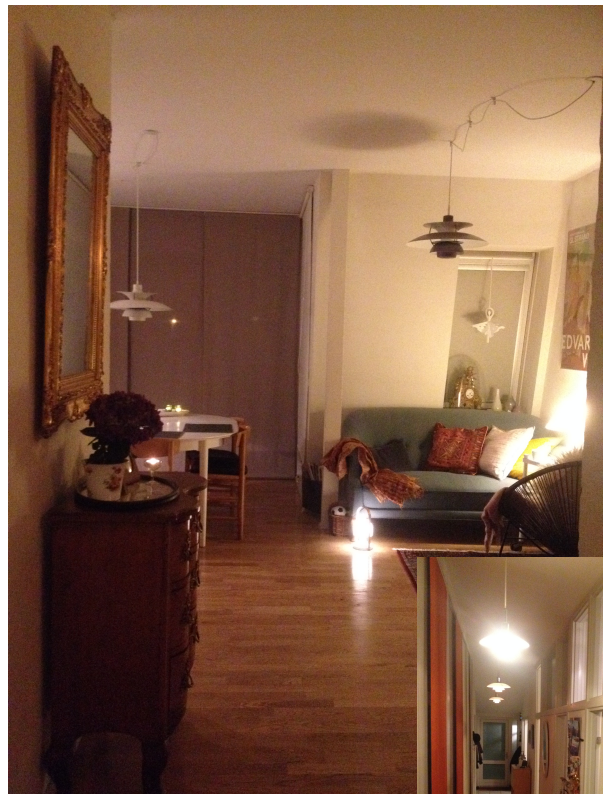
Both pictures have a cozy tone due to the interior including many design objects. The home environment reflects Anders' own taste, representing him being very enthusiastic about Bauhaus wherefore he spends time looking up and buying those stylish furnitures at different fairs. Anders also likes a clear look, since he does not keep any unnecessary objects lying around.

At the time of the day (around 8 o'clock in the morning) the house was empty, apart from the presence of Anders himself. The whole atmosphere was very calm, suggesting a good opportunity for spending and enjoying some time alone, while carrying out some minor activity.

Anders during his relaxation also makes an atmosphere that offers engagement in a multisensory experience. According to his interview story he usually drinks coffee in the mornings (taste), listens to radio (hearing) and feels the nice fresh cent (olfaction) while enjoying a sight not only over to nature but also over the entire inner interior.

Finally, the pictures allow one to make an observation of the light. The kitchen, diner, living-room and working corner in the living-room are forming a U-shape, with a door towards the entrance and staircase as well as another door towards the terrace of the house. One can see that the rooms are bright, with eight windows towards three different directions. The places that Anders has a preference for are rather slightly in the less bright areas of the room, while offering a sight over the objects being in light.

7.1.3.2 Lone's Home Experience in Pictures – Evidence of the PR-Theory



Lone has captured her favourite spot in the house – at the corner of her couch in her living-room. From here, Lone has a sight over her living-room, diner and the entrance with the long floor where all the rooms are opening to. In addition, she also has a wide view over the garden and her terrace. This setting can be described similar to the one that Anders has because it fulfils the prospect-refuge theory in terms that it offers a good sight over the space from a safe corner. Everyone approaching, disregarding the fact whether the person comes from the direction of the entrance, the rooms or from outside through the terrace door, can be well observed from this corner.

Lone took the pictures from a different position than Anders, she is not capturing the space from the spot where she likes to sit, but rather as an outsider. Lone had the tendency rather taking the pictures not from the spot she was being at, but about the spot, from a narrator perspective. The same viewpoint can be observed on these pictures.

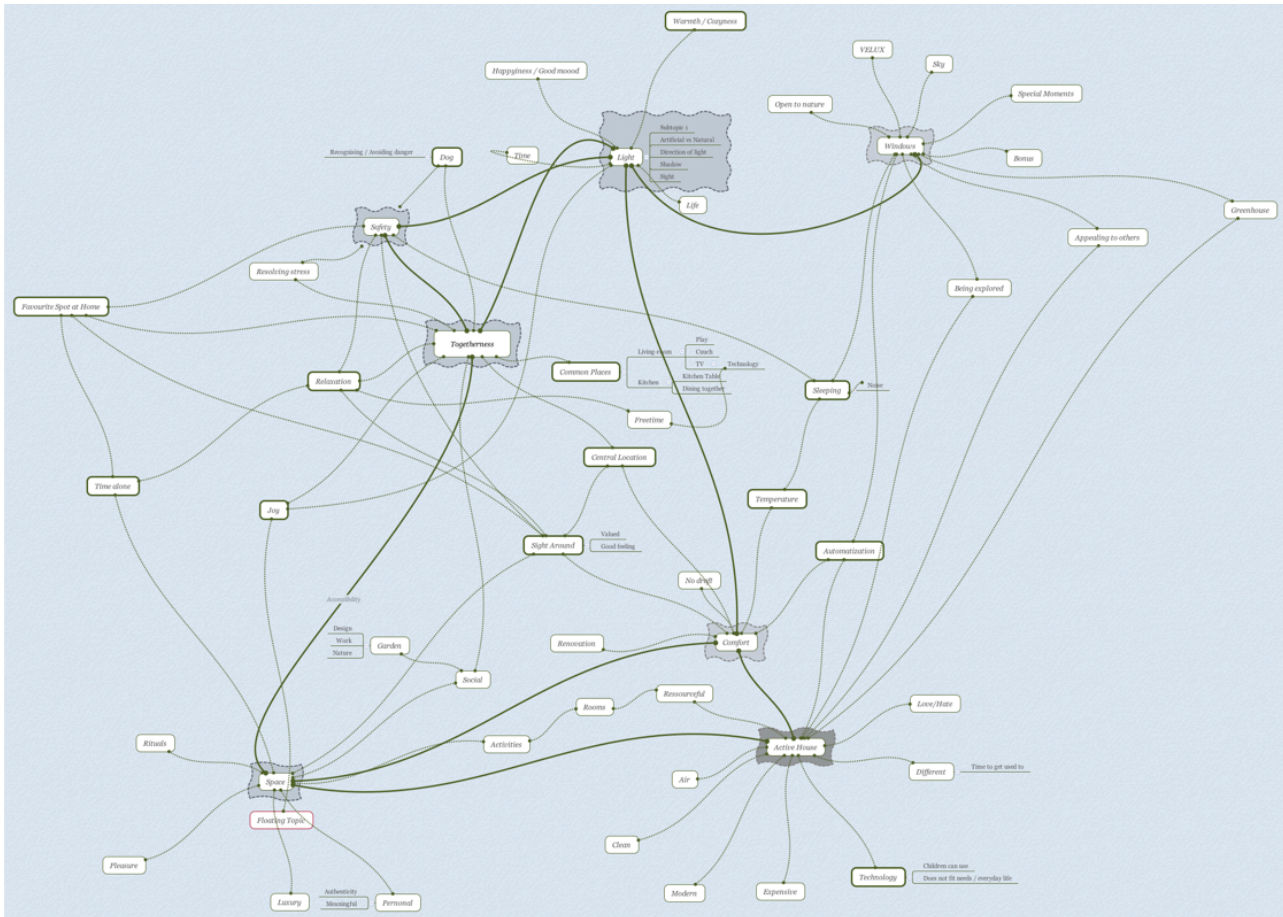
Throughout the day, Lone has quite a lot of daylight in her room, due to the high amount of windows all around at each direction of the interior. In the evening, Lone likes placing artificial light sources (see in front of the couch) and candles (on the cupboard) in order to create a cozier atmosphere.

She also uses her curtains for the evening, which also creates a more closed atmosphere thus enhancing the feeling of safety.

7.2 Capturing Thought Patterns: Mind Mapping

Visual displays enable condensing and organising data. They follow a “zoom in and zoom out” approach which allow to present rich data while keeping order and focus without losing any evidence or important action. This tool allows easier presentation of complex findings via using a visual instead of a purely verbal approach (Bajde(c), 2015).

Mind maps – as visual displays – are a useful tool to describe thought patterns of consumers as well as present relevant associations and people’s way of thinking within a certain topic. Based on the research that I have carried out I found some interesting patterns in associations of my research participants. Following their diaries and stories they have shared with me in their interviews as well as analysing not only the context but also the language they used allowed me to prepare a map visualizing their thoughts about their home experiences and active house. The map contains the thoughts and associations that characterised more of my participants and a few associations that maybe occurred in only one case but were relevant and interesting findings in connection to my research question. The greatest advantage of using mind mapping was that connections between the different elements influencing user experience and driving behaviour could be mapped and understood. The disadvantage of the method is that in my concrete research there were a large amount of connections detected. In case of more research participants it could have been easier to select the more typical “thought passes” and simplify the visual model. Since my research only involved three participants, the map I drew must not be seen as a universal description how people approach this topic. In order to make such a conclusion, a larger sample size could have been used. However, it gives an opportunity to describe common thoughts and describe similarities of the individual stories of my research participants.



My mind map gives an insight into the connection between seven out of the eight previously selected overarching themes. The theme of Prospect-Refuge theory is missing from the map directly, but connected association as sight and position in the space, light conditions, comfort and feeling of safety is presented by the map. This way the theory and its reflection in peoples associations and thought patterns can be indirectly read from my mind map.

According to the map, one of the most important central themes is light which is connected to the four most other central themes: safety, togetherness, comfort and windows. As describing light my research participants usually also shared some parameters of the light that they were talking about – whether it was natural or artificial, direct or reflected, about the direction of the light or about missing light (shadow). They connect it with happiness and good mood, as well as feeling of warmth and coziness. Also, they refer to the fact that change of light suggests time passing. In addition they also connect light conditions to planting – this way they associate light with an essential element required to maintain life. Light is considered as a source of joy for them.

Comfort is associated with light, active house and space among the overarching themes. It is the main reason that stimulates moving or renovation. All three research participants were striving to constantly improve home comfort. Cameron suggested a possible future improvement of the

garden, so that they could spend more time outside. Anders is renovating his home for the third time, this time he is planning further expanding the living area of the common rooms on the ground floor and – as it is finished – designing the garden. Finally, Lone, who is generally satisfied with her home, is actively trying to make create a cozier environment in the evenings with special lightning. Besides that, comfort is also connected to space – all my participants expressed the need of having big space allowing them to separate functions better in the room as well as spacious interiors, which allow them improve everyday conditions in the house but also the carry out of otherwise untypical activities (like dancing in the living-room) from time to time. Strongly connected to that, comfort is also associated with sight. My participants seek positions in the house where they can have a sight on the inside area as well as to the outside. Finally, comfort is also connected to certain conditions like not having draft, pleasant temperature (perception of the „good“ temperature is individually different) and automatization. Temperature is mentioned in two different ways: as a pleasant constant temperature throughout the day and as preferences for temperature of the bedroom at night. Automatization is further connected to active house and windows.

Active house is also associated with three overarching themes: comfort, space and windows. It is seen as resourceful with many rooms that allow carrying out different home activities. The connection between active house and windows once concerns the automatization and appealing to others (by attracting attention with home and window design which generates talks about the AH concept). On the other hand it is not entirely positive: it is also connected to the feelings of being explored and living in a green house. However, these associations rather occur throughout the first weeks, when the arrangement of large amount of windows is still new. With time all the AH users express positive attitude towards that setting. AH stimulates strong emotions as love and hate (only in the beginning as it is still very different from usual and new but afterwards also turned into love). In addition to that, it is also associated with terms as modernism, air, clean, expensive and technology. Technology is seen as easy to use in terms that children can use it too in each cases, but it is also seen as the major shortcoming of AH, since it could be further enhanced to better fit needs.

Windows are only associated with light directly between the overarching themes and secondarily with AH. My participants connected them with the feeling of openness to nature and to sky. This leads to creation of special moments and moods as well as enhanced user experience. A certain amount is seen as a must and if there are many more (as in case of AH) it is seen as a bonus. Finally, windows – especially in the AH context – were associated with the brand VELUX.

Space is associated with AH, comfort and togetherness between the primary themes. In addition it is also connected to other, secondary themes as: time alone and social, joy as well as having a sight around. Apart from them, having lots of space is perceived as pleasure and luxury. Space is also associated with personalization which created additional value through uniqueness, authenticity and meaningfulness. Finally, as talking about a certain place my participants were connecting them to the activities that they carry out there, thus there is a connection between space and rituals of the individual. These rituals also allow personalization and connection between a place and the person.

Togetherness is one of the most important overarching themes according to my mind map. It is associated with safety, light and space among the overarching themes. Among the secondary themes togetherness has the most connections, it is connected to relaxation, joy, having sight around, central location, dog, social and common places as well as favourite spot in the house.

Finally, the last overarching theme is safety. It is connected to light and togetherness. It enables relaxation and resolvment of stress. In addition one can not only gain safe feelings from being together with other humans, but more participants explained that the presence of their dog also strengthens this feeling.

7.3 Summary of the Findings

This chapter aims to give a summary of relevant insights in connection with my research objectives.

First of all, the similarities and differences of user experiences regarding perceived home comfort will be explained, with relevance of active house. Where can this concept contribute to value creation for its residents? In addition, activities and user behaviour in such homes is described.

Secondly, AH as a breakthrough innovation is evaluated in lights of the qualitative insights. Here, two main points are included: whether AH can transform the meaning of home experiences for its inhabitants as well as whether it creates extra value and meaning compared to other traditional building types.

Thirdly, detected pain points of users will be described, which allow consideration of future improvements. In addition to that, some future opportunities will be shared.

Finally, reacting to the previous assumptions – such as influence of previous expectations on later perceived home comfort as well as appearance of perception and awareness of home comfort – those will be described in the highlight to comparison with other home experiences.

7.3.1 Similarities and differences of perception of the individual interview participants

It is clear that in some cases my research participants expressed quite similar meanings. Other times they had completely different preferences. This part aims to sum up some of the most characteristic consistencies and dissimilarities. Thus, subchapter similarities of perception of space, user needs, preference of position preferences in space and utilizations of outside space are described.

7.3.1.1 Similarity in Perception of Space

As my research participants were describing their feelings throughout the day, they were automatically connecting them to certain activities which they were carrying out, or to others that they have shared the experience with. But they did only rarely associate it with the physical surroundings on a conscious level. A reason for that may be that the spots where the activities took place were already familiar for them while people tend to overlook information that is not considered to be new; they routinize their everyday activities (Ramsøy, 2014). Therefore, the physical space triggered emotional response of the participants. Also, reaching consciousness typically occurs under the following circumstances:

- a) There was a significant change in the settings (e.g. first time entering the newly renovated rooms – Anders and his girlfriend).
- b) The stimuli they have been set out to was very low, therefore they were more aware of their surroundings (e.g. as Lone was sitting alone in her kitchen eating breakfast and there were no sounds or any movements around her. She then had time to look out to the garden and find enjoyment in the sight).
- c) When the surroundings are consciously examined with the aim to find further improvements and the actor also actively contributes to create a change (e.g. as Lone arrived home and decided to make her home look cozy so that she feels more comfortable in her environment).
- d) When the physical environment plays an important role in the experience, as a significant aesthetical experience contributes to the creation of a certain mood (e.g. as Lone describes her ritual of sitting in the bathtub and looking up the sky through her roof windows. This sight stimulates a joyful and relaxed feeling in her).

Both top-down and bottom-up awareness can stimulate perception of space. Since awareness guides perception and perception is a fundamental condition to be present in an experience, it is important to understand the awareness of spatial settings. Our surroundings do not always reach our conscious awareness. But if that criterion is not met, no meaningful experience can be made. The major difference from a perception perspective between point “a”, “b”, “d” and “c” are that the

three – “a”, “b” and “d” – are connected to bottom-up awareness, while “c” typically describes top-down awareness. However, each case serves as good basis to meaningful spatial experience to happen.

7.3.1.2 Similarity in User Needs: Desire for Safety

Another conclusion to draw from this study was that people are looking for feeling of safety in their homes. It becomes especially important for them as they spend time alone. In this case both Cameron and Lone were surrounding themselves with their dogs, which they both perceived as a reliable source that can signal danger and offer a certain level of protection. This observation suggests that there is a user need for further improvement of safety perception of the home, especially when being alone. This raises new opportunities which a home design could react to.

With regard to safety, windows and doors play an important role. Walls create the feeling of protection, while doors and windows have a dual role. On the one hand they open the house to the outside world allowing others to approach the home. According to the PR-theory, they also offer a sight to the outer world, allowing the one being inside to have knowledge of who is approaching and prepare. A better sight therefore is able to enhance the feeling of safety.

7.3.1.3 Similarity in Preferred Choice of Position in the House (Depending on Presence or Lack of Company of Others)

Significant difference can be observed between the choice of position in the house if an activity is carried out alone or together with others. First of all the home contains both social and individual zones. Activities according to their personal or shared manner are usually carried out in one of the two areas. The most typical social zones of the house are the kitchen and the living-room. In both cases as the family comes together, they do not mind enjoying a central position, centralised whether around food or TV in all three families. The feeling of togetherness therefore is more connected to safety and a bigger space is more pleasurable to share where people have a preference to take position in the middle of the space. On the other hand as the individual remains alone in the house, a stronger need for safety feeling provided by the spatial settings occurs. Then people tend to choose a corner location with a good view to the surroundings (possibly including a good view to the outside world as well) in order to be able to see who is approaching. In both settings the prospect-refuge theory and its relevance in aesthetical pleasure in architecture can be detected.

7.3.1.4 Usage of Outside Space – influence of Aesthetic Experience on Utilization of Gardens and Terraces

My research participants have been using their gardens and terraces/balconies to a different extent. While Lone and Anders spend quite a lot of time outside, the Smiths spend significantly less. In all three cases there were strong associations made referring to a strong correlation between the aesthetic experiences of the garden with the extent of garden usage. Both Cameron and Anders mentioned that they believe if they would spend more time outside, their gardens would also look nicer. In the meanwhile, Lone, who has also described just enjoying the look over her garden as she is spending time in the inner home, suggests that she spends quite a significant time there, both with friends and family or enjoying time alone.

In addition to that, Cameron mentioned that they have quite a large balcony that is opening from her parents' room. This balcony is not used in a large extent either, due to the fact of not being easily accessible. She feels the area slightly less accessible, because she has to enter it through her parents' bedroom, which is someone else's private zone in the house. On the contrary, as Lone describes her room on the first floor with the great sight over the area and the balcony connected to it, it suggests a larger extent of usage of the space. It is connected to the fact that it is accessible through a common area, rather than through a private one.

According to the circadian principles large (amounts of) windows should have an effect on residents' relationship to nature. It is supposed to suggest the feeling of better connection to nature, allow better opportunity to follow seasonal changes as well as invite to come outside and utilize the outside space better. In my research I unfortunately was not able to make a comparison between AH and non-active house effects, since all three homes (even the non-active one) that I examined included an over-average number of windows. However, a comparison between the experiences of the three participants can be made and therefore differences can be detected. The major trigger meant the aesthetical satisfaction as it came to utilization of outside areas. This insight combined with Anders' thoughts that they better utilize their loft area since they increased the number of windows. The reason of this better usage of space lies in the enhanced aesthetical experience that is created through having more light and the feeling of having more space. Therefore a correlation between place utilization and the level of aesthetical experience that the place can offer is detected: the higher the level of experience is, the higher is also the utilization.

7.3.1.5 Differences of the User Experience

Besides the similarities of individual preferences, there are also important differences. For instance as it comes to indoor climate of bedrooms and sleeping conditions. Anders, who sleeps in

compliance with the circadian condition, is for instance often disturbed by the window system: he does not like that it opens at night during the winter period. On the other hand Lone, who is in general not satisfied with the temperature of her bedroom – which in her eyes can never be cold enough – would prefer to have an automatic window system in her bedroom that opens and airs out at night. In Cameron's case the circadian conditions regarding light are for example overruled by the need for safety.

Although usually a balance can be detected between spending time with others and alone throughout the day, there are individual preferences on which is preferred to a smaller or bigger extent. Some people are considered to be more and some to be less social. Accordingly, some may need more time with others, while other people have a higher preference to spend some more time alone. I had the impression that Lone and Cameron were slightly more comfortable as socializing with others and were searching the opportunity to be slightly more in interaction with other people. Contrarily, Anders spent slightly more time individually or carrying out activities for the benefit of the whole family, but still on his own. There are also differences on whether my research participants spent the social times of their day rather at home or out of the house. Lone for instance, who has less opportunities to socialize at home due to the fact that her family is quite busy, was spending more of her free time that she shared with others out of the house. While Cameron, who was more connected to the parents in her social interactions, was that day spending more of her time of togetherness at home. The same applied to Anders.

Finally, due to the different age and family roles, my participants had different roles at home and carried out different activities throughout the day. This way there were some differences about which rooms they have used more frequently and how they used them.

In addition to the concrete user experience connected to actions, more abstract active house principles are evaluated as more or less important and prioritized differently by the individuals, according to their personal values. An example for that is the importance of economic reasoning behind the concept, which in my experience does not attract everyone in the same manner. While Lone also describes it as an investment, Anders is for instance not interested in the monetary benefits of the home. He is much more driven by the philosophy behind the concept.

Also, because of their different personalities, they had different value systems, which altered their perception of similar concepts or experiences.

7.3.2 Examination of Active House as Successful Breakthrough Innovation in the Light of Research Insights

In theory, Active House can be seen as breakthrough innovation of housing, since (1) it incorporates the usage of new technologies by providing renewable energy sources (solar energy) and incorporates an automatic (combined with a mechanical) ventilation system, ensuring to meet new and higher health and environmental standards. This concept creates a new level of living experience and comfort by (2) providing much more daylight and constant fresh air without any effort needed from the users of the house to maintain the system. And finally, it can (3) give a new meaning of consumption both on an individual and a cultural level as possibly appealing for environmental or health conscious as well as an “expert” audience, by offering a new philosophy of a home that takes care of itself and the ones living in it. My research insights confirm the prior assumption of better comfort and enhanced user experience as well as the new meaning of consumption.

According to my research insights the most important characteristic of the home – extended amount of windows – creates an atmosphere that is unique to its inhabitants. This is however also present in Lone’s home, not only in active houses. However, AH have some values that other building types – such as Lone’s house – cannot present. This is the always fresh and healthy air circulating in the home as well as the constant temperature, all supplied by an automatic system, allowing inhabitants less invested effort while reach of higher level of comfort. These benefits, as well as the pleasant spatial arrangement of these homes, with maximal utilization of daylight of the rooms allow an enhanced user experience, which creates additional value for the AH inhabitants. This value is consciously perceived by the active house residents, but even Lone mentions them as possible further enhancement of her home. It suggests that needs of an automatized system occur in order to improve home comfort in a house containing increased amount of windows installed.

Active house experience changes home experience irreversibly. All my research participants perceive their homes as special and unique. Also, they explain that after experiencing life in such a home with fresh air and constant brightness, they feel less comfortable when entering other buildings, which cannot live up to the same standards.

In addition to that, meaning is also created on a different, symbolic level. Both Anders and Lone mention that the idea of a “smart” house is “taking care of itself” and representing responsibility towards the health of its inhabitants as well as towards the local and global society by providing a sustainable function which is attractive to people.

In addition to the proven fact that transformation of meaning is met also transformation theory is applied in the practice. The three critical elements of transformation economy are present: the creative person is corresponding to a group of people, involved in the creation and optimisation of the house, such as the architects, engineers, etc. Then the domain: the nine principles of active house, which give a frame of the creative work. Finally, the most important element – the field – is the user itself. His or her perception of home experience is entirely transformed by the living experience in an active house. This case the transformation does not only include physical experience – as the ideology behind a house that is healthy, comfortable and even environmentally friendly, all included in a mechanical system creating even better comfort for its users by allowing them to enjoy all the benefits of the functioning home without taking care of the operations. It also involves a physical setting to the transformation – the feeling of fresh air and ventilation, the enjoyment of more brightness and sunshine in the home, etc. – and leads to an autotelic experience. But it can also be a cultural experience; if the user or homeowner also engages in the idea of the active house and by using the home, he or she also learns about new principles and better ways of living. The architecture as well as the interior of the house can lead to an aesthetic experience. Understanding the new system and the functioning of the house as well as applying it in the everyday life can be an educational experience. Finally, throughout the everyday life spatial arrangement of the home may remain an escapist experience (no necessary need of active involvement of the user and often remains unconscious). This kind of transformation can have very strong implications on the individual.

Since AH meets the criterion of both transforming home experiences in an irreversible manner at the same time creating meaning and additional value for their users, one can conclude that AH can be seen as a possibly successful innovation.

7.3.3 Insights to Pain points and Opportunities

7.3.3.1 The Main Source of Frustration of People

There was one shortcoming of AH that could be detected via my research. It was the frustration of Anders about the automatic system. As he explained in the interview it causes him many inconveniences, since the automatization does not always fit his needs, and the windows sometimes open at moments that are unpleasant to him. This is accompanied by the fact that he feels losing control over the system in these moments. These two facts together cause an unpleasant feeling in him, that the system is higher prioritized in the home than his and the family's needs. Also, his reaction to stop the system creates problems in the functioning of the house. For instance when he turns off the window automatization for the entire winter period stands in the way

of the practical realization of AH principles and conditions in the home. This suggests that the digital system could be further enhanced in order to provide a complete and good user experience.

7.3.3.2 New Generation May Be More Open to Technology

Cameron's generation is more tech-savvy than earlier ones. That does not necessarily mean that the focus should be only on new needs that are to be satisfied but also that Cameron's generation tries to satisfy existing needs through technology in an extended manner than previous generations. In the meanwhile technology often has the benefit to offer a more effective (time, cost, etc.) realization of those needs and enhancement of comfort.

That leads to two things: Cameron can easily use the home automation system. Cameron would be willing to engage more with technology and satisfy her needs with the help of technological improvements, including the ones occurring in a home environment. However, this generation still looks for authenticity in things, therefore point of human in her connections still plays an important role, and not everything shall or is to be automatized (BCG, 2016).

7.3.4 Impact of Previous Experiences and Attention on Home Comfort & Experience

Before carrying out my research I assumed that "a priori" expectations may alter later perceived comfort and experience. I was considering that if expectations are set too high or wrong and associations are built between certain characteristics that active house may not be able to deliver on (e.g. being more sound proof as well), later home experience can be perceived as declined dissatisfactory. However, I have learned from my research that this was not the case. All my research participants had rather smaller expectations about the homes than what they experienced. It was especially true for important characteristics of home comfort such as the impact of daylight although more objective characteristics such as measurable environmental effects or monetary implications of the positive performance energy system were easier to meet previous expectations. This might be a consequence of the fact that comfort is a rather intangible term which is hard to determine if not previously experienced.

Another pre-hypothesis of mine was on the other hand to a bigger extent confirmed in my research. It stated that people may not be aware of the impact of daylight and their improved home conditions just as living in the house, but appreciate it better as they enter other homes, with poorer conditions or make comparisons to previous home experiences they personally made. This was true in some way, since Lone told me about how she feels differently now entering other homes, which are darker, and how much it strengthens her positive feelings about her own home which offers better living conditions through giving access to more light. Although light and other

characteristics of comfort were in some cases also consciously perceived as the actual experience was happening, not only afterwards in the highlight of comparisons made with other conditions.

7.4 Meta-Reflection

The **value** of my research lies in its character. The ethnographic approach allowed me to gather deep and meaningful insights of users' thoughts and feelings in their homes. The research allows to gain understanding which parameters of an architectural concept can create value for people, as well as it validates some concepts about habitat selection and perception of aesthetical pleasure of architecture in general. In addition it gives insight into the lives of residents of active houses and allows a comparison with the home experience of traditional architecture.

There was a certain advantage of the selection of my non-active house participant: Lone's special home allowed me to make a comparison between active house experiences and experience of a home with the same amount of windows paired with technologically less advanced solution. This allowed me to gather insights about certain benefits the automatized system my offer for the home users. However, it also gave a **limitation** to my research. The impact of light conditions on the life in active houses was less comparable. Therefore involvement of further participants could have been an advantage. The research could be further enhanced by incorporating a home owner of an average building with average number of windows, as well as involving more active house owners. The latter would also be interesting allowing collection of further insights. Also, involvement of more users of the same house could give interesting insights about individual perceptions of the same experience. Also, due to long distances and limited time, contextual interviews were not possible in every case, therefore I did not always have the opportunity to make observations about the living conditions myself which certainly led to a loss of data. Finally, other methods or quantitative research could have further enhanced the quality of my findings.

Further research could have been carried out in order to pinpoint other possible frustrations of users. Also, the pain point of Anders about the poor user-friendliness of the digital system could have been validated and in depth further researched with other active house users. Also, as finding solutions to this problem, co-creation techniques could have been used to ensure validity and meaningfulness of possible further improvement of people. Finally, some differences of the preferences of my research participants have been detected. However, further research could allow gaining deeper understanding in this regard, even specifically in connection with the digital system improvements additional diversity in user needs could be detected.

8 Recommendations

8.1 Personalization of the active house home experience

Reacting to the shortcomings of the digital system, the main improvement of AH could be in enhancing the user experience by a more advanced system that better reacts to user needs, thus creates higher level of comfort. As it can be concluded from my research, there are some elements that are similar to more users, while the activities carried out throughout the day as well as certain preferences are more likely to be true for participants on an individual level. Therefore the of user needs differences should be taken into consideration just as the similarities as developing the **new, enhanced program and digital platform**.

A possible solution to the issue detected in my research could be **personalization of the home system**. A program, that is not only reacting to certain physical attributes (such as air humidity and CO₂ level, etc.) as controlling the windows, but also incorporates special need of the users of the house. Allowing possibility of different functions selected not only on a home, but room level, so that for instance the bedroom, that often requires different user needs functions on an improved way that creates more value through offering better comfort conditions for the inhabitants.

But how could this personalization be carried out, if more and more users are attracted to the concept of AH? An idea would be to design defaults. Changing the right default enhances consumer satisfaction, increases profits while reduces risk for both parties (Goldstein et. al., 2008, p. 100). From a consumer's perspective defaults can ease product or service usage. People tend to assume that defaults are manufacturer's recommendation on use, and they are usually happy about having this option available. For instance as installing a software and consumers click to accept the default options, they assume that the manufacturer knows what is best for them, and eases their decision making process (Goldstein et. al., 2008, p.100).

Defaults can be set in different ways. Once it is possible to tailor the product or service default settings to consumer and data on the individual consumers is available without raising privacy concerns, but no data is available on consumers past preferences (which is more likely, since the active house concept is quite new, and most probably consumers would be living in such a home for the first time), however, demographic, geographic and much more other relevant information would be through the questionnaires, personal contact and interview available, a *smart default* seems the best option of choice. A smart default by definition is the default built on customer information to generate individualized options that are optimal to the customer. In case, some customers would be buying their second or third active house home, however, persistent defaults could also be used, which assumes that customer's past choices are the best predictors of their

future preferences (Goldstein et. al., 2008, 102-103). Although the decision of moving to a new house sometimes is also influenced by changes in the family's or individuals' life circumstances or status, therefore the preferences according to the new situation can be altered.

The downside of defaults is that consumers may make ill-informed choices about their needs first. Or that they get confused which decision to make, because of not understanding the options clearly, which can at the end even create a situation, where consumers decide rather not to make the choice and not to precede (Goldstein et. al., 2008, p.101). In order to react to these possible on the first place potential consumers could fill a short test about their user needs and even have a personal discussion. Then based on these insights, an individually preselected list of defaults would be provided to them, so that the choice to make is eased for them. In addition after a three month period a follow-up phase follows as well as additional ones in the winter and/or summer periods, when extreme needs can occur. Then people are questioned about their needs, whether they are covered and met by the default settings or if they face any trouble with using the home automatization system. This allows collecting relevant feedback, further improve and personalize the system as well as build a strong and long lasting relationship with the consumers. In a deeper level, it also creates increased feeling not only of joy (stimulated by optimal home experience) but also bond and loyalty in people, who would feel that the house is not only thinking and taking care of „itself“ but is also thinking and taking care of „them and their families“. This way not only a smart home, but a trustworthy, personalized habitat is created, that can through a strong emotional bond lead to advocacy of the AH concept.

8.2 Managing the Customer Journey: The Importance of Setting Expectation of the Right Level of Experience

As designing an experience, the fundamental concept to embrace is to understand that the perceived quality of the experience is dependent on the gap between the expectations and the actual experience of people. This can be carried out by previous interactions with the future users that set expectations to the right level of expectation about the next interaction. Meaning, that the level of quality and the nature of the experience needs to be the same over time and touch points. Here, it is important to set the level of expectations at a point that can be delivered at all touch point, otherwise as reaching lower levels after peaks, disappointment is created. Therefore, reaching consistency in the experience is the best recipe to deliver perceived good quality. This consistency is to be met in language, visual design, interaction design and product design (Polein et. al, 2013, p.137).

Not only harmony between the touch points, but time is an important factor in perceived good quality: these channels shall be delivering according to peoples needs day after day, therefore

thinking in a longer timeframe is needed. Right now, better consistency between the touch points could be built by an enhanced digital interface, that is not a separate device but integrated in another digital system, people use in their everyday life naturally (like their mobile phones), allowing control functions off the home even from a distant. This could be redesigned with a consistent language and visual matter. In addition to that improvements reacting to changing needs could be introduced, and also here, throughout different phases of the customer journey, relevant touch points that create value for the consumers must be built (Polein et. al, 2013, p.137-138).

Right now, active houses' digital platform is a stable, not a flexible system, not reacting to individual differences that can change throughout the time. A journey shall be created for the users, and the digital platform (the soul of active house), shall be relevant to them no matter at which stage of the journey they take position (if they are considering to invest, in the building phase, new users collecting their first experiences, active users, or at the end of the customer life-cycle). There must be a shift made from simply focusing on products, to products and services. Objects are in this sense no longer the subject of design, but rather are they features (Polein et. al, 2013, p.138-139).

In addition to that frequency of interaction shall also be designed. In the beginning of the customer journey, as people making their first experiences with their new homes, a more frequent interaction is preferred. However, as user needs are stable, and the system starts to function accordingly, rather a lower level of interactions is beneficial to maintain, not to disturb family life and everyday rituals (Polain et. al., 2012, p. 139).

Finally, according to former studies of future consumer trends (BCG, 2016), even though digitalization is about to gain ground, as designing touch points, point of human is still going to remain an important channel.

8.3 Communication Strategy Towards the Users

Previous expectations about the actual user experience were in case of my three interview participants usually lower than later experiences, especially in terms of the impact of increased amount of daylight on their lives. Even though users were told about the possible effect, and they had a positive attitude and increased interest, they had difficulties to imagine these effects. Even visualization of them might be weak in itself – today architect programmes allow visualizing light conditions and present a realistic and valid 3D picture of the plans – but still, it is difficult for people to imagine such extreme conditions that they never have experienced previously. In my observation, as my research participant were describing their previous expectations regarding the

AH home experience they usually mentioned a certain level of reliance on a trustworthy expertise advice (VELUX, specifier - architect, etc.) as it came to final decision making about the investment. That suggest involvement of a third party in the decision making phase: in the level of personal consultation it can be a *trusted specifier*, therefore winning this stakeholder group as advocates of the concept can lead to bigger success in increasing private AH investments on a global scale. In addition to that *raising an authentic populist voice* could reach bigger masses of potential customers.

In terms of communications' context it is important to express values that actually give meaning to people and can generate positive aspiration and incentives to buy. The most important and relevant themes and benefits to communicate in connection with active house are therefore the followings:

- Further strengthening of already existing association with home comfort. Firstly through making a connection with the benefits of automatized windows in the everyday life. Secondly, through building association with positive terms as fresh air, modernity, clean look.
- Further strengthening of already existing associations with space through resourcefulness, spacious interiors, and increased number of windows, which enhances the feeling of having extra place, as well as allowing better light conditions together with constant temperature to better utilize available space.
- Building positive accositations between active house and a well functioning digital platform that allows an optimal and at the same time personal home experience.
- Building more and more positive associations with installation of increased amount of windows. In this case, as a first step, negative associations with increased heat, feelings of living in a "greenhouse" and being explored to the eyes of strangers passing by shall be resolved. As a second step, more positive associations should be built with having more windows. Here a good bases can be to connect active house directly to already existing positive associations of having more windows, such as feeling of being open to nature, having a sight up to the sky (through roof windows), and creation of special moments and moods around everyday activities through enjoying beautiful sights. Finally, as home design is slightly unconventional and also the increased amount of windows draw attention of others, which than creates a topic to talk about, associations with becoming part of a community and reference to a positive aspirational group could be created.
- Finally, at this point according to my research insight, AH is only indirectly associated with light, which is one of the highest valued benefits of the actual home experience by people.

Therefore creating a strong connection between the AH concept and positive feelings - such as happiness, better mood, warmth and cosyness – associated with light should be in primary focus.

9 Summary & Alternative Viewpoints

Political and legal background can influence people's incentives, however, there are no binding regulations that would prioritize AH constructions at any of the examined countries. Therefore the success of the innovation is in the hand of people and their preferences as it comes to new building constructions and renovations.

As my study shows, AH is a concept that can create additional benefits and improved home comfort for people. The system is still quite new, therefore it is not completely tried out yet. Further improvements of the programming and digital platform could enhance user experience. In addition to that extending the focus of the customer journey also on the before and after phases of AH purchases as setting expectations of both product functioning and additional service delivery at a constant, harmonic way throughout the whole journey process would further enhance the perceived quality and user experience. Finally, an efficient communication strategy around the concept is beneficial, that aims both to build the right association with active house in aspirational target groups of consumers, as well as to create awareness around the concept among global masses.

Finally, since these investments are perceived as expensive ones, and lack of additional resources of private investors are hindering further penetration of the AH concept, the financial background may be interested to further investigate.

Quite a different viewpoint of eco-homes was introduced by Marres (2011), who sees homes as one of the central locations for the "dramatization of connections between the environment, economic change and everyday life". Marres criticizes that sustainable housing are made as material devices of publicity as they often appear as elements of public communications strategies, as well as marketing and advertising campaigns. But then, it is not governments, but actually the consumers, who have to be willing to bear a significant part of the costs of greening of the energy economy. As a cause, Marres mentions that privatisation of the energy sector was creating a base for the energy use to be redefined as an existing consumer experience. It all leads to the misuse of green home projects as mediators of environmental issues that address people as environmentally responsible subjects. This viewpoint raises a valid question whether it should be the consumers and them only bearing the costs of such investments - now also projected to active house investments.

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11 Attachments

11.1 Pictures of the Homes of the Research Participants

11.1.1 Active House in The USA – Cameron’s Residence



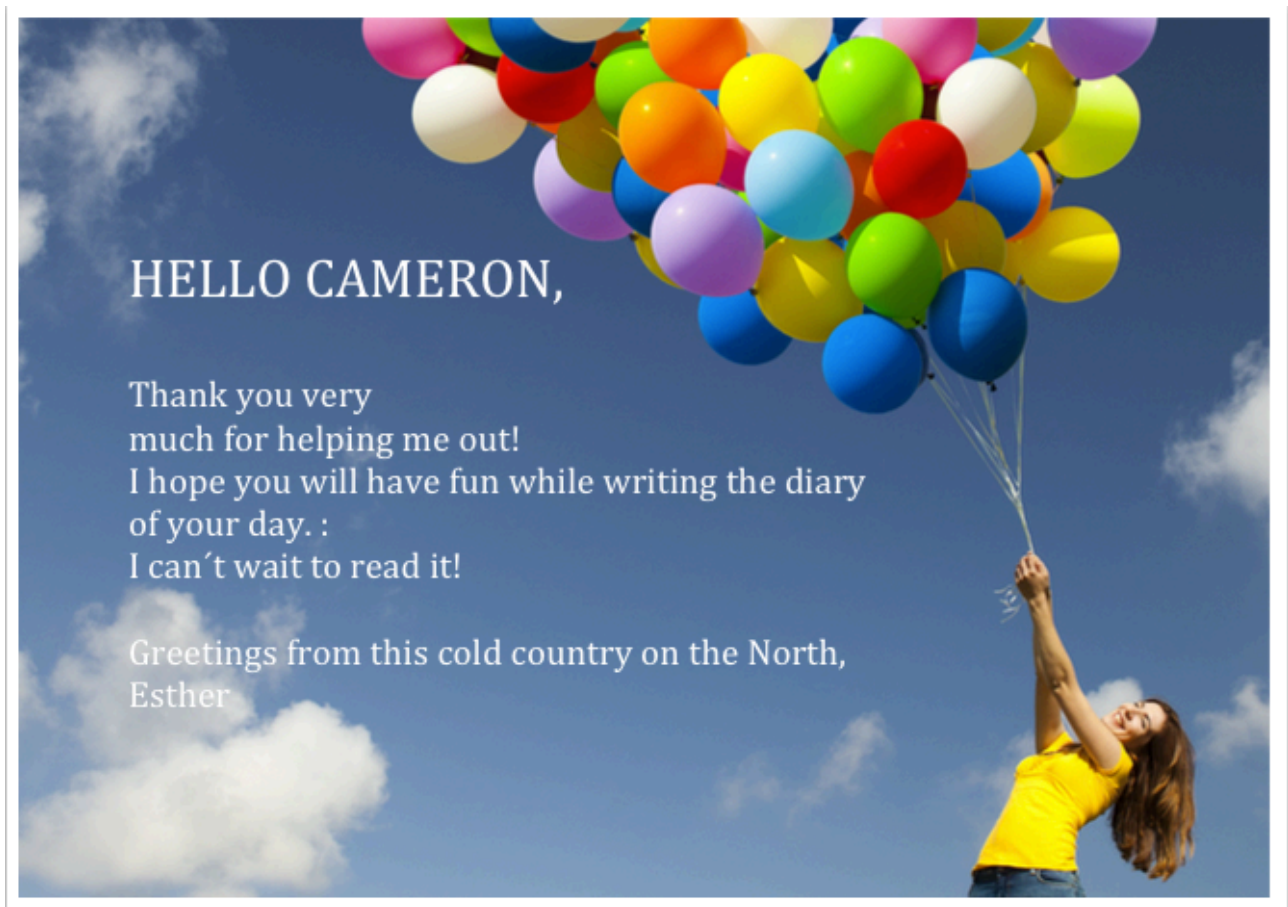
11.1.2 Active House in Denmark – Anders' Residence



11.1.3 Non-Active House in Denmark – Lone's Residence



11.2 Research Guide Example – Cameron



Here is a short example of you should do it....

Let me just show you an episode of my morning today:



Picture of my kitchen:



"Breakfast"

As usually after I have finished my morning rituals in my room & bathroom, I went to the kitchen to grab breakfast. The kitchen is located downstairs in the cellar of the house, and is quite huge. I need to take a small staircase to get there, where it is usually a bit cold. It was 7:10 am when I got to the kitchen and having breakfast took me about half an hour. I always enjoy being in the kitchen in the mornings, since there is always someone around. Today I met 4 of my very nice dorm-mates there; Rasmus, Annsofie, Benedicte and Christina.

I make my own breakfast, a Danish meal, called "havregryn"- it is very healthy and has to be cooked. While I cook my meal I usually also start making a coffee to save time. I also prepare a big glass of water with lemon squeezed in it in order to have a fresh start of my day.

As everything was done, I sit down to our big table, where I was chatting with Rasmus about what we have planned for today. We also have newspapers around which I plan to read.

After I finished eating I washed the dishes I used and climbed up the stairs to get back to my room and start working.

During my breakfast I felt: responsible - I took good care of myself with a healthy meal, and I also felt "togetherness" - since I could chat with my friends

How did I write it?











1. I have made an episode of a particular activity of my day (end of the episode is, when you change location, start a new activity, or someone joins or leaves the "scene".)
2. I gave the episode a name
3. I described what happened there
 - ❖ When did it happen, and how long
 - ❖ Where
 - ❖ With whom
 - ❖ What did I do
 - ❖ How I felt
 - ❖ Impression of the place

Do not think too much of it, just write what you feel like and what first comes to your mind. I am interested in your personal experience & story! 😊

4. I choose feelings from the list (see next page) to describe how I felt during that time. You are very welcome to add other feelings as well, and explain it to me what made you feel that way! ☺

WHEN to write it?

1st: in the morning after morning routine, 2nd: around lunch time, 3rd: in the afternoon between 4 and 6 pm, last: before going to bed

	Responsible / Being in charge		Feeling safe		Feeling cosy / warmth
	Feeling of "togetherness"		Enjoyment of time alone		Something fits me / Resonance (with surroundings, objects, people, situation, space)
	Feeling relaxed		Being tired / deconcentrated		Being dissatisfied with something
	Being disturbed		Being stressed		Being angry

LET'S GET STARTED!

11.3 Coding

Cameron

Comments

Descriptive

Interpretable

Diary

I woke up around 6:45 am. Then I went back to sleep.

Waking early
Sleeping back
Waking up
tired

Circadian conditions
is sleeping well.

When I woke up again, I came into my Mom & Dad's

room, which is across the hall from my room, and

cuddled with my dog Bailey, listened to the radio and

First cuddling
with the parents
& dog
Radio & talking
Cuddling
family
time

Start of the
day with
time together

talked with my Dad. After a bit, my Dad asked me to

take the trash cans out to the street because

Taking out trash
& letting dog out
Practical
tasks

Wednesday is trash pickup day. While taking the

trash out, I let my dog Bailey outside. I used the big,

French doors in the rear of our house.

My Mom said to take a shower so I did. My bathroom

is next to my bedroom so I can easily get stuff from

my bedroom. Sometimes I don't like to take showers

because it takes a long time. Then I made my bed. I

Taking a shower
Bathroom & bedroom
connected - easy to
get stuff
Making the bed
Getting ready
Helping the
parents
Getting ready in
the morning
location
of rooms
compared to
each other

Monday
routines

like making my bed. After making my bed, I got ready

like I do every morning. This usually takes a long

time. I then came down the stairs to the kitchen and

started writing this diary.

Coming down to
the kitchen to
write the diary
Duty / work
done in
the kitchen

She always
works in the
kitchen.
not in her room

When I came down the stairs, at the middle landing

there is a gate so my dog can't get upstairs.

Sometimes we forget and leave the gate open. On my

way down, I could hear the sound of the garbage

disposal, the dishwasher, and the washing machine. I

Description of
the staircase
noises
gate for the
dog
Circadian
information
of the
surrounding
space

space creates
a setting

if so
extraordinary
stimuli
effect remains
unconscious
if the level of
stimuli rises
reaches
consciousness
+ - 4 -
tail up

Comments

Descriptive

Interpretive

had not had breakfast yet but I really wanted one of the breakfast bars my Dad and I made last night. They are still in the in the fridge cooling.

Looking forward to a nice breakfast dad and her made previously

Breakfast is pleasant She & her dad cooks sometimes

Eating is a pleasant balance

I love cooking in the kitchen because it makes me feel relaxed and its is really fun. I get to take charge a bit and I have responsibilities. I have been cooking since

cooking kitchen makes her feel relaxed and it is fun

She likes cooking

cooking with kitchen

↓ place together py

I was a small child. My favorite meal to make on the weekend is oven baked pancakes.

Cooking her fav meal sometimes

They cook meals that she really likes

When I came down the stairs, at the middle landing there is a gate so my dog can't get upstairs.

Sometimes we forget and leave the gate open. On my way down, I could hear the sound of the garbage disposal, the dishwasher, and the washing machine. I

had not had breakfast yet but I really wanted one of the breakfast bars my Dad and I made last night. They are still in the in the fridge cooling.

I love cooking in the kitchen because it makes me feel relaxed and its is really fun. I get to take charge a bit and I have responsibilities. I have been cooking since

I was a small child. My favorite meal to make on the weekend is oven baked pancakes.

We were not home for lunch because my mom and I were running errands.

Kau & her cut out to run errands lunch eat

being cut during the day

spending significant time of the day outside of home

↓ errands have more relaxation (+ errands & homework)

Comments Descriptive Interpretive

Now I am home watching TV. My mom has one more errand to do so I am home alone. It makes me feel so grown and it is nice to be alone – with the company of my dog, Bailey. Now I am trying to find something good to watch on TV.

I just thought Bailey was eating mom's decorations but she wasn't. Thank goodness!

The TV, sadly, is not working at the moment so I decided to watch some shows on Netflix with my iPad. The dog scared me again by messing with a bag with almost nothing in it. I hate it when she does that. I decided to just give her the old bag to play with.

Mom just got home. Bailey ran up to meet her. Now I have to help mom with some stuff. I absolutely HATE taking boxes upstairs. They always fall and I hate doing that errand. I always get soooooo frustrated. Time for a break!

For dinner, we had chicken, green beans, and potato hash. My mom prepared it at this cool place where you can make food to cook for later. After dinner, my dad and I danced to Kidz Bop Radio in the living room. There is tons of room to dance and be silly. That was a lot of fun.

Back home watching TV
Home alone
↳ feeling of grown up feeling
Being alone makes her feel grown
↳ safety feeling comes from the presence of the dog
Dog is with her
↳ free time spent with technology
Dog is playing
not included in her activities
most free time is spent with technology
If any technological device is down she uses another to relax with
Sudden voices of the dog scares her
Gives sq. to the dog to play with
Mom arrives home & dog runs to greet her
Helping her mom
Hate! taking boxes upstairs
getting frustrated
Helping her mom
Making to carry heavy things up the stairs
Dinner together with the family
Dinner together with everyone
Mom cools sauce where else not at home
Kitchen not used that day for cooking
Dad and her dancing in the living room
Dancing with her dad
Tons of room to dance and be silly
Fun
Tons of room to be silly & have fun
more space
more opportunity
more better aesthetic
experience
casualness
connecting it with
more space
room → max space, more utilization
extra joy in irregular social activities
shift of usage of technological devices, but mostly iPad
which technology used at several places at the house
dog signaling danger → she reacts immediately
panic attack
you as dogs react
taking stairs
→ physically hard → uncomfortable
→ irritating
→ if repetitive → hate
kitchen living room
socializing

Comments

Descriptive Interpretive

After dancing, I did an experiment for my science fair project. It is a lot of work but it is a lot of fun seeing the results. The I watched some YouTube on my iPad. Good Night.

Homework → experiment
Doing homework in the evening
Lots of fun seeing the results
watching Youtube on iPad
Free time spent with iPad again (2nd time the day)

Homework → experiment
Doing in the kitchen
time when most people are around

Mom just asked me to get ready for bed. I really don't want to go to bed. It is late but I'm not tired. Mom said I could just keep my chill-axy clothes on for jammies. Now back to my iPad. Now my dad does not want me to watch my iPad. I have to brush my teeth and get ready for bed.

Getting ready to bed
Reluctant going to bed
Back to her iPad
Dad tells her to stop watching the iPad
Brushing teeth & getting ready for bed
Must go to bed (order of the parents)
Hard time putting down her iPad
Getting ready for bed

free time with iPad again
I do not want to sleep

Every night I always want my dog to come up and snuggle with me so I ask my parents to bring Bailey up. She comes up but most of the time she leaves after she finishes her treats.

Parents bring the dog up to her
Cuddling with the dog
Dog leaves
Good night to the dog & parents
dog does not stay

night, before going to bed!
safety & responsibility needed
dog & parents
lights

Usually my mom says good night from downstairs and my dad comes up stairs to my bedroom to say goodnight. If I remember, I say my prayers. I then wait in the bottom part of my bunk bed to go to sleep.

Mom says good night from downstairs
Dad says good night in the bedroom
How does not come up
Dad comes up

Praying
Waiting in the bottom part of the bed
Praying in bed
Praying at the bottom part of the bed

praying is routine
Prayer theory bottom of bed

That's my day!

Sleeping
Sp. Sleeping

Cameron Smith

Interview
with
Cameron
Smith (9) -
Active House
USA

Comments

Descriptive

Interpretive

E: Did you have any expectations before
moving in to the new house?

C: well I found this kind of cool, I was in
kindergarden, but because it was a lot bigger
and than the house was sg floor and kind of
neet and I thinkg I was just excited, because
like moving is kind of a big think

Looking forward
to move to a
bigger house

Excitement
about
moving

Moving → significant
change in people's
life → people view
the themselves
at the place of the
new circumstances
→ positive expectations
→ looking forward

excitement
about moving
she finds it
a big thing

Moving is
a significant
change

E: If you have to compare your previous home
and this one, which are the main differences?

C: well the one we are in now is very big, its
lika lot bigger, the other was only on two
floors, but thi sone we are in is now three
floors... aaand...

comparision between
old and new
house → size
matters

Size is her most
important factor

at this part of the interview
the father was present and
he gave suggestions to Cameron
Dad: so and the outside of the old house was

what
consider
how size
old vs. new

brick, and it was built in 1940, and the old
house was what it is called a bungalow,
basically a two-bedroom house. Now this is a

building
material &
age of construction
is describing the material;
old house
old house was
a bungalow
two-bedroom
house, made by
brick (40 ces).
other looks
for comparism:
age,
style,
size (nr.
of rooms)

She is so young:
does not consider
the same
differences in
the two houses
than her dad
diff.
Same people in
the same house
old have
diff. expectations
about the future
have based on
their comparision

	Comments	Descriptive	Interpretive
modern house. Efficiency-wise even though we	Description of the new house: modern	Associations with their old home: modern, effective	AC: better living environment than average
are in a much bigger house, the energy-costs	lower energy cost even though the size is bigger	energy usage better	Positive features of AH: modern feeling
are less than they were in a much smaller		comfort, temperature, no draft, consistent temperature	energy use, better comfort
house, and the air comfort is much better, there			clean, spacious
are no drafts, the temperature is consistent			
around...			

Then we restarted skype to have the picture function... than

E: In terms of comfort – is it more comfortable living in the new home?

Is it more comfortable?

C: it is more clean and stuff it is more modern a	cleaner & more modern	clean, modern
little bit i think it has more resources in it	has more resources	resourceful
because now we have like a cabinet all over	has a cabinet and plugs	
like xy plugs and all downstairs we have a lots		
more place now because we have more room	has more rooms and more space	spacious

E: do you have a favourite place in the house where you like to relax or you just like to hang out?

C: probably, hmm, recently I have been a lot on the top of my bed, and than going down to the

she likes to relax on her bed

achieve CC
relaxation?
private - bed/couch
Bed: place to relax & enjoyment of time alone.
why is the most important factor at this part of the house

Comments

Interpretive

basement to play because there is a lot of carbon (?) place and go and play around on it

She prefers playing in the basement

She plays in the basement

Playing in the basement not in her room

mostly used to sleeping & getting ready

E: do you understand how the house work? Is it easy to live in the house?

More space in the house, more rooms → functions of the rooms are more separate → room

C: oohh well I kind of understand how the house works, I kind of like, we have like

She understands how the house works

Technique and theory are clear

also played on preferences of being alone or together with

sunpanels, in top, the sun's energy in it makes it into energy and new source of unfinished

The house has sun panels and uses sun's energy

House uses sun energy

save time through out the typical activity (and out in the

energy in the basement and I think it has to give sg in my bed

The machinery system is located in the basement

System control is hidden

room (Kitchen - however, it is hidden room)

E: do you have to sometimes do things in the house like manually coordinate what's happening in the house like whether the windows should be open or not or the temperature should be higher or not, or is it something that your dad does or is it automatic, or how does it look like?

System control might not look aesthetically appealing → hidden design, not to show "heart of the house" is hidden from eyes

System is user friendly → children can use

C: well it has happened recently, because a couple [ooor] i am at the house [ooor] usually my dad sets it and kind of it sayt about the same place am about the same temperature

She has used manual control before it

9 year old can use before it

She understands the photo how the house functions & some results (same temperature)

usually it is the dad controlling the system

Dad controls it

no further annotations to find health but rather comfort

it keeps the same temperature

Temperature is constant

Comments
- Diary reflections -

Descriptive Interpretive

E: let's start with your diary blabla how do you usually sleep in your room, can you describe me your room in the evening - like how is the light, the temperature, do you hear any sounds...

C: well usually when I got to bed there is sometimes there is like a sour or sourgine and there is like a little bird or sometimes you can hear the cars pass over, because my bedroom

She can hear street noises in her bedroom, like passing cars on the street and birds singing

Bedroom can't get against basic desire principles

light preference is overruled by the bedroom because of safety

is like that ... she is drawing ... it is facing the street with two windows... and I have the headlights of the floor that reflect where my bookshelf is and sometimes the heater is going on and sometimes not depending on the temperature or so.

She explains hearing noises by having two windows to the street

she associates windows with light because she has streets explaining light came from in the room she has artificial light vs natural light for coming from the floor in her room in the evening. It is a reflected light

outside factors reflected in windows → light preference → safety → artificial light vs natural light

E: do you sleep in complete darkness or do you have a little light in your room when you sleep - what do you prefer?

Then she associates light with warmth (temperature) and refers to the heater

C: ahm I like a little light like because sometimes i am kind of freaked out when I watch movie or something and there is a little

She likes to sleep with a little light, which makes her feel more safe

light at night makes her feel safe

She is more scared if she watches a scary movie

outside factors are influencing perception of safety

Comment

light behind my bed and it shines up on the wall behind me and it's kind of nice and usually my parents lie on the stairlight because there

light behind the bed shines up on the wall - reflected light again
↪ it is nice
reflected light vs. direct light

is a stair and there is a light that is like like it is

hard to explain but but three rooms there go

On the floor there is a staircase where the light comes from, 3 rooms, the dog's corner (a little hallway) → there is a light there which the dog does not use really that time of the day
direct light

off and because, when you go on the stairs

there is this kind of place where my dogs

corner is its kind of like a little hallway and

there is a light up there and usually they don't

leave that on, and sometimes there is this little

sg and its quite good

E. than i read that you like to sleep with your

dog - why do you like that?

C: i like to sleep with my dog because it kind of

She likes to sleep with her dog because it comforts her
dog → comfort & safety

comforts me and if i watched a kind of a scary

movie it kind of helps me to know that i have

If she watched a scary movie she likes to have the dog around
safety → seeing danger & being able to avoid / scare away danger

here the dog because she would barke at

anything

It makes her safe that the dog would bark at anything (giving a sign that sg. is approaching or scaring it away? why?)
scaring danger away

E. so you feel more safe with the dog - and

cosy?

dog barking suggest danger but also gives safety
Togetherness creates safety

Relevance on others perception about danger

C: it is kind of nice to have the dog, its just kind of nice that it is there

It is nice to have the dog around

⊖ feeling is associated with the task not with the architecture or solution that causes the task (staircase)

E: and then you also wrote me that you had to carry these boxes upstairs, and you seemed to be a bit angry about that – what are these boxes and why do you have to carry them?

actively trying to avoid uncomfortable tasks &

C: well usually its like laundry, and shoes and stuff and i dont really like doing that cause i like to get over with and i put everything in one ship but than everything falls and its a bit messy so

She is angry about carrying laundry and shoes and other diff. kinds of stuff upstairs.

getting over with unnecessary & uncomfortable tasks

like to get over with and i put everything in one ship but than everything falls and its a bit messy so

She carries them in boxes.

She does not want to carry out stuff upstairs as few

She wants to get over with it

She puts everything in one ship & everything falls and it gets messy

physical movement as possible

E: do you feel that you have to run up and down the stairs a lot of times during the day?
Have you noticed that?

C: what do you mean?

E. for instance i also live in a house where we have a staircase and than i am a bit lazy and i dont like running up and down and i i usually try to you know save up the stuff that i have to carry upstairs and i wait till i have a bunk of

things and than i can carry everything together

so i dont have to run the stairs so many times...

How do you feel about taking the staircase? It

is ok?

C. yes it is ok, it is a work out because it is a work out, there are two flight stairs, the ending and an other flight up and it kind of is hard and

usually if there is a bag that my mom carries with her up I usually put other things in her bag so it would be easier to carry up so that what i do like carry up that stuff. Thats not my favourite tour.

Taking the staircase is a workout

It is ok taking the staircase → no general limitation about that

Staircases workout

Staircase workout

↓
Strain/aching avoidance

If her man carries a bag upstairs she also puts her stuff in it
⇒ to make it easier to carry

Delegation of work - female tend to be more

↓
delegating task to others if possible

"Not my favourite tour"

E. And than you mentioned that you like

cooking, do you usually cook alone or are you

together with someone?

C: well usually me my dad cook and we the chinese something aaand...

Usually the dad is cooking with her

Going together with her dad

Kitchen important place for

togetherness

centrum of togetherness around food

↓
TV:
prepare food eating & relaxing together are the main social activities at the

E: and how often do you cook with your dad

(during a week of time)?

↓
bar table
kitchen & couch
have the central places

Comments

Descriptive . Interpretive

C: well it usually is at least like once a week

she coos together with her dad usually at least once a week

regularly cooking together

than sometimes on the weekends like the other

day ~~med ad~~ ^{dad} and I made pancake, it is so

coos easy and fast recipes that she likes

cooking for her joy

togetherness → joy

delicious, it only takes like 30 minutes but it is so delicious

The house has to offer places for social activity and individual activity

E: than you also mentioned something about

your mom tht se did dinner at this place where

it can be saved for later or something like that

More space allows more different kind of social activities (dancing with dad)

- i didn't really understand that can you

explain it to me?...

Her mom sometimes picks up food from "time for dinner"

Eating take-out

→ positive association between joy & place

C: well this place is called time for dinner and

she basically prepares it all there she makes it

all there and than she brings it home and than

she prepares all the food there, then she takes it home and they eat it

she just has to heat it up and than put like a

couple of souces on it and than it is ready so

E: how is your kitchen is it opened together

with the living-room?

C: well my kitchen is a bit separated it kind of

The kitchen is a bit separated from the living room.

location of the kitchen

curves around and than there is an island of

it curves around

the sink and a board where we usually eat and

They usually eat at the island of the sink that also functions as a board

Mostly eating at the bar

gathering in the middle of the common place →

and there is chairs around and behind the

There are chairs around

central

both couch & table

Comment

Descriptive Interpretive

chairs there is a couch and then there is
where the living-room starts

There is a
couch around of
it as well
The couch separates
the kitchen from the
living room

The couch
separates
space

Furniture is
used as
separating
space.

E. and if someone cooks the others are also
around or ohm is it like a place where you
gather with the family or is it rather the living-
room, where do you spend the most time
together?

C: hm well that's probably the living-room and
the kitchen that's where we spend to most time

The family spends
the most time in
the kitchen and
living room together

Most time
spent in
the kitchen &
living
room

together because me and my dad love to cook
and then my mom and my dad loves to watch a
movie before going to bed and sometimes I
also love to watch a movie and

She and her dad
loves to cook
~~is this ok~~
She and her dad
in the kitchen

Kitchen:
place of
togetherness

Mom and dad
watch movies
in the living room
in the evening

living room:
togetherness
at the
evening in
front of TV

E: do you use the garden as well?

She sometimes watches
with them

C: the garden, the what?

E. you have a yard right? Around the house..

C. yeah i have a yard, we have a garden but we
haven't started it yes because that's kind of
something but we had it last year, we have a
yard but it is a rather tiny yard and its kind of

They have a
yard but it is
not completed yet

Yard is
not
used

The yard is small

Yard is not
specious →
poor possible
city to carry
out diff.
activities →
underused

Comments

Describe

Interpretive

hard it gets a lot of sunlight where most things grow

The yard has a lot of sunlight and they grow things there

Small yard but new → planting

Sunlight is fundamental for life

E. and do you go out to the balcony? You also

have a balcony in the house right? Do you use it

C: the balcony that's connected to my parents

room, usually we don't use it so much but in the

summer we walk up and sit up there and, it's

just kind of there

The balcony is connected to the parent's room

Balcony is unused location

They don't use it too much

Sometimes they sit up there in the summer

Summer: seldom use of the balcony

It is just there (no function...)

location of the room reflected in usage (and access)

space that should serve to encourage function

does not apply to because

usage of

topography if only accessible via individual place

Social vs individual uses of the house

good weather is a trigger to come outside to nature

E: and then you wrote that you did this

experiment with your project – can you tell me

which room you were doing it and can you

describe me the place where you were doing

it?

C: well that was my time-square project that i

am doing for school and so basically i have to

model the evaporation and the environment so

i put it at places throughout my house and also

outside and also i put it under a lamp which is

by the shelf by the TV and I also put one

outside on the handle like on my desk there is a

For her homework she had to model the evaporation and the environment

She put things out throughout the house to measure

Homework requires to use near rooms of the house

focus on resource centres

with the resource a room offers will have an effect on which activities are carried out there

adapting activity to resources (not room) rather than changing spatial setting to fit activity

Comments

Descriptive Interpretive

where there is a place where my dog can't get
to it and so i put it there and...

E. and if you study than where do you usually
study?

C: well i usually prepare it in the kitchen

because there are all the cups i use to the scales

and that's where i prepare it and than i take it

to the places

She usually prepares her homework in the kitchen
(She likes to drink it is better equipped with things she needs to use)
Homework is prepared in the kitchen car
↓
facilities

Homework →
source of stress →
carried out
at various
places
→ reducing
stress by
togetherness

E: yes but if you do like casual studies or other
school stuff, than where do you usually prepare
for school? Or maybe you do your homework at
school - i don't know the system, or do you
study at home? How is that?

C: we usually do our homework at home and

than i usually do that in the car or i usually do
it in the kitchen

She usually does her homework at home or in the car
If she does it at home it is usually in the kitchen

E: and why do you do it in the kitchen?

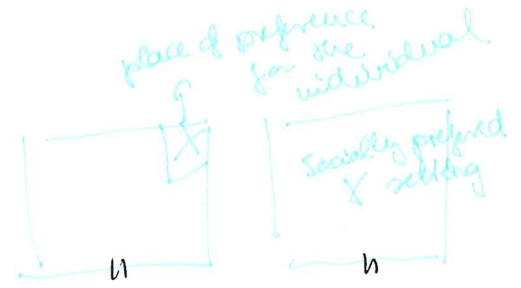
C: i do it usually in the kitchen because that

closest to the door, but there is an other spot i

She likes to do her homework in the car in the kitchen

Comments Descriptive Subjective

could do that but i just like to it there at the bar
at the kitchen



E: what do you like, if people are around you
when you study or is it better light there or you
just like sitting there better?

C: it's kind of a comfy spot and i don't really
mind if people are around me when i am doing
my homework as long as i can watch it watch
there through across

She finds it a ^{kitchen: a} comfortable spot ^{spot}
She does not mind ^{having people} having people around ^{around}
but as she does her ^{homework} homework
she can watch them ^{spot focus} through across ^{the spot plays a role}

→ having a sight around to the entire space is preference for social place

Entrance of the house → comfort

E: and then you also say you watched youtube
on your iPad, but then you do not say where....

C. oh i usually watch youtube on my iPad or
watch TV on my couch in the living room,
because that is like the only room with a couch
and that's basically where i do all of y
technology stuff because there is where i have
all the iPad and a computer and that's where i
do other things with my iPad basically.

She uses all her ^{technology stuff} technology stuff ^{on the couch} on the couch
There is where she has all the iPad & TV
TV & iPad simultaneously used
Technology → living room
Technology → more devices are used simultaneously should be visible
Tech-savvy future
more devices are used simultaneously → need for more technological stimuli
Technology is used for relaxing free time activity & source of comfort at the same time

E: is there something i haven't asked you but
you would like to tell me about your house?

C. ahm hmmm, ahm,

E. You don't have to mention anything if you don't have...

C: oh i just remember, like in the basement there is this place, this little corner thingie, under the stairs, it's called Cameron's corner, and this is a corner where i like to hang out at, and it's kind of cool ...

In the basement there is a little corner under the stairs: Cameron's corner

(CC) Cameron's corner in the basement place to play

Prospect - refuge theory & role of object in Cameron's corner

She likes to hang out there and finds it cool

Favourite spot

E. so you can hide there... if you are in this corner, what do you see from there?

C: well if you are under the stairs you can kind of see the room but it has a covered part because of the stairs, but if you are at the open part where you come in you can basically see the whole room.

She can see the room from here. It has a covered part because of the stairs and an open part from where she can see the whole room

Prospect - refuge theory (PR) in CC.

E: but then you are also a bit hidden there right, or? Can you be seen when you are in this corner?

Comments

Descriptive

Interpretive

C: oh yeah i can probably be seen, probably be seen, but if someone doesn't know about it you can probably hide there a little bit more and than if people come down you can see the hills because the stairs are open and you can see through the stairs.

You can be seen here but if someone doesn't know about it you can hide there a little bit more
To see but not being seen
If people come down you can see the hills through the stairs

E. and is there light there or is the place a bit dark?

C: well when i go downstairs i usually turn on the light downstairs but than it the corner, it's darker than the open space and than it is darker because the stairs are shading, but you can still see pretty well.

The corner is darker than the open space, because the stairs are shading, but you can still see pretty well
Sights in the PR theory

mental state of the person can have an influence

feeling of safety or need for safety can have an influence

+ Balance between being individual & common places

have need to offer more & each person for example

Interview with Anders Søndergård – Active House Denmark

E: have you had any particular expectations before the renovation of your home regarding the new home – because I know that you have renovated this house, and what were your expectations about the new conditions?

A: regarding the new windows or regarding the renovation in general?

E: regarding the living area of the house – what would it change

A: we have done 2 renovations. The first one we made when we bought the house that was kind of making the kitchen, making the house livable. And then we had an other renovation that was when we made a new roof and that was when Velux came in with the windows.

And actually the second renovation with the new windows was primarily because we wanted a new roof. It was very old and we needed that and then i talked to Velux about putting in a lot of windows. And my

2 renovations
1st: as buying the house to make it livable
2nd: change of the roof → making windows in → turning it into an active house with VELUX

Renovations aim
house to be livable
it improved comfort

If something needs to be changed
! disfunction

Comfort is the reason to renovate

Comments Descriptive Interpretive

expectations actually wasn't that big, even though i worked for velux for many years i had no idea how much it would mean to get the windows in. So the expectation was actually just to get some nice windows and just to get a nice new roof. So actually we were very surprised how much light it gave us and how much we can use the room now. Actually when the renovation was done and we saw it for the first time, you know when the builders just left the room and everything was just you know no furnitures, nothing, it was just clean and there was window in it, we didn't have any shutters for the windows that was not with it, so my girlfriend actually started crying because she hated it. She hated it so much, she thought that everybody could see everything and it was very strange for her to be in such an open room. But now she loves it. But when it started out, the first week, she hated it.

E: but than you put the shutters...?

No big expectations
Previous VELUX employee
getting the windows
it has a great effect & meaning

Previous expectations are moderate:
nice roof with nice windows

Surprised about the amount of light & it's effect on the utilization of space

First time entering the space: extreme effect & reaction

First reaction of the girlfriend: hate
before this first reaction: love

Girlfriend cried

First associations:
everybody can see everything (being exposed to stranger's eyes in the private place)

Strange to be in an open room

Not only expectations compared to the effect

Surprise
effect of daylight on their life
max daylight → better utilization of space

First seeing it: strong effect on both of them
extreme feelings generated

gf. cries and he loves
↓
both love later

Guam: being explored

change seeing in all open room (private space) very private

More light → better feelings at the place, more pleasant → more time spent there → better utilization of space

If the expectations are smaller the surprise of the effect can be bigger

He knew about the effects but he could not imagine it before experiencing it

Strong individual response love or hate

Used to get used to it

Very different from previous conditions what is as used to

Long term: everyone loves

Guam: being explored in the private room

open space
if feeling of safety is destroyed & feeling of being private

Comments Descriptive Interpretive

Shutters are only down at night, otherwise never
 Night: complete darkness
 Day: all the light in
 light according to circadian conditions
 Diff needs of light in the bedroom at day and night

A: yes, but we never have them down now. Of course at night, but otherwise never. But she really didn't like it.

E: was it her biggest concern that people would look inside?

A: no it was just, ohm its a very different way of living you know, before there was only one window, now there are windows all over, I can show you. It's a very open room, it's like living in a green house almost sometimes

It is like living in a greenhouse
 very open room
 windows all over
 before only one
 it is a very different way of living
 Greenhouse & warmth/light/ life (where things grow)
 Diff. way of living
 Different way of living
 Better comfort
 light gives better comfort & air quality

E: And what about you? What were your very first feelings about the space?

A: yeah but i liked it from the beginning actually. Because first of all people came watching when they are down the street they can't see anything. And second of all it gives a great light and it's a nice room to be in, and i was very happy about that.

he liked it from the beginning
 People are interested
 People came watching
 Down the street they can't see anything
 Can't see inside from the outside
 It gives a great light
 It's a nice room to be in
 Better comfort & light
 Gives a topic to talk about
 Appealing to others
 Although you would fear, can't see inside
 pr - theory is working in practice very well
 see but not being seen
 Happy about the new conditions

E: does it change the comfort of the room?

A: yes, because it is easier to be up there now, it is easier to be up there because there is light and we can open so many windows so we can get fresh air very-very fast if we want

Comments

Descriptive

Comfort is changed positively

Easier to be there

because of the light and fresh air

→ thank to the many windows

easier to be there

light

fresh air

extra feeling of space

easier to be there
light
air
space

more work without windows that makes a place pleasant to be at

E: and then do you maybe feel a better connection to the nature or does it give you some extra feeling of space?

A: it gives an extra feeling of space i am not sure it gives a feeling of connection with nature. But i mean a better sense of space

It gives an extra feeling of space

It does not give the feeling of being more connected to nature
better sense of space.

LC is very good despite all these

Not bringing closer to nature is air-conditioning feels here

E: and then compared to the previous state of the house is there something else that has changed? Maybe in terms of comfort?

A: yeah, but i mean the comfort is higher than it was before, no question about that. Yeah i mean that's the primary focus actually. The comfort is only it's of course regarding the light, the freshness of the air, stuff like that. But that is i would say the main thing. Its a nicer room. Regarding the financials if we save

Comfort is higher

Comfort is the primary focus

Comfort is: light, freshness of the air

Nicer room

Comfort comes first then financials

Does not care about saving money on the energy bills

Comfort is the important primary focus

Comfort is the primary focus

Financials mentioned is not important (energy consumption)

Health is not even mentioned, none cares does not even appear as a thing to consider

Comments

Descriptive

Interpretive

money - i actually don't know. I think we do
but i don't look into that.

Does not know what
the energy consumption
of the house is

E: that was not the reason

A: no that was not...

E: what was actually the reason of the
renovation?

A: we needed to fix it. We needed to fix the
roof. I mean we didn't have a need to put in all
the windows, but it was nice that we could do
it, but we needed a new roof, it was very old,
and we needed to make new isolation nad stuff
like that. So we had to do the roof and than the
windows was kind of a bonus add to that.

Reason for
renovation:
need to fix
the roof & insulation

Renovation
was needed
→ lot's of
windows
→ bonus

Putting in many
windows is an extra
(bonus)

many
windows
→ bonus
something
extra to do
to enhance
comfort but
not necessarily
needed for
basic functions

E: was it coming because you have been
working at Velux - the idea to put that many
windows in? Or where was it from?

A: it was from Velux, yes. No question of that.

of putting a lot
windows in

Idea comes from
previous work
experience
at VELUX

Previous
work at
VELUX
→ shows
the effect
but one
cannot
imagine

→ awareness
of this opportunity

working at VELUX
gives the awareness
here of the
solution

reliable source
of information

if no awareness
of the concept
no implementation

maybe if he worked at
grundfos, he would
be also more skimming
the benefits of
the pipe?

only brand mentioned: VELUX
- windows are the heart of the solution
- most comfort is gained via
extra amount of windows
- most association
previous with windows

Comments Descriptive Interpretive

E: and than i don't know but probably the active house concept is than familiar to you

He is bought by the idea of the smart house but technology cannot deliver

A: yeah

E: is it easy to understand how the house is working?

Active house concept is familiar

system works → (aw, sleep) & but! it's not user-friendly

A: yes, but it has some shortcomings – the system- i actually think. I think the software is ridiculously bad to be honest. It opens windows at the middle of the night, it opens, i don't think it's that easy to make work with your everyday life. I like the thought of it, i like the idea behind the that the house is thinking and taking care of itself, but i think it has some shortcomings. For example if you have kids and all of a sudden the windows opens just when you are trying to put them to bed and stuff like that. And it's very difficult for me to figure it out how can I stop that.

The system has some shortcomings

The software is ridiculously bad

Windows open at the middle of the night.

Not easy to make it work with the everyday life

like the idea "house is thinking" "taking care of it self"

Difficult to figure it out how to stop when it does not fit life

Shortcomings:

software is bad

Windows open at wrong times →

disturb privacy life

does not fit with every day situations

likes the philosophy being, finds execution bad

Cannot stop ↓ turns off

min. 25% of the year turned off

gives the feeling that people are secondary behind the system

leads to uncomfortable situations

does not fit life & needs

Problems to regulate ↓ turning it off

E: and does it even make the life harder?

Comfort Description

A: no! It doesn't make it harder because than ^{living in} ^{AI does not make} ^{it harder [bad system]}
you just turn it off. I actually turn it off during ^{if he cannot control}
the winter time. Because it's so difficult to ^{→ he turns it off} ^{turned off for winter}
make it fit to my needs. ^{System is turned off for the entire winter}
^{Difficult to make it fit to needs} ^{Does not fit needs}

E: and is it always you that it controlling the system or mainly who?

A: no, everybody can control

Everyone can control, also kids

kids can even control

kids can also control

E: even the kids?

A: yes, they can control and open the windows with the remote, yes.

Needs: different in every family, must be individualized even within the family → can differ in diff. parts of the year (seasonal) room-to-room, etc.
must be flexibly adaptable

E: that's actually nice. But it is also interesting to hear critic about it, or what could be improved about the system

A: yes, the system needs to be have a better

Better user interface is needed

user interface. Because when the system is on

and it's working of course it's nice. But than the system is the most important think. And of

feeling that system is more important than people
System is not prioritized compared to people

course it's not. I mean the most important

thing is the people living in the house. So the

system should be able to very easily change to
fit my needs.

Flexible system
is a need

Describe Interpretive
Flexibility
of the
system

E: yes, maybe it 's not smart enough to adapt to
every situation?

Not smart
enough

A: no it isn't.

E: let's start with your day yesterday. Have you
been home all day long, or what did you do?

A: i think i woke up around 9o'clock. The kids
were already up. Than we had breakfast, than I
walked over to one of my youngest boys
friends who lives 300 metres from here. He had
a play date. So I went over with him, than I
came home. Than I actually I think I went to the
garden, and we did some painting on the house
and than I fixed my girlfriends bike and than
we were just in the garden all day. Tha none of
my oldes't boys friends came over nad they
were playing. My girlfriend went for some
fitness. My youngest boy came home with the
friend he visited and than they played here,
than my oldest boy didn't wanna be here,

Description
of the day

because the youngest boy was here, so he left with his friend to his friends house, and than at around 18.00 the big boy came home, we ate, I think the guys took a shower and than they went to bed, and that was the day.

E: that's really good, because I can see that you have used the house alot, so we will get really good insights. I will just ask you to describe your own day and what you did and we would make it in the way that maybe I will ask you to make each activity an episode, and even give it maybe a title, like ahm drinking coffee. And than if you could just tell me where you have been in the house. We can go chronologically from the beginning of your morning when you woke up maybe, and than what did you do, whether you had company there, or you were alone, and than I will ask you to describe how you felt during this activity and for that I will have a list for you – because I think it's sometimes a bit tough to speak about feelings, where you can pick a feeling or more what describes what you felt there and than give it even a scale how strong it was, if 1 is the least

E: Moderator explaining the methods

Comments Descriptive Interpretive

and 6 the strongest. Shall we try it to go through this way?

A: yes, sure.

E: so maybe i will ask you first – how did you sleep during the night?

A: let me see, yesterday was sunday right, no monday, I slept fine, really fine, I think the night before, the night between sunday and monday I was up pretty late, I went to bed around 1 o'clock.

He slept fine the night before he went to bed late
→ he was tired
Sleeping well

Sleeping conditions are according to circadian rhythm
he is sleeping well
(he was tired)

Noise - professor does not work, it wakes him

E: how is your room when you sleep, in terms of light, temperature, sounds?

Description of bedroom

A: we don't have any heat in the room.

No heat in the room
Bedroom fits circadian conditions

Sometimes the windows open. It's dark. All the shutters are down. So I slept really nice. Then

windows sometimes open
dark, shutters down

in the morning when I woke up I think I woke up because I could hear the oldest one walking

noise from staircase wakes him
Noises wake him

down. The youngest one was already up. And I

can't stay in my bed, when I'm awake, I get up,

getting up immediately

I don't ly around. So I got up immediately, and

Comments Descriptive Interpretive

I came down I sit right here, I drunk coffe,
 listened to the radio, I think I made the kids
 breakfast.

first thing in
 coming down to
 the kitchen →
 coffee & radio
 at his fav. spot
 making breakfast
 for the kids

Spending
 a day
 with him
 alone at
 his fav.
 spot

He spends most of
 his time alone at
 his fav spot
 relaxing

E: Ok so this episode we can call maybe making
 breakfast. Can you describe me how you did it?

A: I think I made them pancakes and I made -
 ahm my girlfriend is very into fresh juice so I
 think I made a juice, a healthy juice, and I think
 that was it for breakfast. Me myself I had
 coffee and i had a couple of pancakes. And than
 I think I just sat there, I listened to the radio
 and I had some more coffee.

Taking care of
 the family
 ↓
 regarding their
 needs & preferences
 in breakfast
 healthy, tasty

Taking
 care of the
 family

Does a lot of
 things that he
 thinks are good
 for his
 family
 family members
 benefits & needs
 are first
 priority

Sitting there longer
 after breakfast
 with more coffee &
 radio

Time
 alone
 again

Taking care of
 the family
 makes him
 feel responsible
 & good

E: How did you feel during this?

A: I really like those mornings! Feeling safe
 and cosy/warmth – strong, 5 , a good part of
 the day

E: what was your impression of the room, do
 you remember that, anything?

is that an
 opportunity for
 AH? for

Comments Descriptive Interpretive

A: no, it's just the house, but i mean it's my house...

no impression of the room because he is so used to the place & settings that he does not recognize it anymore
if the room is not new → no conscious impression

only impression of a place as you first take it and you actively observe

E: what happened next?

A: the little one had to take on his clothes, and I think I helped him, and then he had to pick up some new stuff he had to bring to his friends house I found those

Helping his kids Time with kids (practical)

E: where was that happening?

A: we were down here and he run upstairs, and found his stuff, and then when he was ready than I run upstairs and took two minutes and took my own clothes on, and then we walked to his friend's house. And than I came home
Feelings: togetherness – its always nice if they go over to the friends house it makes the day easy

Downstairs & upstairs using staircase

First preparing the kid, than himself First knee bed, than him

A: than I stayed outside

staying outside

Use of the garden

Extended use of the garden every family member uses it, and serves diff. activities

E: it was a nice weather

enhanced garden design / childrens outdoor use time spent in the garden and active utilization of space in general

Comments Descriptive Interpretive

A: it was a bit windy, but it was a nice day. My girlfriend had a new bike, we bought an old bike for her and we needed to take some stuff

Weather: windy but nice
nice day
Time: cute

Fixing gf's bike

from the old bike and put it on the new bike, so

I was outside doing that. And she was painting

Practical jobs around the house
gf: painting the roof

something up just under the roof, so I was

he: holding ladder

holding the ladder so that she could paint, and

we were outside a couple of hours doing that

Outside a couple of hours

and getting ready for the construction team

that comes next week.

E: Do you spend a lot of time in the garden in

general, do you use it?

A: yes, when it's a nice weather, we do.

Spending a lot of time in the garden if weather is nice

E: And how do you use it, what do you do?

A: the kids they love soccer, so they play and

kids play in the garden
soccer, then they relax
watch

Garden is both the place where you work and relax

we sit and watch them. They like when we

watch them. So that and just go around and do

Do small stuff

small stuff. We haven't put that much effort

not too much effort in the garden yet
→ still construction work
plans to improve the garden
expecting more use

Time and effort needs to be invested to be good

into the garden because we know we will fuck

it all up when we do the construction. So

but plans about it use

more activities possible
over the time more planning
more pay

Comment Descriptive Interpretive

actually we have plans for it but it has never
been we never have done anything yet.

E: but then you just go outside casually and just
do something

A: yes, just go outside.

E. And then how would you describe your
feelings during this garden activity?

A: Togetherness, the family is together, 5

E: And after the garden time, what time did you
finish?

A: around 15.00. My girlfriend had to go to the

Gf. goes to the gym

gym. And then I was home alone for a few

He's home alone Time alone

minutes with the big boy and his friends. And

than the little one came home with his friends.

Kids home

Then the big one took off and then the little one

and his friend went up to the room and started

playing. And sometimes the kids are playing

Kids play best if he is out of sight
Kids playing in the kitchen

best if they don't see their parents, so actually I

was doing a bit of hiding. Just down here in the

He is hiding in the kitchen

that space is needed to be able to separate togetherness vs. time alone

Hiding in the kitchen being out of sight (PR-theory)

! making the room in a very diff. way than primary function makes him feel very strange

Strange feeling of cautiously hiding in your own house

Comments *Descriptive* *Interpretive*

kitchen. Because if they don't see me they play just better than when I'm close to them.

E: And what did you do in the kitchen this time?

A: I drunk coffee and I looked at my iPhone, checked e-mails and stuff like that. I was just standing here in the kitchen drinking coffee.

Drinking coffee & checking mails on his phone while hiding

Activities while hiding

One cannot just exist in a place, we constantly need to do sth. even if actively-rebelling

Feeling: responsible, it's a strange feeling, the reason I am standing in the kitchen out of sight is because of them, because if they don't see me

Responsible & strange feeling
Responsible & change strange activity & usage of the room

→ room needs to offer a function

they play much better. You know he is only 6

and if they see me they want to kind of you know they need me to join the game and stuff

If kids see him they want him to join in

If kids see them, they want to involve them

If we use each other → togetherness → included to understand each other can only have quality time alone if out of sight

like that, but they can play so long if they don't

see me or any other adults. So it's kind of being responsible and taking care of what's best for

Taking care of what's best for them

Prioritizing what's best for the family

Prioritizing what is best for the family

them I'm not sure, whether it fits it. I am not sure, but I do something because I know that it's good. Strength: 4.

I do sth because I know it is good

Feeling good about doing sth that he is concerned is the right thing to do

Being the right thing is a good feeling

E: How long have they been playing?

Comments Descriptive Interpretive

A: an hour. Then my girlfriend came home, and she had bought the groceries with her, and than I started cooking.

Off. home
with groceries
He cooks
Cooking alone
→ live

E: Is it usually you, who is doing the cooking?

A: Yes.

E: Do you enjoy that activity?

He likes cooking

A: Yes, I do.

E: Are you usually alone than in the kitchen,
or...?

He cooks alone,
kids don't want to

A: Yes, the kids don't want to.

E: and do you have some rituals around
cooking?

Rituals are
built around
everyday routine
activities

A: No, I mean I usually listen to some radio.

Ritual: radio
in between

Ritual everyone in the
family have
their own
rituals

And I just cook. And yesterday I made lasagne,
which is the favourite dish of one of the boys,

Cooking his
kids fav. meal
→ avoiding
later confrontation
Avoiding
confrontation
about
food

so it's always nice to make something that
they like. So you know you don't have any

Comments *Descriptive* *Interpretive*

problem when you sit down to the table.

Feeling: relaxed, because you know what you

are doing, you have a plan of what you do.

Strength: 4.

A: Than they sit down and had dinner

together. And then actually after dinner the

kids went upstairs playing. And they started to

put water into the bathtub. And I was sitting

here talking to my girlfriend. And then that

took 10 minutes. Then I walked upstairs and

made sure they had their bath. While my

girlfriend was cleaning the kitchen.

E. Is it usually the dinner when you all gather?

And spend some time together?

A: yes, we always eat together.

E: and do you have a fix time of the day when

you eat?

A: almost, 17:30, maybe 18:00, but it's pretty

fixed. Feeling: togetherness

Eating together

Dinner together

*After dinner
kids go up*

kids play

*2 play there
& preparing for
a bath*

*He and gf sits
& talks in the
kitchen*

They talk

*He goes up to
check up on the
kids*

*Gf. cleans the
kitchen*

*kids to
bed &
cleaning*

*Kitchen &
living room
main places
of togetherness*

*main activities
! eating &
watching TV*

*living room
often place
for kids to
play*

*space →
more functions
more activities*

*↳ not
having space
allows us to
carry out
unconventional
activities in
a room*

*on not having
enough space:
borders*

*makes living
together border
kids takes away
the golden for
time to be alone*

*→ there is a
balance between togetherness
& time alone
→ space makes it possible
to have both
spaces → important
concept factor!*

Comments

Descriptive Interpretive

A: Then the kids were in the shower and it was kids shower

my girlfriend who put them to bed after

gf. puts kids to bed

shower, and then I was just down here, sitting

He sits in the couch watching TV

Time together with gf. + TV

in the couch and I was watching some news and

TV. And she came down at 20:30ish.

gf. comes to join

E: is there a favourite spot in the living-room

where you really like sitting?

A: I like to sit in this chair when it's turned

Fav. spot in the living-room → Fav. spots PR-theory ✓

around (the chair in the kitchen, turned with

↳ PR-theory relaxing there

the back to the wall, so that he has his back to

the wall and can see the whole place from the

sitting with a sight to the room, coffee, music to kitchen

corner). So I can sit here, watch them, drink

coffee, and listen to music. - That is his

favourite spot to relax.

Fav. spot: prospect-reflex theory
spot where Fav. time alone
↳ look for him & camera
Qual. → time of togetherness

And in the living room, he likes to sit on the

living room: Fav. spot in certain part of living room the couch

couch, on its left corner. Then he took some

pictures from his perspective sitting at these

spots, and in the kitchen.

A: And then we were just watching some

What: Watching TV together TV together

television. And then my youngest, - he always

sleeps all the night - but then he came down at

Son wakes & comes down kid down gf. takes him upstairs & goes to bed

around 22:30ish, he couldn't sleep. And then

Comments *Descriptive* *Interpretive*

my girlfriend took him up and then she went
to bed in the same time. And I think I was up
till around midnight.

*one's activities
adapting to others
others activities*

E: So you usually stay a bit longer up?

*what one can
do in the home
effects what the
other can →
thus comfort*

A: Yes.

E: and then you spend some time alone?

*Individual
preference for more
time alone or
together*

A: yes.

*two spots is always
a safe
spot*

E: And do you just usually watch TV or..?

*time alone
↓
TV*

A: Watch television, or sit with my computer,

*Usually
evening
alone TV,
work, computer*

sometimes work, it's a mix of things.

Time

E: And what did you do yesterday?

A: yesterday I think I watched ... I actually

*Finished a
movie*

think I watched half of a movie, that I haven't

finished earlier this week. So I watched a

movie, actually, yes.

Comments Descriptive Interpretive

E: Feelings? Together with the girlfriend: cosy, warmth, 3. When he was alone: enjoyment of time alone, 4.

Throughout the day it only has been positive feelings ...

A: it's a day off, the kids were really nice, that's primarily what makes the day good or bad.

Yesterday was a good day.

Than he showed me around in the house and I took some more pictures.

There is a downstairs and an upstairs.

We went downstairs, where they spend a lot of time actually.

In the whole house there were many windows, ground floor, windows around and lot of light,

but I would say normal lightning conditions, not super bright, but bright. The air was fresh

almost as if it would have been just aired out,

and it was circulating. It was very nice. No bad smell. Downstairs, I felt the air was different. It

was dark, just very small suterren windows, and

the air was a bit wet and dusty. I felt that is was

Good day:
- day off
- kids nice

Good day:
no duties
no conflicts
time together
alone

Good day:
whether activities
are pleasant
contact
with others
good interaction
balance between
time alone &
togetherness
according to
individual
needs

Spending quite
a lot of time
in the basement

Utilizing
basement
diff. functions

All parts
of the
house
utilized

Many windows
lots of light

Carpenter
lives in
basement

Surprisingly
many
activities
in the
basement,
where
conditions
are
poor

Fresh air &
ventilation
No bad smell

light &
fresh air

extra space for
separation from
others
very
used
functions

Downstairs:
air different

dark
small windows
air: wet

everyone is using
every part of the
house
and diff. activities

Comment Descriptive

Interpretive

not that nice conditions. They had a room there *pure cashiers*

with books, two apple computers, and a double

bed. He said they usually use it as a working

room (there was also a working corner in the

living room, bright, and cosy, I had the

impression that I would never want to come

down and work in the cellar instead of sitting

there, but if it is noisy I can see a point that they

do. He also told me that when he is out with his

friends and comes home late he sometimes

sleeps down there, so he can sleep longer. Or

they use it as a guest room. And kids play there

too.. Actually a lot. On the iPads and

computeres. It is mostly the girlfriend who

works here. He describes it as the place "where

you don't have to clean up" Than they have the

"backoffice" of the house - the washing

machines and stuff, storage rooms. And also a

bathroom.

Upstairs: 20 rooftop windows, kids share a

room, that is quite big. It is very bright

everywhere, also in the staircase. Lot's of

daylight. Their bedroom. Even the other side

are going windows above a hems. But they

functions:
• working room (off.)
• living room
• working corner
is much nicer
(noise)
reused function of basement everyone using

"Place to crash if he comes home late"

*• Guest room
• Kids play*

Place where you don't have to clean up

Not a representative place

Place that can be a bit "unpleasant" not a representative space

*kid's room
is big & bright*

*in both bedrooms:
windows from*

*3 sides
very bright*

*Bedroom:
windows even at unexpected places, light from 3 directions in each bedroom (direct) + from the floor*

orientation/ angles of light

dont use it as sotrage, it is only to get more light.

Comment Descriptive Interpretive

benis not used because of cleaning concerns

Space must be possible to be cleaned, otherwise not used

Cleanliness is important to use a space

7 windows in the master bedroom, 5 in the bathroom, 4ish on the staircase, rest in the kids room.

Than they are building an extension to the house around the diner and living room, that

3rd renovation: extension plans extending the house

Need for more separation

will be a "black box". So that they will have

more space

create space to separate from kids → more room

more space. It is quite a small house for them, and they want to have more space, to be able to

to be more separate

be out of sight

is basic needs covered

separate from each other a bit more. When e.g.

↓
kids can play in the living room, while he has time alone in the kitchen (far spot)

separate kids from each other

new and new needs

kids are playing in the living-room he is not

sitting so close to them in the diner. They need

more space between them. "We simply need

more space between us. When you have two

guys, they simply take up a lot of space" Not to

sit together, but primarily to get more space

also says to be further apart

between them and they can be further apart.

Because now they are very close to each other

all the time.

END.

occure → new and new renovation projects to satisfy these needs (Koolhaas)

Lone
Diary

Comments Descriptive Interpretive

Morning I my House! I love the daylight in the bathroom

Morning-daylight
in the bathroom
→ happy

Enjoyment
of daylight
in the morning

Daylight in the morning
creates a good mood &
good start of the day

The dog, are awake and want some breakfast.

Dog needs to
be taken care of

Time with
the dog

My breakfast is read, and I am feeling relaxed
and cosy with the view to the garden.

Having breakfast,
looking out to
the garden - relaxed

Eating
and looking
out to
the garden

Enjoyment
of sight
to the garden
throughout
the day

After eating, my dog and I every Day take a

Taking the dog for
a walk

Walking
the dog

long relaxed Walker in the Nature around. We

↓
social time

often meet People's I talk with and Balou play

with the other dogs.

It is a nice time at the Day.

while
enjoying
out
everyday
activities at
home
makes her
relaxed
happy

Home in the House again, I make at good cup of
tea.

Getting home,
making a tea

Home →
tea

enjoying
herself
with
tea

This Day I was looking at some Papers, it
makes me stressed and angry.

Getting some
work done
↓
makes her angry
& stressed

Walking
home
↳ not
pleasant

angry about
the activity
not the
house

In the afternoon I Went too the bigger City
Aarhus about 8 km from my house.

Being out for
the afternoon
↳ social
time

Socializing
in the
city

most social
time →
spent outside
the house
that day
home →
time alone
mostly

that makes
a good day to
pleasant
activities
balance of
the two
throughout
the day

day →
specific

Paper work: bad things started, i was being stressed and angry, and it was, it start with a 4

and gets up to a 6. I was up in the elevator. I

was really arhhh. And than I got tired and

disconcentrated afterwards

Lunch: falling down again, feeling relaxed

again. 3

Home back: making the home cosy – how?:

Put some light on, some candle lights, a good

cup of tea (maybe a bath), get in to bed. It was

very relaxed. It was a good movie. It was very

special. It was relaxation excercise that we

made in the movie. It was very nice and I was

feeling cosy, and warm and relaxed, 5

Also feeling safe. I feel safe in my house. I

really love to have my little dog her. She makes

me feel safe. And comfortable. It's only a very

small dog, but something with her that makes

me feel safe and happy. She is always around

here. (Now the dog is on holiday, I am very

busy.)

During dinner: just a small meal, but it makes

me feel okay, and what's called a good feeling,

cosy and than I went to bed. My boy wasn't

Comments

was - stress / anger (4→6)
tired / deconcentrated

Descriptive

Interpretive

lunch - relaxed (3)

light creates
cosiness

home (evening)

- relaxed / cosy /
warmth (5)

making it cosy
with lights &
candles ~~her~~
in bed

relaxation movie

light makes a
place
cosy

Feeling in general
safe at home

Dog makes her feel
safer & comfortable
& happy
dog is
always around

Dog makes
her feel
safe &
comfortable

dog
again
enhances
safety
comfort

dinner - cosy

going to bed

all evening
enjoyment of time
alone

Comments Descriptive

When I walked to the bio, I found this nice little

street. It makes me feel good!

I love that NOT every thing I perfect ;)

This is the bio in the center of the old part of

Aarhus a special place very relaxed and cosy. I

was going to see a film about a women from

India, Called Amma a guru!

After the film there was a meditation in the

cinema, special, but very nice.

Home. Hungry and now it is dark, but I still

think my home is cosy. I light it up, and make it

so (that) I feel safe and relaxed.

Getting home in the evening
She finds her house cosy under any conditions
dark → whisper of that the house is cosy
light up → makes it feel safe & relaxed
light is creating a safe & relaxed atmosphere to relax.

dark → not cosy

light is creating a safe & relaxed atmosphere to relax.

This is NOT my morning (breakfast), but

evening dinner =D NOT so much, but okay. My

son is 17 and he is with some friends so often I

don't make a big meal if he is not at home.

cooking → social meaning
if she is alone, eats simple

cooking → social

This evening I was looking at the news, it is

NOT so often that I do that, I like to read

books, listen to music and talk in the telephone

with Friends or family.

watching TV

she usually rather reads, listens to music or calls friends or family

evening → time alone

or communication via phone

This day the news head story was about

Panama and tax / NOT paying tax

I was being angry, and decided to go to bed. I

am looking at the cd I Bout in the Cinema, and

decided to make a meditation the next Day

(hands icon in meditation pose). It makes me

fell relaxed and not stressed.

This was my day and the clockradio is near

24:00. I want too sleep after a good day in my

home and the cinema.

Comments

Descriptive

Interpretive

getting angry
about the news
→ switches off

angry →
avoids
continuing
activity

irritating
stimuli
→ reaction to
turn off → 11
handed

TV & decides
to go to
bed

looking at
the stimuli
CD makes her
calm down
(does not
need to
use)

sight of
a pleasant
object creates
pleasant feelings
→ using
is not wor-
sary

looks at the
meditation
she laughs
earlier → gets
relaxed

decision to meditate
the next day generates
the decision
about a program

late → sleeping

→ time
late-
sleeping →
consciousness
of time.

→ light → time
passing

Lone,
Non-Active House Owner
Aarhus, Denmark

Comments Descriptive Interpretive

E: Can you give me a short description of your house?

L: Yes, it is a family house. Inside the house a long floor area, from here you can go in to the rooms. In the long area there are a lot of windows, from the bottom to the top. Very-very big windows area. And the special thing with the long floor, the whole area is with windows from top to bottom, very high. When you come in, there is a room for my boy. Who is living home, he is 17 years. And there is a room for washing machine and lots of stuff. And then there is a toilet with bath, and the next room is the grown ups toilet. With a big bath. Then we have a sleeping room for me and my husband, and one room more. The last room here, we have an office, and a guest room.

Describing the house:

family house
long floor with many windows
(describing rooms)

Windows bottom to top
↳ special thing

Room for her son

laundry room

toilet with bath

Sleeping room

one extra room
↳ office & guest room

Describing the house:
among types
location of rooms

Windows bottom to top
↳ special

First house features that comes to mind:

↳ type
- architecture (location of room)
- windows
↳ special because of the amount and size of them

E: Are there some features that you really like about your house?

L: Yeah, I really love the opportunity to have a little office and a guest room.

Comments

Descriptive

Interpretive

for an office & a guest room
↑
↓
Old children's room, new functions
↓
Room for grandchildren & friends
↓
Special clinic for the road & the house:
big windows & in every room roof - windows
VELUX
Association with a brand

loves to have the opportunity
loves to have a room with extra functions
New functions for the room after daughter is moved out
extra place to accommodate people that are important
have late

having a bonus room with extra functions
→ a bit of a luxury
she cites it as an opportunity to convert to have more guest for gray area
having more space allows to maximize home experience via working
more activities possible
Special to have so many windows
→ extra nice & places
having roof windows create extra value
→ new sight to the sky
→ emotional effect
→ beautiful/aesthetical experience
→ makes moments of everyday life activities special and

When we went into the house (when we moved in), there was one more more of our kids, that was living at home, and then it was children's room. But now we have a room for the small grandchildren, and friends, and then it's nice, when they come home at night and they need a space to sleep. And you know the special things, that is special for the room in our house - that comes now- because you know in the long corridor there is big windows, and every rooms (it is not about VELUX, but it is VELUX) there are windows in the roof. But two windows in every rooms in the roof. (She likes it). When I take a bath I can look at the stars in the evening if I want to. And when I wake up in the morning I can look up in the sun if it is summer time.

Old children's room, new functions
↓
Room for grandchildren & friends
↓
Special clinic for the road & the house:
big windows & in every room roof - windows
VELUX
Association with a brand

extra place to accommodate people that are important
have late

Special to have so many windows
→ extra nice & places
having roof windows create extra value
→ new sight to the sky
→ emotional effect
→ beautiful/aesthetical experience
→ makes moments of everyday life activities special and

And other things. There are also windows inside - it is a very special house - because there is not a wall all the way up to the top, but there are windows everywhere. So there is coming daylight into the room. Not outside, but from the floor. It is better that way.

Windows inside
very special house
↓
Not walls inside up to the top, but windows
↓
daylight in the room
↓
from the floor, not from outside
↓
better that way

Windows inside
even more brightness

Windows inside
↓
daylight causes both 2 diff kinds of light
direct & indirect
↓
she likes direct light at the same time
indirect light is valued

Comments

Descriptive Interpretive

Because there is a lot of daylight all the year.

lot of daylight all the year

More light all year round just more light than otherwise

And even in the winter when it is really dark, Even light in

dark winter period or if it is rainy even light in dark periods

even when it is dark outside

at other places, where it is the rain and

everything. And event han we have light here.

And I love it!

The love having light! Love having light

light -> quarantines strong evidence in fact

Because it gives a special inside climate.

Light gives a Special inside climate

If it is more bright inside, it makes you more

More bright makes you more happy

happy and the place special

light makes you happy

happy. I sometimes come to other houses,

Other houses have less light ->

After living here, she cannot understand how others can

you're enjoy being in a place

where there is not so much light. I can

sometimes think oh how can they live here?

here?

live with less light

Transformation

Because there is not so many windows and it

Feels uncomfortable and dark

Light = comfort

new needs in terms of light

feels uncomfortable and a little bit dark.

Because now I am used to such enormous

"Now I am used to so much light"

She is used to having light

discomfort of less light before

amount of light here.

Yes, and than upstairs we have a room here - I

Description of a room upstairs (furniture, walls, windows, doors)

could not think of it (did not consider now - cannot imagine living differently)

think I took some pictures of it, where we have

a sofa (couch) and some chairs, many nice

things and a lot of windows in and we have

two doors that we can go outside here to the

Doors to the garden

Doors to the garden -> + outdoors open house -> connection to nature

quality of an open place

garden. And we have the kitchen here. A

kitchen & living room

Summer is used

livingroom. If we have friends over we can talk

They talk & dine there

kitchen & living room

same social gathering places

here, and it is also for dining. And here is the

They use the garden in the summer

-> social places -> dining & talking

same actions: kitchen living room pool

sofa and we can go out to the garden in the

summer. So when we open it, it is a very open

house in that way. And than we also have

It is a very open house -> she feels

something very special – I really, really like –
 that's like my favourite thing (haha) – that's,
 it's a kitchen, we have a room, that's a cold
 room. Like in the old danish house, there
 always was such a room (kammer), where you
 can put bagels, and everything, and it won't be
 too hot. And I have all my things here. For
 chocolate, beans, and everything. It's really-
 really nice. And then I have got ahm, also a
 door with glass in, so I can look out in the cold
 room. And I out many nice things to look at.
 Old stuff that I have from my grandmother.
 Small boxes, everything I got from my
 grandmother when she passed away. So that's
 something very special, a little ahm diamond
 in the house. And it's cold and it's really nice
 also in the summer when we can have cold
 thing there, and tables, and all the thing. It's
 really really nice.

Comments

Descriptive

Interpretive

Her favourite
 thing (very-very
 special)
 → cold room
 for her
 cold room

tradition is
 important to
 her

Traditional

→ nice temperature
 → windows allow
 to cool inside
 → personal decorations
 (displayed on
 windows)
 family
 value

She has all her
 (personal) things
 here.

→ grandmother
 heritage
 need to
 personalise
 space
 & share
 aesthetic
 pleasure.

Door with glass

→ she can look
 out in the cold room

→ she put personal
 objects there to decorate
 with

→ Things she had from
 her grandmother

The room
 that
 allows
 that is
 the original
 "diamond
 in the
 house"

A little diamond
 in the house
 Something very
 special

"A little
 diamond
 in the
 house"
 strong
 emotional
 bond,
 strong affection

Also nice cold in
 the summer

E: before you moved in the house, you were
 living in a house with less daylight. Have you
 had any particular expectations about the new
 home? Could you imagine how different would
 life be with having more light?

L: Yes. Henrik (his brother, architect of the house, working at VELUX) told me how it would be. I was very excited that it would be that way with so much daylight that we can get.

Sometimes it's a little bit too much - I told you - because the house in the summertime gets so

warm! But now we have good curtains taking some of the heat that we have. Some of the

heat. And then I love it now. It's a good feeling for me here in that way. And I can sit in a sofa, and there are very big windows everywhere.

From the top of the roof and down to the floor. It's not small windows you know. So I don't

have a lot of walls to put pictures on. That's the only thing. The heat and the small place to put pictures, because there are so many nice

pictures. You can't get everything. But I have windows. Hahaha

And if you go upstairs, we have a perfect room.

It's not too big, but it's just like a little tower.

Where we have a big couch and a balcony.

When I sit in the couch or go out to the

balcony, I can have a look all around the area! I

Comments

Descriptive

Interpretive

She heard about the effects from a reliable source

excited about making to a

Recommendation about the concept

she was excited

have with many windows

best towards the source

never have implemented it by herself without guidance

Sometimes too much light -> house gets too warm

light can be too much if it comes with that

is needed.

Good curtains help

she had to invest extra in heat protection

heat can be a problem if too many windows

Now she loves it

(she had difficulties with the heat first)

First difficulties with heat

needs time to get used to new conditions

it is a good feeling to have light

now loves to have the many windows but then "it is a good feeling" much and

Lies sitting in the sofa and looking out -> very big windows

Lies sitting in the sofa & look out to have a sight to the outside

No place for pictures (on walls)

-> only negative thing about having so many windows

No place for personalization -> value to open windows theory

You can't get everything

Compromise

Windows in this amount take place from personalization

Perfect room:

Perfect room:

like a little tower not too big big couch & balcony look around the area!

- like a tower - right over the area

opportunity -> how to personalize windows?

perfect room:

(R-theory "perfect-refuge")

can see the ocean and the big city Aarhus, and I can see many-many things. I have a big-big view. The other day there was a carpenter, and he told me, oh wow, I think you have the best view in the city. Very beautiful.

Comments: She can see the ocean & the city
big-big view
She gets compliments for it

Describe: Ocean & city view
big-big view
complement

Interpretive: Having a wide view is a great value

E: Do you have a favourite place in the house?

To relax or just to hand out?

L: Yes, I have. I sit there right now. That's a place I always return to, I think.

Fav. place: she always returns here

Fav. place → where she always returns

Fav. place → often used
main social place

E: Can you describe it?

L: It's a place, a sofa, in the kitchen, ahm, dayroom, you know, a big room with kitchen and sofe (Living-room?), a very good place. I can sit here, just like a little cave. It feels very safe.

at sofa in the living-room
→ sofa in the living room corner
"just like a little cave" "like a cave"

It feels very safe to her
She has a look out to the garden from there

→ sofa in the living room corner
"like a cave"

↓ makes her feel safe
look out to the garden from there

PR-heavy
"like a cave"
safe
right over the garden location
personal place
→ reflecting her value system
→ strong preference for authenticity & family tradition

E: is it in the corner?

L: I can sit there and I can have a look out in the garden.

Comments

Descriptive Interpretive

E: She took a picture.

L: And it's my mom's sofa I am sitting in, and that makes feel good you know. She is not here anymore... It's a good place to sit here. I sit here very often, many times a day.

It is her mom's sofa that has a special meaning for her. It makes her feel good and remembers her to her mom. She sits there many times a day.

→ sofa is a heritage from her mom
special because of its meaning her memories are connected to. personal living space.
looks for meaning in her things around her
→ strange bond

E: What do you do there? Do you have some activity, that you especially like to do there?

L: To talk to my husband, or I have a lot of friend, to them on the telephone, and then when my husband comes back, he is working in Copenhagen 4 days a week, then we often sit here. We have a little talk, when he comes home in the evening. And have a little wine here. And I sit here and read my books, news papers and magazines. And sit here with my small dog. Yes, I sit here a lot.

She talks there on the phone, and welcomes her husband there when he gets home

Activities at her place: p time alone social → phone, husband with the dog → extra feeling of safety

It's really cosy. I like to sit here.

easy
Cosy.

E: Do you know what active house is?

L: yes.

Comments Descriptive Interpretive.

E: would you live in such a house, or renovate your home to become an active house?

L: I don't think that we can. It would be very expensive.

(AC) would live in an AC but finds the investment too expensive to implement
Active house: barrier to change
Lives AC (neighbour, brother) would prefer but cannot afford!

E: If money would count. Would you want than?

L: If I could, if it was possible for me, yes of course, I would do that. Cause I think it would be very nice if I come home and the windows are open and there is fresh air here, and it's close when it starts raining. Yes of course I would do that. And I would save money for me and the earth and everything. Yeah of course, I would do that.

expensive ← AH → saving money
windows automatic → more confort
→ good for the environment
she would love to change for that. (AC.)
sees extra benefits of an automatic system
Automatic System (of windows) → very nice → confort
↓
much more confort
Saving money environment

E: would you find it be more comfortable an automatic system that would open the windows and do the ventilation?

L: yeah, of course, yeah i would love that. It would be very nice If I had that.

Comments

Descriptive

Interpretive

E: regarding the diary....

How do you usually sleep?

L: I sleep usually good yes. Sometimes it is a bit hot inside. I always sleep with open windows.

The sleeps good
Sometimes unhappy
with the temperature
the bedroom

Wish to have
colder tempera-
ture in
the bedroom

Circadian
conditions
for good
sleep

Always sleeps with
open windows, even at
winter

Sleeps with
open windows,
even at winter
alone

↓
automated
windows
create
extra
value

E: Do you have some preferences, regarding light or darkness, the temperature, or noises...?

Better sleep, if
colder

↓
comfort
health

L: I would like it colder. We always have an open windows. Also if it's winter. We like to have cold in the night. But sometimes I would like to have it even colder than we have, because I sleep good when it's cold.

Colder would
be nice

Cold at night

She sleeps well
if it is cold

diff. preferences
when
windows
shall open
than Anders
allow
→ individuali-
zation of
system settings
to make it fit
to needs

Getting up: relaxed, 5

Getting up - relaxed
(5)

Breakfast: relaxed, cosy, 5

Breakfast - relaxed, cosy
(5)

It was a good day!

Getting back home after walking the dog, she made a cup of the and drunk it: enjoyment of time alone, 6

Tea & paw. spot.
enjoyment of time alone
(6)

Enjoyed to sit there and had a time for me, at her fav. spot

feelings
are converted
to action &
space if also
experience
becomes
conscious joy
conscious
influential
factor

here. Enjoyment of time alone. I feel very comfortable in the house here. I love it. My house is very special. I have a lot of things from my family that is passed. My mother, father, grandmother, grandfather. Many old things and also new things. I am mixing. It's very personal house. The most of the things I have in the house have a history. I love to have it. It's not what you buy all new in the stores. Here everything really have a history. And I love it. It makes me feel comfortable and relaxed. It's my home you know! Very personal.

Comments

Descriptive

Interpretive

She feels very comfortable in the house

She feels generally comfortable at home

Generally: comfortable & safe home

She loves it

She loves the house

She finds it very special.

she finds it very special

personal things

family heritage

Personal things

mixture of old & new

make her the house special

things have a history

old → value meaning not everyone has → unique

Not what you can buy in stores

authentic

Objects with meaning

objects with history

make her feel comfortable and relaxed

important to her

Very personal

good feeling

personal & personalized space

architectural pleasure