Experience of Furniture in Homes

Creating Conditions for Design with Consideration to People in the Third Age

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Abstract

This licentiate thesis in industrial design concerns the challenge and opportunity to meet the demographic changes and the future senior market. The aim is to explore how various user-centered design methods can be combined, modified and practiced to create conditions for the design of totally new or improved products. Design is understood as a process to develop solutions with the starting point in users' needs. A user-centered design process, instead of a technology and market driven one, is believed to lead to products that are more desirable, useful, in line with users’ needs and contribute to long-term use. The product category in focus is furniture and other interior products and the context of use is the home.

Two studies were carried out, one with focus group interviews about changes when moving to and living in a newly built apartment particularly developed to fit the needs of seniors and one with situated interviews in homes. Both had the intention to identify various end-user needs. In total, 26 people aged 53-93 participated in the two studies. The focus group interviews emphasized views and attitudes towards, changes needs and aspirations. The situated interviews offered deeper insights and understanding of the interplay between user, products and the context where the products were used. The finding demonstrate that products perceived as comfortable, flexible and pleasurable lead to attachment and desirable emotional experiences such as dignity, meaningfulness and freedom. The findings about needs that the end-users themselves express differ from the existing recommendations for the design of furniture and other interior products for old people. The latter are mainly based on individual physiological changes that aging may bring. New findings point to demands on products that also support the psychological and social changes, and that correspond to an identity of an active, independent and self-determinant individual. The thesis concludes that designers may benefit from being closely involved in the creation of end-user knowledge to ensure that the findings are adequate for the present challenges’ specific needs and that the findings embrace a holistic perspective on humans’ needs. A future recommendation is to respond to the findings of the studies with design solutions as physical representations, and to involve users in iterative design processes.
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Årsta, September 2011

Oskar Jonsson
Appended Papers

This thesis is based on the following papers, which will be referred to in the text by their Roman numerals. The papers are appended at the end of the thesis.


Lena Sperling, Britt Östlund and Elisabeth Dalholm Hornyánsky and I jointly planned the study on which this paper is based. I independently carried out and analyzed the study. Lena Sperling and Britt Östlund contributed with critical review of the text.


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Appended Papers

Paper A: Furniture Design beyond Usability
Paper B: Wishes for Furniture Design among Persons in the Third Age
1 Introduction

This licentiate thesis in industrial design concerns user-centered design in early phases of the design process. Design is understood as a process to develop solutions starting from users' needs. The focus is on the interplay in between users, products and the context where the products are used. This interplay constitutes the base/starting point for the design. The concept of needs is used broadly and the ambition is to capture a holistic perspective. The title, *Experiences of Furniture in Homes*, summarizes the emphasis on an end-user perspective with individual's feelings and thoughts, furniture as the product category and homes as the context of use. The subtitle, *Creating Conditions for Design with Consideration to People in the Third Age*, summarizes the emphasis on early phases of the design process and people in the third age as users. The third age is an ageless and tentative concept articulated by Peter Laslett (1991) in order to capture new lifestyles among old people. The concept is used in this thesis as a means to avoid thinking of biological age as a cohesive factor and an out-of-date image of old people and their stereotypical products. Viewing old people as a homogeneous group with similar interests, common attitudes and ways of living contributes to age discrimination. Such a preconceived and uniform understanding has become increasingly erroneous (Eriksson, 2010).

A well-known conclusion drawn from demographic studies is that the proportion of old people in industrial countries is growing. Between 2005 and 2050, in the more developed regions, the population aged 60 or over is expected to nearly double (United Nations, 2007). Society and individuals would benefit from old people living in desirable and accessible living environments, houses and interiors that are perceived as safe and comfortable. Furniture and other interior products may promote and motivate mobility, health and wellbeing. Pieces of furniture that are desirable to own and usable throughout a user’s lifetime, for those who may inherit and for second-hand users, also influence the high replacement frequency of today, which is in conflict with the goal of achieving a sustainable society.

A barrier for meeting old people’s demands for active and independent living is that aging and age-related labels evoke predominantly negative associations (Weijters & Geuens, 2006). There are stereotypic attitudes about old people, and old people do not always perceive themselves as belonging to a given age group. This along with the complexity of defining the group has lead to reluctance on the part of various actors in the innovation system to approach old peoples’ demands. It has also resulted in insufficient knowledge of their demands and a limited range of furniture that fits active and independent users in the third age.

This research takes its starting point in the challenge and opportunity to meet the demographic changes and the rapidly growing senior market. Sweden is facing a number of social challenges that will have a strong impact on economic performance; one of these is an aging population (Vinnova, 2011). The PLUS-products project was conducted from 2008 to 2010. The aim was to explore how the furniture market could be opened to new segments of older consumers. Vinnova, the Swedish Governmental Agency for Innovation Systems, states in its report, *Born to be Wild*, that the majority of the 55+ population are not in need of any markedly specialized products, but rather products that are somewhat adjusted, without standing out as being characteristic of the 55+ consumers (Vinnova, 2008). This research strives not only to influence adjustments of products to the targeted users, but also to influence thinking in totally new or improved approaches and solutions for creating innovations that are usable and desirable for all users and thus contribute for long-term use. The Swedish furniture industry has a great shortage in efficiencies along the whole chain of processing, from raw material to refined product. This is caused, in particular, by the loss of integration between actors in the innovation system (Brege, Johansson & Pihlqvist, 2004). A link in the chain of processing that this research aims to reinforce is the existing lack of communication between
the furniture industry and its old age customers. This has lead to insufficient knowledge about users' needs. A central task in the PLUS-project was to bridge this gap, with end-user involvement as a driving force for innovation and a resource in the design process.

1.1 The PLUS-project
The PLUS-project (Development of the Swedish Wood and Furniture Industry for Consumer Oriented and Competitive PLUS-products) was a resource that made this research possible. The overall aim of the project was to ensure future competitiveness and development of SMEs in the Swedish furniture industry by a more coherent and user-centered innovation process. PLUS-products is a conceptual category of products that are designed for a wide range of diverse potential users and are desirable and usable during as long a period of one's life as possible. One of the ideas behind the project was actually raised by a furniture retailer who observed that he met a new group of consumers for whom he did not have an appropriate selection of furniture. An assumption was that people in the third age cannot find the furniture that they are looking for. The collaborating companies were considered to have a common need to develop their home markets and be prepared to achieve better success on the future consumer market. The aim of the PLUS-project is in line with thoughts of the concept inclusive design, which constitutes a strategic framework and associated processes by which business decision-makers and design practitioners can understand and respond to the needs of diverse groups of users (Coleman, 1999). Collaboration partners in the PLUS-project were researchers at the Department of Design Sciences at Lund University, researchers at the Department for Management and Engineering at Linköping University, researchers at the Department for Management and Engineering at Linköping University, seven Swedish furniture companies, the Swedish Federation of Wood and Furniture Industry (TMF), and end-users: today’s and tomorrow’s people in the third age.

The companies were:
- Lammhults Möbel AB
- Swedese AB
- Nelo AB
- Allinwood AB
- Stolab
- NC Nordic care
- OH Sjögren AB

The specific aim of research at Lund University was to provide a grounded base for the design of useful furniture and other interior products that will be desirable for a wide range of users and will contribute to long-term use.

1.2 Aim and benefits
This thesis presents research that explores how various user-centered design methods can be combined, modified and practiced to create conditions for the design of totally new or improved products. The goal of the research was to create new knowledge about and by means of user communication. The motivation for doing this was the need to transfer knowledge about users and user experience to complex innovation systems. The reason is that there is a lack of sufficient knowledge in the system of product development in the furniture industry for meeting end-user needs (Bregge, Johansson & Pihlqvist, 2004). The design research presented focuses on early phases of the design process. It starts with user’s needs, goes on to identify problems and wishes, and in so doing creates conditions for design.

The two papers included provide better insight into the emergent needs of people in the third age, needs that are relevant for the design of home furniture and other interior products. The results generated insights translated into and articulated as end-user values that in this thesis are what the end-users are
striving for. Thinking and expressing goals in terms of end-user values can facilitate the dialogue, enhance the interaction between actors and improve the act of prioritizing for well-balanced decision making throughout the entire design processes.

The dominant approach in this field is one of doing things for old people instead of exploring ways of doing things with them. By involving people in the third age, this research has striven to generate insights and empathy that may be used in design, and to avoid negative stereotypes and lack of knowledge that can lead to product failures. In addition, this approach strives to understand people holistically, from how they use products to the role products play in their lives, and indicate needs that are prioritized by people in the third age. This challenge the negative stereotypes associated with aging and older people. It tries to change perceptions of them, both as general attitudes in society and as ways and means, and not to exclude them from the expert discourse in the design process.

1.3 Research questions
Based on the aim of the studies, the following research questions are addressed:

- How do people in the third age interact with and perceive their furniture and other interior products? What are their needs, wishes and aspirations?
- How can different user-centered methods be used to create knowledge about the relations between users and products? What knowledge is created?

1.4 Delimitations
This thesis does not claim to offer a description for the practice of industrial design of senior markets broken down into home furniture in Sweden. Only the central and vital primary end-user perspective is considered; there are other important user perspectives to consider in the design process such as retailers, purchase decision makers and interior designers that prescribe furniture for public and/or private environments. Nor have the companies’ categories and visions and their important needs linked to the design of furniture been considered. Klaus Krippendorff (2006) calls this a stakeholder network and discourages talk about THE user as he or she is rarely the only one that counts. With respect to this necessary and fruitful complexity, this thesis focuses on the aspects of the product that relate to the interplay between users, products and the context in which the products are used. The important aspect – what the users are willing to pay for – is not considered in this thesis. The designer’s core competences in user-centered design is understood to be both as a facilitator helping the end-user to establish what is in his or her interests, and as an expert who represents the end-user in the design process.

Participants were recruited to the studies that are or will be characteristic representatives of the growing population of people in the third age, who are expected to have increased purchasing power and increased demands on products of various aspects. In total, 26 persons aged 53-93 participated in the studies. The studies were carried out in urban surroundings in Sweden. Sweden has a long tradition of developing products that are attractive on the international market. The Swedish market has been characterized as a good test market for new products and citizens tend to be early adopters (Vinnova, 2008).

1.5 Structure of the thesis
The thesis begins with definitions of and the author’s positioning in the fields of innovation, design and user-centered design. This is followed by the state of the art of various end-user needs, the concept of people in the third age, the meaning of “home” and existing recommendations on furniture for people in the third age. Then there is a brief presentation of the two included papers, there outcomes and how they are connected. The methods, findings and contributions are discussed. Finally, conclusions and several considerations for advancing future work in this area are briefly presented.
2 Frame of reference

This chapter explains the author’s positioning and presents the state of the art in the field of user-centered design of furniture for the home market with consideration to people in the third age.

2.1 Innovation

The term innovation generally refers to the creation of better or more effective products, processes, technologies or ideas that are accepted by markets, governments, and society. The concept of innovation systems stresses that the flows of technology and information among people, enterprises and institutions are key to the innovative process. Innovation and technology development are the result of a complex set of relationships among actors in the system, which includes enterprises, universities and government research institutes (OECD, 1997). The innovation system referred to in here is the furniture industry sector.

What is crucial is the understanding that innovations are generated in the interaction or teamwork among different actors. Teamwork is characterized by mutual learning, and takes place between a company as one party and users, customers, subcontractors, competitors, universities, research institutes or consultants, such as designers, making up the other party. Håkan Edeholt (2006) states that there may be fundamental difficulties in the interactions among the different actors, if they appear to be talking about the same things as problems, solutions, results and innovations but mean totally different things. The different ways in which things are perceived can be a source of misunderstanding between different actors.

It is commonly recognized that design as a corporate activity is part of the innovation process of new product development. According to Edeholt (2006) the designer’s “viewpoint” is more focused on the user’s experience as perceived when living with or using the product than, for example, the economist’s “viewpoint” that is instead focused on commercialization of the product. This does not necessarily mean that the designer’s “viewpoint” is more relevant than the economist’s. It is just different, or placed at a different point, so that other aspects are envisioned that also are important in the innovative system of product development. Robert W. Veryzer (2005) shows that the involvement of industrial designers earlier on in the process of product development can help to avoid distortions in research aimed at capturing customer reactions, and can result in design solutions that are more innovative, better thought out, and more complete. This involvement can reduce overall cycle times and costs and can help to improve the chances for marketplace success. Veryzer (2005) concluded that it was still somewhat surprising to find that the role of industrial design role was so limited early on for the discontinuous or radical projects that he studied.

2.2 Design

Design can be understood as a powerful method that influences and encourages rethinking and consideration of humans. Design may therefore have an educational role in society that can contribute cultural, ethical, environmentally sustainable and social values that affect us all.

There are many definitions of design as a professional practice. Design practice is in this thesis understood as an iterative process to develop solutions that start with the user’s needs. To develop solutions refers both to identifying needs and solving problems. In its most general form, design can be described as a prescriptive activity aimed at changing something, or in other words of Herbert Simon (1969): “Anybody designs who devises a course of action aimed at changing existing situations into preferred ones.” Industrial designers are responsible primarily for the aspects of a product’s design that relate to the interaction
between the product and the user – enhancing functional benefits, operational and ergonomic considerations, and aesthetics (Cagan & Vogel, 2002; Ulrich & Eppinger, 2004). A major part of the design process ought to be the study of just how the objects being designed are to be used (Norman, 2002). The ideal-typical role of the design profession in the system of product development is that the designer strives to find new solutions from a user’s perspective (Edeholt & Ek, 2008). Lavrans Lovlie (2009) state that, “A key element in the practice of product design is to study people and how they use things as starting point for the creative process.” The relation of product to users has become a central theme of design discourse, though users still remain little understood by designers (Margolin, 1997).

There are different views of successful innovation strategies and how dependent they are on a company’s category and vision. Roberto Verganti (2008), for example, explains that analysis of what he calls “design-intensive manufacturers” shows that their innovation processes hardly start from a close observation of user needs and requirements. Rather, they follow a strategy called “design-driven innovation.” This strategy aims at radically changing the emotional and symbolic content of products (i.e., their meanings and languages) through a deep understanding of broader changes in society, culture, and technology. Rather than being pulled by user requirements, design-driven innovation is pushed by a firm’s vision about possible new product meanings and languages that can diffuse in society (Verganti, 2008).

The designer’s work is often limited by a series of preconditions and financial, technical, and time-related constraints, imposed by the client and the market. They work in projects with complex and diverse needs. Designers must please their clients, who are often not the end-user (Norman, 2004). There are also other actors such as users, customers, purchasers, architects, interior designer, retailers, subcontractors and competitors. A typical designer talks about users and concentrates on the aspects connected to the use situation (Edeholt, 2006). A typical business person would describe the person as a customer and concentrate on the moment of sale (ibid.). The manufacturer is primarily concerned about the decision makers, its immediate customers, not the eventual users (Norman, 2004).

Design may be described as the act of combining aesthetic, ergonomics, ecology, ethic usability, safety, durability, economics, and manufacturability. John A. Walker (1989) suggests that the unique ability of the designer is to synthesize, and that it is in this context that the qualities of imagination, inspiration, investigation and intuition play their part.

2.2.1 User-centered design
The overall goal for user-centered design is to develop products with the best possible fit between the product and the user. Human-centered designers are committed to designing artifacts for use by others who may experience the same design solutions quite differently (Krippendorff, 2006). The starting point is the user and the resources, limitations, experiences and expectations. There are three main principles in user-centered design: early focus on users and tasks, empirical measurements and iterative processes (Jönsson, 2006). User-centeredness has two possible meanings: theories and findings about human behavior to act for the user or theories and findings that may help the user participate in the design (Eason, 1994). The dominant approach to design in ergonomics is to act on behalf of users. Ergonomics’ preoccupation with design-for-users approaches has led to criticism that they deal only with a sub-set of human issues (ibid.). People are not just work-performing entities; they are creatures of purpose with ambitions, beliefs, emotions, values, satisfactions and dissatisfaction. This has led to a growing interest in a participative approach; design processes in which the end-user themselves can influence the design so that it is compatible with their goals and beliefs, etc (ibid.). If users switch from being subjects to being participants in the design process, the designers’ role also changes. From being the expert who represents the interests of the user the designer now becomes the facilitator; helping the user establish what is in his or her interests. The most successful strategy according to Ken Eason (1994) is to mix the two approaches; for and by users and he concludes that design for users is appropriate for product design in supplier
organizations, whereas design by users is necessary when systems are implemented in user organizations. Eric von Hippel (2005) points at what he calls the information asymmetry between users and manufacturers and one of its consequence: that users tend to develop innovations that are functionally novel, requiring a great deal of user-need information and use-context information for their development. In contrast, manufacturers tend to develop innovations that are improvements on well-known needs and that require a rich understanding of solution information for their development.

2.2.1.1 User involvement in the practice of design
Involvement means here to participate mentally or physically through engagement and action and in ways of thinking how this participation can take place. Designers cannot always be knowledgeable about user needs and aspirations. Design solutions that make life easier, more efficient, more comfortable or more pleasurable rely, to a large extent, on insights in future users of new products. Involving users may, for example, give a more realistic understanding of various needs, questions and values, be a source to inspiration and offer possibilities for innovations. Improved communication with users may decrease and minimize unexpected failures.

Live user involvement in the design process varies according to the extent that the method offers a real user involvement (Hasdogân, 1996). At one extreme, the designer considers himself as the user and acts out the usage process, at the other extreme a real user participates in the design process (Holt, 1989). Donald A. Norman (2004) argues that there is no substitute for interaction with and study of actual users of a proposed design solution. Design practitioners should be able to realize that human beliefs and behavior are complex and that the individual is in a position to discover all the relevant factors (ibid.). Gülay Hasdogân (1996) states that experimenting on the designed product with live users is one of the most essential parts of the design process which cannot be replaced. Human behavior when using a product is very complicated, and thus there are many aspects of such behavior that cannot be modeled by statistical or computational means (ibid.).

That user involvement is beneficial for the system of product development is today well known and accepted both in design and business literature. However, there are several views on “how users should be involved”, “what methods to use” and “how to analyze and further interpret the material”. With the increased awareness for the necessity to elicit user needs beyond usability, user-centered design methods making it easier for the user to participate together with designers in the design process are becoming more established in the discipline (Bruseberg & McDonagh-Philp, 2002). Types of methodological choices have been discussed by, for example, Pontus Engelbrekstsson (2004) who, drawing on Matti Kaulio & MariAnne Karlsson (1998), discusses four enabling factors: data collection method, context, mediating object and participants. While user-research methods may be familiar to other disciplines, conventional design training has not, until recently, incorporated such activities (Bruseberg & McDonagh-Philp, 2002). Such methods have not yet had enough impact on the design practice.

There are also other views on the outcome of user involvement, such as Clayton M. Christensen’s (1997) in the book, *The Innovator’s Dilemma*, widely read by managers. Christensen suggests that “listening carefully to customers” is among the primary reasons companies are led astray in their decision making concerning the pursuit of new product development opportunities.

2.2.1.2 Users
The term user can mean a wide range of people and implies quite different views. Often the term is used implicitly. The most common description from a design perspective means a person who interacts directly with a product. Human-product interaction can be placed in three categories: (1) instrumental interaction, (2) non-instrumental interaction, and (3) non-physical interaction (Desmet & Hekkert, 2007). Ken Eason
(1987) placed users in three categories: (1) primary users (i.e., frequent hands-on users), (2) secondary users (using the product through a mediator), and tertiary users (people who are affected by the product and might influence the purchase). Business theory classifies, among others, between lead users, people who are pioneers for products that might become trends later on (von Hippel, 2005) and end-users, who finally employ the product. The definition of a lead user innovation is: (1) the need is identified by a user, (2) a solution is developed by the user, and (3) the solution is of interest to the bulk of the market (i.e., other users that are not yet that advanced in their practice) (von Hippel, 1986). Pia Hannukainen & Katja Hölätä-Otto (2006) show through a case study that extraordinary users, disabled persons in this example, can be seen as lead users. These extraordinary users do experience needs similar to ordinary users and, in addition, the extraordinary users experience, and are able to communicate, needs that the ordinary users do not yet have. Thus, extraordinary users are a valuable resource in customer need identification. The term generative user is described in Edeholt’s thesis Design, Innovation and other Paradoxes (Edeholt, 2004). The term is used for persons who are not necessarily end-users, but users who help the designer generate ideas. To additionally capture the diversity of users, they can be differentiated by the power relation between users and other actors in technological development (Oudshoorn & Pinch, 2005). The term lay end users was introduced to highlight some end-users’ relative exclusion from expert discourse (Saetnan et al., 2000). Implicated actors are “those silent or not present but affected by the action” (Clarke, 1998). By involving people in the third age that are affected by the outcome of the design process increases their autonomy and their influence on technological development. People in the third age of today and tomorrow are in this research primarily seen as generative users because they help the researcher to generate knowledge. In other words, the ambition is that the knowledge created should be useful in the design of products that also take users in other life phases into account. Of course, the perspective on people in the third age is also that they may be potential end-users, in a sense that they potentially will employ and live with the products.

To develop competitive products it is important to have a holistic perspective in the design process and not only to pay attention to the primary users. In this context they may be a person in the third age, but also secondary users such as households members, relatives, voluntary helpers, home caregivers, and tertiary users such as those who prescribe, recommend, sell, assemble, deliver, renovate, inherit, reuse and disassemble the furniture and other interior products and its material.

2.2.2 Environmentally sustainable design

Designers make decisions related to the use of resources, modes of consumption and the lifecycles of products. Environmentally sustainable design aims to ensure that products are produced and provided in a way that reduces the use of non-renewable resources and minimizes environmental impact. One of the common principles of environmentally sustainable design related to its focus on the interaction between the product and the user is creating longer-lasting, better-functioning and reusable products that age in a manner that does not reduce the value of the product. This reduces the impact of product replacements. One aspect is to provide design solution that serves a user at any and every point in his or her life. The main challenge in design for longevity lies in achieving an enduring satisfaction with the product, rather than meeting momentary desires (van Nes & Cramer, 2005). Influencing product lifetime through product design requires the development of dynamic and flexible products. This means designing for variability and product attachment, and preparing the product for future repair or upgrading (ibid.).

2.2.3 Inclusive design

There are a number of areas or types of design for people with disabilities, for example “accessible design”, “inclusive design”, “universal design”, “transgenerational design” and “design for all”. These areas or types have their distinctive features, but have in common the emphasis on the social aspect of design and – often – on the removal of barriers of access to products, services and infrastructures for persons with disabilities.
The aging of the population has put these issues high on the political agenda. Transgenerationell design addresses this need by exploring product design that enhances the quality of life for users of all ages (Pirkl, 1994). The research approach presented goes in line with the thoughts of inclusive design with respect to take human diversity as a starting point and the importance of identifying and understanding contradictory needs or aspirations for the design of desirable products.

The concept of inclusive design constitutes a strategic framework and associated processes by which business decision-makers and design practitioners can understand and respond to the needs of diverse groups of users (Coleman, 1999). The ultimate goal is to develop products and services that can meet the needs of the whole population (Paulsson, 2006). Inclusively designed products are meant to be used by everyone. The challenge of inclusive design is, according to Ingrid Rønneberg Næss & Trond Are Øritsland (2005), to move from looking merely at users, products and tasks, towards a more holistic view of how people use products to socially construct their reality. Otherwise, inclusive products risk being irrelevant to most people and stigmatizing to those who need them (ibid.).

2.3 Various end-user needs

End-user needs relate to both usability and needs beyond usability. With increased user expectations of products, a sensible and well-balanced approach to various end-user needs is more important than ever in design for developing successful furniture from the viewpoint of users. Individuals seek more than usability alone (Jordan, 2000). End-users expect their cultural, social and aspirational needs to be satisfied by the products with which they surround themselves. To meet these diverse needs, designers must actively develop research strategies especially aimed at coming up with design-relevant end-user findings from a holistic perspective on human needs. Patrick W. Jordan (2000) points at the need to understand people holistically, from how people use products to the role products play in their lives. His utilization of the four different types of pleasure that people may seek in products, presented by Lionel Tiger (1992) in the concept of pleasurable design, is a way to categorize different types of user benefit: physio-pleasure, psycho-pleasure, socio-pleasure, and ideo-pleasure. Håkan Eftring (1999) defines the concept useworthiness as, “. . . the individual user’s assessment of the extent to which the technology meets the user’s high-priority needs.” The purpose of the concept of useworthiness is to focus on the importance of a product in the user’s life situation, thereby gaining increased knowledge of the needs of the user. Users’ expectations of products usually are at three different levels (Hasdogân, 1996). The first generally starts at a shop window or in a catalogue, where the user is more likely to be called a consumer, whether or not they are the potential user. That perspective of design may or may not include further, second level, factors of design such as usability or functionality of the product. At the third level (only if the user can progress beyond the second), the user’s expectations of the product are based on his/her ongoing experience with the product.

2.3.1 Usability

ISO defines usability as, “The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use” (ISO9241-11, 1998). Often used dimensions to operationalise usability are effectiveness (the degree to which the particular goal can be satisfied), efficiency (the amount of time it takes to satisfy the goal), and ease of use (the amount of effort it takes to satisfy the goal). In this paper, usability refers to the relationship between the user and his or her skills and abilities and the properties of the product. Usability, as distinct from functionality, is not seen as a property that a product can possess.

2.3.2 Product experience

In this thesis, product experience refers to all possible affective experiences involved in human-product interaction (Desmet & Hekkert, 2007). Product experiences should, like usability, not be seen as a property of a product; it is a result of the interaction between product and person (ibid.). The construct of
product experience broadens the discussion of function. It moves us from a focus on the product’s mechanical operation to the way it fits in to a user’s life. Usability can most likely be a source of and can generate product experience; a user experience can most likely influence and co-create the user’s satisfaction with the product’s usability (Desmet & Hekkert, 2007). Product experiences may need to be articulated and knowledge about how usability and product experiences are linked to one another is needed to support more sensible and well-balanced decision making in the design process. The product does not exist in a vacuum. It becomes meaningful only in a relation to the user in a given living environment for a given time. These aspects are usually not under the designer’s control since they typically involve an individual’s connections to people, places or events that are important only to that particular individual. Experiences are not merely personal and subjective but crucially related to interacting with something of interest: an artifact, an activity, or a situation involving other people. An experience can be shared with others and thus be boosted or reduced. The individual interpretation of the experience is still subjective. Experiences are always relational; an experience of something always takes place in a context where the social and cultural impact of technologies is co-shaped by historical developments, material environments, and ethical and aesthetic meaning. The central concept of the social construction of reality is that persons and groups interacting in a social system form, over time, concepts or mental representations of each other’s actions, and that these concepts eventually become habituated into reciprocal roles played by the actors (Berger & Luckmann, 1966). Material conditions or things in a situation may also guide humans to operations, habitual behaviors that are unconscious. Human beings have the ability to experience a world and to act intentionally in it; things do not (Verbeek, 2006). The concept sticky information suggest that needs are not always possible to separate from the owner and gives a taste of how closely the user and knowledge of their needs can be related (von Hippel, 2005).

2.3.3 User requirements
The concept of user requirements can be described as “...those requirements which the user has for the artifact in use, and which are manifested by the problems arising in the context and/or articulated as problems, wishes or desires by the user” (Karlsson, 1996). The definition implies that the user requirements are not always articulated verbally by users and if they are, can be so in many different ways (Engelbrektsson, 2004). User requirements can be more or less accessible. They can be divided into the three categories: captured, elicited, and emergent (Karlsson, 1996). Captured requirements are easily accessible since the users are already aware of the problems and have reflected upon them. If the designer simply asks the users what their requirements for a product are, these are the ones she or he will get. Other requirements are not so easily captured. The user may not be aware of a problem or may have compensated for the deficiencies of the product, which means that the problems are no longer consciously reflected upon and therefore not present in the user’s mind (Engelbrektsson, 2004). By probing with questions or/and by using a mediating tool that can be anything from living environments and a real product to a hand drawn sketch, requirements that users take for granted or are not yet aware of can be elicited. The third category of requirements is emergent. These are impossible to articulate before a new solution is tried, but instead emerge during use of a new product and as a consequence of new experience. The three categories of requirements can also be expressed as visible, hidden and latent needs or defined in terms of active, not yet active and latent needs. An issue here is also the fact that we as human beings have access to our conscious thoughts and beliefs, but not to our subconscious ones (Norman, 2002).

2.4 People in the third age
The discussion of how to define old age has been an ongoing discourse along with the rise of interest in aging and the development of the life course concept. However, the basis from which to define old age has changed considerably. A frequent definition of old people are those who have passed the middle age that according to different sources ends at 60, 65 or even 70 years of age. The third age refers to the period when people fully or partially leave the job market, careers and the most demanding family obligations,
but still live a life of relative independence of others’ help and support (Laslett, 1991). Laslett repeatedly emphasized that the third age is primarily personal in nature: “Let it be repeated that the coming of the Third Age from the individual point of view is a personal, not a public occurrence: it has little to do with calendar age, social age or even biological age, and above all it is a matter of choice” (Laslett, 1991). The third age is, like all other ages, determined by the lived situation, especially social interaction and social participation. From such a position, it is possible to assume that some people never reach the fourth age and live in the third age until life’s end. Others may, due to physical disabilities or other social changes, reach the fourth age early in life. The fourth age is a life phase characterized by dependency and decrepitude. Only about 15 percent of Swedish citizens 65 years or older are dependent on home-help services or live in residential care housing (Johansson, 2010). The remaining 85 percent are in the third age. Many citizens in industrialized countries are entering the third age life phase at the same time as the life span is expected to increase. The longer that people are encouraged to remain in this life stage, the better for older people themselves, their families, communities and society as a whole.

There is a discussion whether the third age applies beyond the baby boom cohort (whose members were born in the same decade) or a given generation. Chris Gilleard and Paul Higgs (2007) have argued that the third age is so strongly associated with the generation of the sixties that it is difficult to see how it could mark a new stage in the sense that Laslett described it in the early 1990s, that is, as a new stage of life related to retirement and individual development (Laslett & Siegel, 1990). The third age has also been criticized as a way of delaying aging problems and just another way of reinforcing the youth ideals of the times (Gilleard & Higgs, 2007). The great majority of retired people in Sweden who are entering the third age are relatively healthy and active and in a secure financial position (Larsson, 2007). Most of the people living in Sweden have approximately one third of adult life left after retirement. Older people are involved in voluntary work and activities, and are responsible for much of the informal input provided outside the organized voluntary sector (ibid.). As a generation, is the baby boom cohort contrasted with the mass-consumer culture as its members grew up during the post-war economic boom in the West with the 1960s cultural revolution and a greater range of educational opportunities, higher material standards and the liberalization of family values. This led to a variety of lifestyles and a more development-oriented attitude. Later the baby boom cohort became part of the IT era and have been ascribed characteristics such as high utilization of the Internet and e-health services (Sinden and Wister, 2008; Karisto, 2008). In Sweden, the number of people over 65 with a foreign geographical origin has increased and is now approximately 11% (Vinnova, 2008).

The gerontologist Lars Tornstam (2011) divides aging on the basis of biological, psychological and social changes. Biological changes relate to an individual’s physiological function (i.e. the capacity of important organs and systems of organ). Human physiological functions often change with age. This may lead to a sudden change in one’s life situation, which is characteristic for people in the fourth age. While not all older people have disabilities, the prevalence of disability or limitations is highest among this demographic group (CEN/CENELEC, 2002). Psychological changes involve a person’s ability to adapt to living environments and changes relating to intelligence, memory, learning and personality. Social changes involve a person’s contact with others, his/her position in society as a whole, and in various groups. Sandra Torres & Gunhild Hammarström (2007) describe the most threatening experience of aging is not that of physical changes but of the limitations to one’s integrity, constraints in one’s personal space, infringement in the home and losing one’s self determination.

Although people are now living longer and may develop a range of disabilities over their life span, these may no longer be perceived as barriers to enjoying a high quality of life. New questions may become important aside from those concerning physical ailments and social exclusion. These can include existential questions about the meaning of life or how long a meaningful life can be.
2.4.1 Patterns of relocation among people in the third age

The patterns of how people move changes over time and probably between the cohorts of old people. The tendency for old people to move has been low for a long time, but seems now to be increasing among people 55 and older (SOU, 2008). With increased age, there is also a significant tendency to move from detached houses in private ownership, and a less significant tendency to move to central parts of a municipality. This points to a general downsizing for many people in the third age. The increased number of modern and accessible apartments has enabled older people and people with physical disabilities to remain in their homes or be able to find an apartment that meets their individual needs and/or wishes. In Sweden, one is able to obtain governmental subsidies for adapting housing, which further increases the ability to remain in one's home for a longer time or until life's end. Increased safety in homes through qualified efforts from home help services and home medical services has also contributed to it becoming more common that people can and want to remain longer at home. Technological developments have enabled advantageous support for the individual in daily activities, for safety and security and increasing support for care giving. These facts indicate the expectation that more old people will want to, but also have to, live in their homes instead of moving to residential care facilities. Their homes will probably more frequently be the place where care will be given for older people in need. It is also possible that the development of housing alternatives, such as cooperatives for old people, will increase.

2.4.2 The image of old people

Becoming old is not static but to a high degree a dynamic phenomenon. The image of old people today may not be the same as tomorrow. Erik H. Erikson (2004) states that whereas historical, cultural anthropological and religious documents bear witness to the fact that old people in the past were applauded and even reverenced, old people of today often face derision, contempt and even aversion. There have been fundamental changes in society throughout the life course of today's cohort of people in the third age. The aging population is progressing from being primarily a group that society must do something about to a growing group of active citizens in good health, who are financially independent, and many of whom have and are preparing for their aging in various ways. Stereotypical understandings of old people in the past have, despite good intentions, resulted in design solutions of furniture and other interior products with, “institutional, “medical”, “aging” and “disability” connotations. These products can be experienced as having meanings and content that is detrimental and harmful for people and decreases their quality of life.

People have within themselves an image of who they are or want to be. Their desired self-image is a central aspect to take into account in the design process. Adults often perceive themselves to be younger than they actually are. This can be seen as a defense reaction against the general negative picture of old age. In design for people in the third age, the design team has complex task of defining the group of end-users in a way that they feel comfortable belonging to that group. A particular problem is that the older we get, the more unlike one another we become. There is no such thing as the average person in the multiple age phase of the third age.

2.5 The meaning of the home for people in the third age

A home is more than a roof and functionality. Living and interior products are an important part of our wellbeing, our cultural and social identities, our joys and our social life. The home is also often said to become more important due to the instability of the outside world, globalization, and increased speed of technological innovation (Winther, 2004). Alain de Botton (2006) states that our homes and the interior products we fill them with make a deeper impact on us than we think. This can be to such an extent that we are different persons in different environments and that where we are heavily influences who we can be. The architecture's task is to stand as an eloquent reminder of our full potential (de Botton, 2006). The home is very important and has a great impact based on different dimensions such as self-determination,
independence, safety, meaningfulness and freedom (Enable-age, 2010). Findings also indicate that the home has a central place and becomes more important in the lives of very old people because this is where they live and spend so much time (Dahlin-Ivanoff, 2007). Eva Hurtig & Jan Pausson (1968) even state that the home is the individual’s most important asset in old age.

The meaning of home consists of many symbolic, pragmatic, and physical aspects. There is a basic conflict between the desire to express individual style, taste and social and personal status through the home, and a desire to maintain the home as a space that is comfortable and relaxing, and where authentic, genuine personal values can be fostered (Woodward, 2003). The home with its aesthetic expression comes to constitute a boundary between self and others, through different narratives on family and the self versus materialism (ibid.). Jean-Sébastien Marcoux (2001) has studied the consequences for old people when moving into a small place with a smaller set of things. This move is accompanied by the compulsion for the people to divest themselves of some of their belongings, a process that is called “casser maison”, literally “breaking the house”. It pertains to a ritualized form of construction of the self through the emptying of the place. He states that people inhabit their things as much as their place. Provided that possessions are important to such an extent in the creation of place and in the sense of a “maison”, it is common to hear among the old people in the process of moving that it is the things themselves that make the house their house. Possessions are often considered to be at the heart of the construction of the home (Marcoux, 2001).

2.6 Existing recommendations on furniture for people in the third age

Existing recommendations on furniture for old people often take as a starting point the physical, psychological and cognitive decline that aging may bring. The approach is from an expert’s view that represents the interests of the user. One of the few existing recommendations that particularly refer to people in the third age is that the most active among old people require chairs that facilitate ingress and egress and that provide seated comfort while not restricting movement (Holden, Fernie & Lunau 1988). Chairs that stimulate different sitting positions are recommended, because constrained sitting is bad for everybody’s health (i.e. contributes to chronic disorders, muscle pain, impaired circulation, etc.) (Lueder, 2004). Because this research goes in line with an inclusive design approach, it is suggested that designers understand the use limitation and possibilities and develop solutions that can respond to possible future changes in human abilities that aging may bring. In the report, Furniture for the Elderly, Sten Engdahl (1968) presents documented knowledge and experiences about the demands for functionality and technical quality on furniture for the elderly. CEN/CENELEC (2002) points out that the needs of older people and people with disabilities are not being adequately addressed when other standards for everyday products, outside of the area of assistive technology and accessible building design, are written or revised. The changing human abilities of older people to consider in furniture design may be sensory (seeing, hearing, touch and balance), physical (dexterity, movements, strength and measurements), and cognitive (intellectual and memory). The needs and abilities of people change as they advance from childhood to old age and the abilities of individuals in any particular age group vary substantially. It is important to recognize that functional and cognitive limitations differ from comparatively minor ones, such as a mild hearing loss or use of glasses to read, to blindness, deafness or the inability to move part or all of one’s body. According to CEN/CENELEC (2002), it should be noted that although some limitations may be minor in nature, in combination, as is the case of aging, these can pose a significant problem.

People with no useful vision depend mainly on tactile and acoustic input. People with a visual impairment are at an increased risk from sharp points and edges on products being handled, particularly if the user relies on touch to identify features and physically unstable items that might fall out of reach. The ability to maintain balance and avoid falling is dependent on a complex system, which involves the brain coordinating visual stimuli, feedback from the balance mechanism in the ear and movement of the limbs.
The incidence of balance impairments resulting in falls increases with age. Age-related attention deficits and visual impairments can reduce the ability to avoid hazards and to react to loss of balance. Many impairments in movement such as restricted range of movement in the joints of arms, legs and spine are experienced in older age, which can result in difficulties in daily living, such as reaching things, dressing, sitting down and getting up again. Reductions in muscle power and stamina are common in old age resulting in impairment of strength. Control of passive movement can be impaired resulting in difficulties (e.g., lowering a heavy object to the ground or sitting down on a chair). Failing memory affects people’s ability to recall and learn things and may lead to confusion. People can forget what they should be doing before they complete a task. Design needs to ensure that systems are “fail-safe” (CEN/CELELEC, 2002).

Hallberg & Nordström (1981) have carried out detailed studies on the extent to which furniture and other interior products that old people have are suitable from a safety and comfort perspective. Their question has been if efforts to adjust furniture and light fittings to the aging person’s preconditions would improve the ability to stay and live in the home for as long a period of life as possible. They point out that recommendations for improvements must be seen both from the household’s owner as from a caregiver or home helper/nurse perspective. Marianne Nyberg (1984) has video filmed about 50 retired people in their homes to find out how they use furniture. The findings showed that homes frequently have insufficient functionality and safety and that many old people did not get round to making changes. Others tackled such problems as uncomfortable chairs or bad lightning. Even for them it may be difficult to find proper alternatives, as the range offered on the market is limited or difficult to find.
3 The included studies

The two qualitative user-centered studies described in papers A and B present and discuss methods and findings. The studies investigated the early phases of the design process with attention to identifying various end-user needs. Focus group interviews and situated interviews in homes were the methods chosen. The implementation of study B was a consequence of study A. The methods chosen were considered appropriate for creating a holistic view of how people use and live with products to socially construct their reality. The objective of the interviews was to involve today's and tomorrow's people in the third age, letting them express their needs and aspirations. Methods that solely involve observations limit the researcher to describing his or her own observation of what others experience. The purpose of the studies was to generate and further develop new knowledge that is applicable in the practice of design. The perspective of the studies was that users are experts of their everyday lives and that their experience and knowledge are needed as a resource in design.

In both studies, participants were recruited who were or were expected to be characteristic representatives of the growing population of people in the third age. They were expected to have increased purchasing power and increased demands on various aspects of products. They were also characterized by the fact that they decide, pay for, use, and live with the pieces of furniture themselves. The participants can also be called “experienced users” due to their many years of living in and using their own everyday interiors and making decisions about them. Since it was the participant’s existing homes that were the topic of the discussion, the individuals’ furniture and other interior products became the mediating objects.

The two papers present and summarize the results of the studies with selected quotations in order to bring user needs and aspirations to life. The quotations were chosen to highlight common and shared opinions but also to illustrate diverse views between individuals and groups such as age groups and gender groups.

3.1 Paper A. Focus group interview

Paper A, Furniture Design beyond Usability, presents a focus group study. It was an initial study in the PLUS-project’s user-centered approach. The specific aim of the study was to gain more knowledge and better insights into what the consequences of an extended life phase mean to people in the third age. It was also to gain an understanding of how people feel and think about changes when moving to and living in a newly built apartment particularly developed to fit the needs of seniors. What impact does this have on their opinions about furniture and other interior products? When they moved to their new apartments, the living area for all participants was reduced. Most of them had previously lived in single-family dwellings.

The focus group interview method was chosen for the exploration of new concepts and identification of new opportunities, as questions with an open-ended nature can be examined (Krueger & Casey, 2000). The information gained is qualitative and consists of experiences, opinions, ideas, and motivations for behavior that is not suited to be quantified or generalized (Bruseberg & McDonagh-Philp, 2002). The principal advantage of focus group interviews is the ability to use participant interaction to gain in-depth
and rich data that would not be obtained through individual interviews. The method is also suitable for understanding user needs beyond usability. Focus group interviews are widely used in human factors, social sciences and market research, but not so frequently in design research (ibid.).

The selection of people, places and occasions was made considering the fact that relocation in general is a major event in life. Relocation to smaller housing may, in particular, be a critical event that highlights people’s relations to their possessions and entails new needs for furniture and other interior products. The intention was that the participants should correspond to the target users of the PLUS-project, as examples of individuals in the third age of today or tomorrow that could express important demands on products. An assumption was that the participants were affluent, since the apartments were in the high price range, had high standards and were situated in areas considered attractive. The focus group study asked the following questions: How do today’s people in the third age think and reflect when they change homes? What are their needs, wishes and aspirations? What are their preferences and why? The emphasis was on what the participants did with furniture and other interior products when they moved to newly-built and smaller housing. The interviews consisted of questions in a sequence of themes: 1) New housing, 2) Changes, 3) New needs, 4) New wishes, and 5) Ideas for improvements. In the analysis, similar trends of design-relevant findings were drawn together and discussions were compared to reveal patterns. The data was then examined as to how trends and discussions related to the variation between individuals and between groups.

3.1.1 Outcomes of the focus group interviews

The results of the focus group interviews point at demands on products that support the physical, psychological and social changes brought about by aging and moving to a reduced housing area. Desired products ought to correspond to the individual’s identity of being independent and self-determinant. Results from all three focus group interviews demonstrate that moving to more compact living is a critical event. It involves changes in housing that take time to understand. An aspect mentioned regarding changes in the living situation was the spirit of togetherness. This may have an impact on the notions of privacy and public, to what extent the homes focus on relaxation and informalities or formalities and hospitality norms. Another aspect was that the move required a massive reduction of possessions and resulted in the need for another type of furniture and other interior products. The new demands indicate furniture and interior products that are not large and ungainly, but rather small and dainty. In addition to basic values, the findings call attention to various needs and aspirations such as extra pleasure, extra aesthetic experience or some kind of extra “kick”. Many of the participants expressed that the reduction of possessions was emotionally tough and time consuming. Owners were often anxious that certain possessions should be inherited by their children or in other ways stay in the family, or have a future life pleasing others somewhere else.

3.2 Paper B. Situated interviews in homes

Paper B, Wishes for Furniture design among Persons in the Third Age, presents a study aimed at gaining deeper understanding and insight into the life phase of people in the third age and individual needs, wishes and aspirations for furniture and other interior products. It also aimed to gain enriched knowledge about how end-users ascribe values to things and prioritize those values. This was accomplished by meeting people in their own homes, listening to their lived experiences, hearing stories about their everyday lives, finding out about their views and understanding of how they live with and use furniture and other interior products. The context and the degree of sensitivity applied to it are key ingredients in studies with users for radical new products (Veryzer, 2005).

A situated interview method was chosen because it establishes a close connection to how people live in, use and are affected by the living environment. Eighteen people aged 53 to 82 took part in the study. In all,
twelve interviews were carried out, six with people living alone and six with couples living together. A thematic interview guide was used, covering themes such as comfort, pleasure, interaction and ideas of improvement of furniture and other interior products. The results from the focus groups in Paper A were used as the starting point and inspired the open thematic interview guide. Part of the interviews consisted of the researcher and interviewees walking through a choice of rooms to enhance the close connection to the furniture and other products in the home as a mediating object. What sets this qualitative “go-along” technique apart from methods such as participant observations and traditional interviews is its potential to access some of the transcendent and reflexive aspects of the lived experience in situ (Kusenbach, 2003). In addition to the mediating objects in the participants’ homes, a portion of the interview asked about pictures. The purpose was to elicit the participants’ reflections from images of a selection of ten different easy chairs in relation to their home.

3.2.1 Outcomes of the situated interviews in homes

The results demonstrate that products perceived as comfortable, flexible and pleasurable lead to attachment and emotional experiences, such as dignity, meaningfulness and freedom. Almost all answers about perceived pleasure in the home had to do with feelings of freedom and not being confined into one’s home. Several participants thought that light and airy rooms with comfortable furniture are more important when you get older. Many expressed that the interior should be suitable, comfortable and pleasurable for them here and now in a pragmatic way. Those that had moved to a smaller place and reduced their household goods (some of which were precious and inherited) had the overall experience that the individual appraisal of quality was more important than current design trends. Some wished that the next generation would also be delighted by their furniture. The objects of greatest affections have a sense of history or charm about them; many participants valued old as well as new pieces of furniture with narratives, original as well as those added over time, that give a feeling, a relation and/or associations with memories of the past. Some of the aspects that people ascribe to meaningful objects may thus be described as attachment, symbolic values and values of cultural/family heritage. Different aspects of sustainability were also highly valued: timeless appearance, functionality and beauty over time, non-breakable quality, adaptable and the easy to clean and maintain, change and reuse. In the interviews, a perfect interior in general was described as more coherent, modern, comfortable as well as lighter and airier. Pieces of furniture that were experienced as stereotypical, ordinary and conventional were considered boring while, on the other hand, funny form and small details could bring joy to users. The results indicate a growing importance of keeping things in order when moving, the older you get and the smaller the living areas.

The situated interviews provided a picture of individuals with a strong desire to avoid losing their independence and a fear of being forced to move to a residential care facility. Many said that they tried to avoid this by keeping healthy in all ways possible. Living rooms and walk in closets were used for physical training. Most of the participants seemed to be active. Several wanted their homes to express peace and quiet but also provide inspiration and motivation and to facilitate activities. Several of their wishes for home interior changes had to do with improved opportunities to be together with others, such as more space in general or improved furniture qualities such as dinner tables with easy extensions. All participants had computers and internet access. Some appreciated and prioritized the location for their home office in relation to other locations in the home.

Some, mostly among the youngest generations of participants, showed how they prioritized the importance of various values on furniture and other interior products by expressing that they gladly would pay for what gives them pleasure. Others, mostly in the older generations, said that they were careful with their money.
Not unexpectedly, the group of participants was very heterogeneous when it comes to individual variations in wishes and opinions. For designers, it is vital to have insight and respect for this. Humans have diverse demands, past experiences, expectations, preferences, dimensions and capabilities. Houses also have various preconditions such as type, floor plan and style. Different kinds of relations to furniture and other interior products are valued and prioritized differently depending on the situation and the individual’s gender, age, and social background.
4 Discussion

As might be expected, the results on how people in the third age interact and perceive their furniture and other interior products are heterogeneous. Without a clearer definition of a specific activity, the target group and the context of use, it is not reasonable to generalize and develop recommendations or specifications from the results. Nor can details and subtle interactions be fully captured in a specification – or even in the minds of. The strength of the results can instead be found in the capacity to encourage design practitioners to develop proper design solutions and other actors in the system of furniture development to make sensible and well-balanced decisions in the design process.

4.1 Discussion about methods

The aim was to explore how various user-centered design methods could be combined, modified and practiced to create conditions for the design of totally new or improved products. A hypothesis was that combinations of different methods were needed to get a wider picture and achieve knowledge of various end-user needs.

The focus group study provided rich knowledge about the consequences of relocation and people’s needs and aspirations. The study provided some knowledge, but not enough, into the context of living in the home, and how the participant interact and were affected by the living environment of their home. Physical objects in a physical context would probably offer enriched knowledge. Another factor influencing the outcome was the unspoken norms and the contradictions between what users say they want and what they actually end up doing. The interaction within the group may also have influenced comments and statements in other ways than they would have happened in individual interviews.

The questions in the focus group interviews captured the participants’ active needs. Their interaction in the interviews elicited in-depth and rich findings about needs among different generations, needs that the participants took for granted and different perspectives on various needs. The results from the interviews did not provide satisfactory information regarding the interface of furniture and other interior products. Instead, it provided information about the daily lives of the users and their aspirations. Although there was no physical interaction with products in their context of use, the validity of the focus group interviews can be justified on the basis that the participants had use experience in their homes, and so carry with them the context of home. By this is meant that whatever the elicitation context, users with use experience can imagine themselves in their normal use context and base their statements on this image instead of on the one presented to them by a specific representation (i.e. mediating object) (Engelbreksson, 2004). A study carried out in the context in which users lived was thought to provide deeper insights into end-users’ needs, wishes and aspirations related to everyday interior products than the focus group study. A focus group interview has an advantage of enabling a small-scale study and still be useful.

The situated interviews in homes provided rich opportunities for the researcher to study the appearance of the living environment and the relation between the issue in focus and the living environment. Being on home ground may also make the participant feel more secure and improve the ability to capture and elicit needs than it would be in an unfamiliar environment. The impact of the authentic environment enabled the researcher to observe human-product interaction in the context of use in everyday life and raise and elicit situational issues. A difference between speaking about something present in contrast to something absent in the interview situations is that the proximity to objects made it easier for the participants to express their experiences, opinions, ideas, and to motivate their behavior. It also made it possible for the researcher to ask consecutive questions to elicit needs that the participant, for example, took for granted or that were not yet active. The secure home setting and the proximity to objects in the interview situation
may make needs that are hard to verbalize easier for the participants to express. It is often easier and more natural to perform an interview in real use situations. Being situated in the participants’ home, among interiors and pieces of furniture in their context of use, provides the researcher with a deeper understanding and enriched empathy for the users. Pictures taken during the interviews may, but only partly, transfer that understanding. An aspect influencing what the participants said, and consequently the results, is the impacts of an unknown researcher in their home. Another aspect influencing the results is that six out of twelve of the situated interviews were carried out with couples living together; there may be contradictions between what users express individually and as partners.

The focus group interviews emphasized, in contrast to the situated interviews, various views and attitudes towards changes, needs and aspirations, and a rich knowledge base of the consequences of relocation. The results from the focus group interviews became an important base for carrying out the situated interviews. The situated interviews, in turn, added many deeper insights and understanding to the focus group interview results in the interplay in between user, products and the context where the products were used.

The methods used almost exclusively generated findings related to the participants’ current abilities and situations. The only exception was the part in the situated interviews where ten pictures of different pieces of furniture were shown to the participant as additional mediating objects. This modification was useful and elicited additional information about desirable furniture, as complementary findings. For the individual it was difficult to speculate on future needs since they depend on one’s health. An aspect that also influenced the ability to think about future needs was the participants’ aspirations to live in the present. Future needs seemed in some cases not to have crossed their minds, since they not were in that situation. The studies in the two papers presented involved a limited number of people with something in common and assumed similarities that were relevant to the study. The studies explicitly focused on the end-user perspective. In the design process, there are more views to consider and balance. Those who use the results have to consider them and decide the degree to which they can be applied to their situations.

According to Lena Sperling et al. (2005), the success of a personal interview in communication with users to a high degree has to do with how the designer approaches the user. It is important to create an equal dialogue, addressing the user as the expert of his/her problems in the use of the actual product (ibid.). User-centered methods with users require skilled interviewees that are aware of their bias and have sufficient sensitivity and empathy. This is something that may be learned and developed through using user-centered methods with the aim is to help users to participate in design. In the practice of design in the area of Aging and Design, it becomes especially important to exposure designers to old people to recognize situations and expand their empathic horizon because they usually tend to have different experiences and expectations.

4.2 Discussion about findings

To broaden the knowledge base, the findings of the two studies are brought together and discussed in this section. The other goal, to create knowledge about user communication, will also be discussed.

The findings captured in the studies presented are qualitative and consists of experiences, opinions, ideas, and motivations for behavior, rather than figures and facts. The findings are not suited to be quantified or generalized. Attempts have been made to classify the participants’ positive comments on product qualities. A series of user requirements was formulated for future PLUS-products using the concept of usability and in a framework of product experiences. This thesis does not attempt to classify the findings because of the risk that vital in-depth results will be filtered out in the effort. The attempts to classify the participants’ comments were nevertheless fruitful as a means of summarizing the findings and as a basis to further improve the communication of various needs.
Major aspirations of the participants in the studies presented in the papers were to live in and take care of their homes as long as possible, in order to remain independent and to improve quality of life. People in the third age are by definition striving for an active and independent life. The findings show that the home is very important and has a great impact on people's wellbeing. Many people in the third age seem, according to the findings, to strive for independence, self-determination and security. Living in a supportive and accessible environment may provide this.

The findings presented in the papers show a diverse mix of ideas of the values that furniture and other interior products may have. Answers demonstrated that it is not enough with one improved aspect—a combination of positive values co-act and reinforce each other. Common usability aspects that were needed and valued were comfortable, ergonomic, practical and sustainable furniture and other interior products that are easy and convenient to handle, move, clean and maintain. General positive aesthetic experiences expressed by the respondents were dainty and light furniture and interior design that had visual balance and made the rooms seem more spacious. Warm, soft and rounded were some tactile experiences commented on as positive. Interaction with furniture and other interior products that elicit positive experience of meaning can in general be characterized as reflecting the user's identity, creating a homelike feeling, and not being seen as typical for elderly or disabled people. The results show that general emotional experiences worth striving for are attachment, inspiration and motivation, feelings of freedom, dignity, independence and spirits of togetherness.

A central aspect that was needed and valued by the participants was “comfort”. Keith Slater (1985) has attempted a scientific definition of the term: “... a pleasant state of physiological, psychological and physical harmony between a human being and the environment.” The feeling of comfort, no discomfort and discomfort is determined by the input from the senses and the processing that is influenced by the history and the state of the person (Vink, 2002). However, it seems that there is no single pattern or cultural definition for comfort. Like so many other things, it is a matter of personal choice. The participants in the studies used the term “comfort” to describe various factors such as efficiency, ease of use, recreation, relief, wellbeing and intimacy. Akiko Busch (1999) writes in her book, Geography of Home, Writings on Where We Live, that: “People do disagree so profoundly about what gives them comfort.” She states that the comforts of home are inextricably linked with history, and that we find greater comfort in informality (Busch, 1999). Peter Vink (2005) states that it is surprising that there is no generally accepted notion of comfort or discomfort that allows them to be easily incorporated into the design process. Because of this, industry also lacks a reference linking comfort and design. Some designers have found that the best way to engineer comfort into their products is to involve the end-user in the process (ibid.). Furniture and other interior products that were flexible in their use were also an aspect that the participants valued and express needs for. The cultural definition of flexibility can also refer to many things for different actors. The analysis of the interviews shows that the term “flexibility” may mean variability, adaptability, adjustability, multi-functionality, the products ability to change to the living environment, modification, compatibility, exchangeability, future repair or future upgrading.

A finding that struck the author was that almost all comments about perceived pleasure in the home could be analyzed as having to do with feelings of freedom and not being confined to one's home. This indicates the importance of starting out from emotional aspects in the design process. These findings also constitute a contrast to the existing negative picture of old age and highlight the importance of capturing new life styles among old people. These findings reinforce the author's belief that this is a topic worth studying, and that there are brilliant opportunities for the development of considerate design solutions that not only are desirable to own for people in the third age but for people in other life phases.

A basic condition for a design process is a description of the intended target group. It is also vital to know
what the acquisition of new products is competing with. It might be things in other categories or services. The results show that it can be trips and tourism, products for health and wellbeing to retain one’s independence, financial help to grandchildren or contributions to charities. All the furniture and other interior items purchased by people in the third age seem to be replacement products. Several of the participants wanted to keep their furniture and other interior products even though they were not considered to be suitable from a usability perspective. The acquisition of new products is also competing with what underlies the keeping. Jon Pynoos et al. (2003) states that old person too often adapt their behaviors to their environments, rather than change their settings to meet their needs. An environmentally sustainable design approach can include the extension of a product's life span through design. One can learn from the users’ motivations for keeping things. The product lifetime is a result of the user’s decision and not a predetermined design criterion. The findings have generated knowledge that attachment, symbolic values and values of cultural/family heritage may be users’ motivations as to why they do not replace their furniture.

Recommendations for furniture for people in the third age distinguish themselves to a minimal extent from recommendations for furniture in general. However, more consideration should be paid on serving the widest range of ages and abilities, various aspects of comfort and the fact that many people in the third age may move to living that is more compact. Only focusing on existing recommendations for furniture for old people, though, may lead to impersonal products that lack human sensitivity, evoke predominantly negative associations such as helplessness and decline. Instead, the emphasis should be on the users’ individuality, aesthetic sensitivity, self respect and expressions of such things as freedom, independence and self-determination. Of course, aspects of usability and accessibility for old people should be considered, but they should not necessarily be accentuated in the design solutions. The recommendations this thesis offers are universal because they respond to the needs of diverse groups of users and are in line with the thoughts of inclusive design, where the goal is to develop products and services that can meet the needs of the whole population.

Bridging a user-centered way of thinking to the system of product development can be seen as the designer’s field of work. Designers can benefit from being closely involved into the creation of end-user insights, to ensure that the findings are adequate for the present challenges’ specific needs and the knowledge embrace a holistic perspective on humans’ diverse needs. User involvement can enhance the designing process through deep immersion into the user experiences, aspirations, and wishes and avoid false assumptions. There are two points in particular to make about moves towards user involvement in design (Harper & Eason, 1984). The first is that users do not come with expertise in design procedures and need help to contribute their knowledge and criticisms. The second point is that broadening the base of the design team may not be welcomed by technically oriented designers. It may mean that they cannot make assumptions about the design specifications because their brief may be challenged and changed. It may also mean that the design process is less about “rational” problem solving and more about managing a social process (ibid.). People in the design process, especially designers, should be closely involved in gathering knowledge. The reason for the low employment of empirical models in the design process can, according to Gülay Hasdogân (1996), be sought both on the side of the available tools provided by theory and on the side of the design practitioners.

Some of the companies in the PLUS-project reduced the findings of the studies to subjective thinking and rejected the results. The dissatisfied representatives of the companies considered the studies to consist of too few interviews and consequently not enough substance for the establishment of design specifications. However, some companies were satisfied and appreciated the findings. The different opinions on the value of the studies and their findings may depend on differences in what kind of information designers and business people use as a basis for decision making. Roger Martin (2007) claims that, for designers, reliability is the most important and the only way to know if one is right is to test the product, in
prototypes or in real life. For business people validity is the thing to trust; that is constructed by checking numbers and making prognoses of historical events (ibid.). Understanding others’ understanding requires, according to Klaus Krippendorff (2006), listening to what they say they experience and acknowledging their understanding as legitimate, not inferior or mistaken, even when it deviates significantly from one’s own. Krippendorff (2006) has called this a second-order understanding and wants us to note that such an understanding is absent in technology-centered design. There is a risk for misunderstanding and loss of in-depth understanding when summarizing and categorizing second-order understanding.

This research has tried to generate findings about end-user needs that are important for the design of desirable pieces of furniture and other interior products. But the findings may be both incomplete and partially incorrect because the users may not know and cannot say precisely what they want and about their situations, what is referred to as “sticky information” (von Hipple, 2001). This is partly because some knowledge is tacit: knowledge that is difficult to transfer to another person by writing it down or verbalizing it. People are often unaware that they possess tacit knowledge, or how it can be of value to others. An iterative process of design by trial-and-error typically ensues in user-centered design. The manufacturers have to respond with design solutions that may only be partially successful. The user then applies the product in the use setting, finds flaws, and requests corrections. This cycle continues until a satisfactory solution is reached (von Hipple, 2001). This is because users have need information that is sticky, and they must engage in learning by doing to clarify what they really want.

4.3 Contribution

The results of this thesis indicate that it is possible to gain an understanding of how people in the third age interact with and perceive their furniture and other interior products. This user involvement has lead to enriched knowledge about their needs, wishes and aspirations. The results also show that people in the third age are active users and capable of identifying their needs and of expressing specific demands.

The findings on how to communicate with users may be most beneficial for companies that want to enhance the story of their brand as listening and considerate and strive for a design philosophy where products can be marketed with slogans such as, “designed and developed in close collaboration with end-users.” The findings on user needs may be beneficial for all companies aiming at a more inclusive approach or senior markets. Innovation and new product development must be guided by an understanding of user needs. Starting with up-to-date and reliable end-user needs may improve several phases in the design process: problem finding, analysis, synthesis and evaluation. A deeper knowledge of users’ needs may help in the development of tools for supporting decision making in later phases of the design process. It is now hoped that this research will stimulate the development of tools, design principles and design criteria supporting further design of PLUS-products.
5 Conclusions

The image of and attitudes towards furniture intended for old people deserve to be changed. A variety of new lifestyles place new demands on personalization and how products fit into a user’s life. Designers need to holistically understand the users, because they make decisions related to which meanings should be afforded by their design solutions and which are to be discouraged. This increases the importance of a user-centered design approach in the system of product development. A challenging aspect in the design process that indicates the need of user involvement is the complex task of defining people in the third age as target group in a way that makes them feel that they belong to the group. There is still a lack of knowledge about the growing senior market that suffers from stereotypes in which aging is associated with something obsolete rather than with innovations. No company wants to be associated with decline. Discovering old people as innovators might be one alternative to increase the business value of life experience.

The attitudes toward involving old people in design processes deserve to be changed. Today’s old people are, and tomorrow’s old people will be authorities who can take part in shaping their lives and products. If designers do not involve human beings in iterative design processes in their living environment, there is a risk they will be turned into passive receivers of technological solutions and other measurements in a linear system of thought in a time when old people want to be involved. By involving old people in design processes it is possible to capture and address their well-established habits, past experience and wisdom as users of technology, and to create knowledge usable in the development of products that can meet the needs of the whole population in line with an inclusive design perspective.

If decision makers in the system of furniture development only pay attention to the existing recommendations for furniture for old people there is a risk that the design solutions will evoke negative connotations that no customer wants to use, buy or be associated with. Primarily paying attention to one set of variables may cause the neglect of others. The outcome shows that it may be worthwhile to focus on the role furniture and other interior products play in people’s lives instead of on furniture as a tool that compensates for bodily decline. Instead, furniture should reflect the identity of an independent and self-determinant individual, should fit into the users’ aspirational homes and interiors and have pleasurable forms and details that can bring joy and wellbeing to users. The findings indicate that the entering into a new life phase, relocation to smaller housing and other experiences and expectations than those of yesterday’s old people leads to increased user expectations of products. Sensible and well-balanced decisions in the system of product development that acknowledge those changes are important for developing successful furniture from the viewpoint of users.
6 Recommendations for future work

This thesis has focused on identification on various needs in early phases of the design process. So far, an iterative design process, one of the main principles in user-centered design, has not been practiced or studied. A recommendation for future work would be to carry out case studies involving users and other stakeholders, go further in the design process, select problems and develop new solutions. To explore the generated knowledge and to generate new knowledge, further studies would benefit from involvement of users interacting with new design solutions such as mediating objects. The studies in this thesis include only slightly instrumental human-product interaction. User-centered design studies that help the user to establish what is in his or her interest and may be carried out with physical representation such as existing products or prototypes in authentic living environments or usability laboratories. That can provide more specific findings on various needs, knowledge that would be useful and of great value in the later parts of the design process.

The diversity of lifestyles may also lead to increased numbers of people that do not want to continue to live in their homes. Thus, it may be valuable to study users’ interactions with furniture and other interior products in other contexts than in the home. It is also possible that the development of housing alternative, such as cooperatives for old people, will grow. These are housing alternatives where the end users’ influence on the living environment is expected to grow. The findings in the included studies also point at end-user needs and wishes for design solutions integrated into the building and furniture and other interior products that fit contemporary and future housing. Collaboration between actors in the furniture industry and the building industry may contribute to integrating interior solutions in buildings, collective approaches and a link to the housing customer. This may reinforce a link in the whole chain of processing in wood and furniture manufacturing.

It is important to highlight cases and role models where old people are actively involved in design processes because the perspective of tomorrow demands a certain rethinking.

In addition to research on user-centered design approach, research on how to reach the growing senior market is needed to ensure future competitiveness and development of the Swedish furniture industry. It is proposed that stakeholder networks should be involved. Benchmarking in other product categories in the senior markets can also be valuable. Conditions for further work in the practice of design are a clearer definition of the intended target group and channels to come onto the market according to each company’s category and vision. There are opportunities for significant contributions in the area of PLUS-products if user-centeredness would integrate with existing design processes.

As with any research investigation, the findings should be viewed as simply another step in advancing our understanding of the complex relationships underlying various aspects of design. It is hoped that the set of complementary studies, as well as the knowledge presented, will aid researchers in further developing theory and design practice in this area.
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Abstract

The background of the present study was to meet the demographic changes and the rapidly growing senior market. An ongoing research intervention, the PLUS-project aims at providing a grounded base for design of useful furniture and other interior products that will be desirable and pleasurable for a wide range of users and contribute to long-term use. The PLUS-project aims to take advantage of the expectation that old people of tomorrow will have increased demands for a range of products that are more varied and in line with their needs. The present lack of communication between the furniture industry and its old age customers has lead to insufficient knowledge about their needs. The purpose of the present study was to generate findings for the development of new knowledge that is applicable in design practices. The paper gives an overview of the concept of the third age, the PLUS-project and presents an introductory focus group interview study of this project. A specific aim of the study was to gain better insight into what the consequences of an extended life phase mean to people in the third age. Focus was on gaining an understanding of how people feel and think about changes when moving to and living in an apartment especially developed to fit the needs of seniors, and what impact this has on their opinions of furniture and other interior products. Three focus group interviews were carried out. Twelve people aged 59-93 took part. The outcomes of the focus group interviews point to demands on products that support the physical, psychological and social changes that aging may bring, and correspond to an identity of an independent and self-determinant individual. User requirements for new PLUS-furniture were proposed. The paper discusses the complexity in the research assignment to communicate and bring user knowledge and experiences to life, and suggests that designers may benefit from carrying out or being involved in user-centered research.

Keywords: Furniture Design, User Experiences, Aging Population, User-centered Design, People in the Third Age

1. Introduction

A well-known conclusion drawn from demographic studies is that the proportion of old people in the populations of industrial countries is growing. Between 2005 and 2050, in the more developed regions, the population aged 60 or over is expected to nearly double (United Nations, 2007). This trend is carefully mapped out in quantitative terms, but few studies have focused on the content of this extended life phase and the consequences for old people’s needs and aspirations. Although there is an increased share of old people who have both increased purchasing power and demands for products that are in line with their needs, this does not tell us anything about which products they want to buy and are willing to use. The material currently available about the end users is general and not broken down into, for example, design-relevant knowledge in product development of furniture. Deeper insight into individual needs and aspirations can generate new knowledge that is important for meeting
the demographic changes and will be valuable for the design of successful products from the viewpoint of users.

The home has a central place in the lives of very old people because it is where they live and spend so much time (Dahlin-Ivanoff, Haak, Fänge & Iwarsson, 2007). The home has a great impact on people’s well-being, especially for old people, and personal independence is one of the important dimensions in old age. As a community, we also benefit economically, socially and culturally by individuals maintaining their independence as long as possible. Design may play a crucial role in enabling user independence and well-being in the home. From the viewpoint of sustainability, it may be worthwhile to lengthen the life span of furniture and other interior products as well to enable people to remain in their homes without making major changes.

The aim of the present article is to present the qualitative results of the first of a number of empirical studies of participants’ experiences, opinions, attitudes and ideas. They are broken down into suggested requirements for the design of new furniture and other interior products, applicable in design practices. The results aim at giving conditions for the design of useful furniture and other interior products that will be desirable for a wide range of users and will contribute to long-term use. The objectives of the present article are also to discuss how user-centered design approaches may bring design-relevant knowledge to life, and to provide a better understanding of what to focus on in forthcoming studies.

1.1 People in the third age

Many citizens in industrialized countries go into the life phase called “the third age” at the same time as their life span is expected to increase. The third age is an ageless and provisional concept articulated by Laslett (1991) in order to capture new lifestyles among old people. The third age refers to the period when people fully or partially leave the job market, careers and the most demanding family obligations, but still live a life of relative independence of others’ help and support. Not all of us will go into the subsequent “fourth age”, which is a life phase characterized by dependency and frailness. Only about 15 percent of Swedish citizens 65 years or older are dependent on home help services or live in residential care housing (Johansson, 2010). Östlund (2008) states that the dominant paradigm for addressing older adults’ needs for a long time has been to do things for them based on an understanding of aging as a growing helplessness, and expresses that we instead should start looking for ways to do things with them. The present paper addresses the growing proportion of people in the third age. They may also be characterized by the fact that they are deciding, paying for and using the pieces of furniture themselves. People of today who are in this life phase are expected to make their own decisions, as they have a great deal of choices about who they want to be and the kind of life they want to lead.

This life phase shows a diversity of needs that are continuously changing in part because younger generations gradually are replacing older ones in the old adult population. Diverse generations have diverse experiences and expectations. The people of tomorrow’s third age are expected to have increased demands on a range of products that are more varied and brought into line with their needs and aspirations. Many, but far from all, are expected to have an increased purchasing power, stronger social networks and higher levels of education compared to the old people of today (Daunfeldt, Gustafsson, Hortlund & Rosén, 2008). They will presumably be more active and continue to work or develop their recreational pursuits. However, aging results in a number of normal biological, psychological and social changes (Tornstam, 2011), and is sometimes accompanied by diseases that affect functions, skills and
abilities. While not all older people have disabilities, the prevalence of disability or limitations is highest among this demographic group (CEN/CENELEC, 2002). Although people are now living longer and over their life span may develop a range of disabilities, these may no longer be perceived as barriers to enjoying a high quality of life. Changes that have happened over time are that more old people are expected to want to, but also have to, live in their homes instead of moving to a residential care facility. Their homes will probably more frequently be the place where care will be given for older people in need. Technological developments enable advantageous support for the individual in daily activities, for safety and security, and increasingly, support for care giving.

1.2 The PLUS-project

This study was carried out in the framework of the PLUS-project (Development of the Swedish Wood and Furniture Industry for Consumer Oriented and Competitive PLUS-products). The overall aim of this ongoing research intervention in the Swedish furniture industry is to provide a grounded base for the design of useful furniture and other interior products that will be desirable for a wide range of users and contribute to long-term use. The project also wants to ensure future competitiveness and development of SMEs in the Swedish furniture industry by a more coherent and user-centered innovation process. The existing lack of communication between the furniture industry and its old age customers has lead to insufficient knowledge about their demands. Thus, the PLUS-project also aims to bridge this gap with user involvement as a driving force for innovation and as a resource in the design process. Improved communication with users may decrease and minimize unexpected failures.

PLUS-products or PLUS-furniture is a conceptual category of products that are designed for a wide range of diverse potential users and are desirable and usable during as long a period of life as possible. The aim of the PLUS-project is in line with the concept Inclusive Design, which constitutes a strategic framework and associated processes by which business decision-makers and design practitioners can understand and respond to the needs of diverse groups of users (Coleman, 1999). The ultimate goal is to develop products and services that can meet the needs of the whole population (Paulsson, 2006). Inclusively designed products are meant to be used by everyone. The challenge of inclusive design is according to Ronneberg Naess & Øritsland (2005) to move from looking merely at users, products and tasks, towards a more holistic view of how people use products to socially construct their reality. Otherwise, inclusive products risk being irrelevant to most people and stigmatizing to those who need them (ibid.).

Collaboration partners in the PLUS-project are researchers at the Department of Design Sciences at Lund University, researchers at the Department for Management and Engineering at Linköping University, seven Swedish furniture companies, the Swedish Federation of Wood and Furniture Industry (TMF) and the end-users, people in the third age. In the PLUS-project, the researchers at Lund University aim to create new knowledge about and by user communication, and processes for transfer of knowledge about users and user experience to complex innovation systems. This research explores how various user-centered design methods can be combined, modified and practiced to create conditions for the design of totally new or improved products. The perspective in the user-centered studies is that users are experts on their everyday lives and that their experience and knowledge is needed as a resource for the design of PLUS-products. Involving people in the design process may also lead to improved ways to represent the users’ experience in today’s diverse culture. The ideal-typical role of the design profession in the system of product development is that the designer
strives to find new solutions from a user’s perspective (Edeholt & Ek, 2008). Designers cannot always be knowledgeable about user needs and aspirations. Design solutions that make life easier, more efficient, more comfortable or more fun rely, largely, on insights about future users of new products.

2. Product experiences
In this paper, product experience is used to refer to all possible affective experiences involved in human-product interaction (Desmet & Hekkert, 2007). Note that with human-product interaction we do not only refer to (1) instrumental interaction, but also to (2) non-instrumental interaction, and even to (3) non-physical interaction. In this paper, usability refers to the relationship between the user (and his or her skills and abilities) and (the properties of) the product. With increased user expectations of products, a sensible and well-balanced approach to usability and product experience is more important than ever in design for developing successful furniture from the viewpoint of users. Individuals seek more than usability alone (Jordan, 2000). The construct of user experience broadens the discussion of functionality. It moves us from a focus on the product’s mechanical operation to the way it fits in to a user’s life. The product does not exist in a vacuum. It becomes meaningful only in relation to the user in a given environment for a given time. However, these aspects are usually not under the designer’s control since they typically involve an individual’s connections to people, places or events that are important only to that particular individual.

Users expect their cultural, social and aspirational needs to be satisfied by the products with which they surround themselves. To meet these diverse needs, designers must actively develop research strategies especially aimed at coming up with design-relevant end-user findings from a holistic perspective. Usability can most likely be a source of and generate product experience, as well as a user experience most likely can influence and co-create the user’s satisfaction with the product’s usability (Desmet & Hekkert, 2007). Product experiences may need to be articulated and knowledge about how usability and product experiences are linked to one another is needed to support more sensible and well-balanced decision-making in the design process. The conception about which knowledge is useful is to a high degree a matter under negotiation. With the increased awareness of the necessity to elicit user needs beyond usability, user-centered design methods are making it easier for the user to participate with designers in the design process and are becoming more established in the discipline (Bruseberg & McDonagh-Philp, 2002). While user-research methods may be familiar to other disciplines, conventional design training has not, until recently, incorporated such activities (ibid.). Such methods, though, have not yet had enough impact on design practice.

3. Method
A focus group interview (FGI) was chosen that centered on the following questions: How do today’s people in the third age think and reflect when they change homes? What are their needs, wishes and aspirations? What are their preferences and why? FGIs are widely used in human factors, social sciences and market research, but not so frequently used in design research (Bruseberg & McDonagh-Philp, 2002). FGIs applied during a new product development process are primarily used to explore new concepts and identify new opportunities (van Kleef, van Trijp & Luning, 2004).

An overview of the current literature on focus group approaches was carried out by Bruseberg & McDonagh-Philp (2002). They found that one of the perspectives that support the method’s applicability for design research is that the technique is suited for exploratory purposes,
because questions with an open-ended nature can be examined. The information gained is qualitative, and consists of experiences, opinions, ideas, and motivations for behavior, rather than “figures and facts.” It is not suited to be quantified or generalized. The qualitative information from techniques such as FGIs is particularly vital for design decision-makers; hence, designers should be closely involved into the information gathering process. The principal advantage claimed for FGIs is the ability to use participant interaction to gain in-depth and rich data that would not be obtained through individual interviews (Webb & Kevern, 2001). They are chosen over personal interviews because of this interactive effect: statements of one participant can trigger comments by others (van Kleef, van Trijp & Luning, 2004). Quantification of results may, on the contrary, contribute to loss of in-depth information, as vital insights into attitudes and perceptions of users tend to be filtered out in the process. Designers benefit from taking part in FGI sessions either by observing, providing responses to users, actively taking part in the discussion, working directly with users in participatory workshops or by acting as an FGI moderator (Bruseberg & McDonagh-Philp, 2002). Moreover, FGIs are suitable to understand user needs beyond the functional, such as customer delighters (Burns & Evans, 2000) leading to products that provide enjoyment as well as functionality (Jordan, 2000).

3.1 Participants
All participants lived in apartments developed by a Swedish company, Seniorgården, with the explicit business idea of offering people over 55 years the opportunity to live in beautiful and functional homes as long as they wish (Seniorgården, 2010). The ambition was to recruit participants who were characteristic representatives of the growing population of people in the third age, and were expected to have increased purchasing power and increased demands on products of various aspects. The target group of Seniorgården is people who have high demands on quality and are attracted to housing built with care. One of their advertising phrases is: “Together with some of Sweden’s best architects, we create a living space for people with high demands on comfort, design, layout and choice of materials – to the last detail.” All the tenant-ownership associations have shared premises in the buildings such as dining rooms and guest rooms. Seniorgården is one of many companies that offer housing for people in the upper part of middle age and older, a housing alternative that has grown during the 90s. The majority of the people who have moved to apartments like this seem to be satisfied and this is possible that it will lead to a greater interest for this housing alternative.

The selection of people, places and occasions was made considering the fact that relocation in general is a major event in life. Relocation to smaller housing may, in particular, be a critical event that highlights people’s relations to their possessions and entails new needs for furniture and other interior products. The process of moving to a smaller place has been studied by Marcoux (2001) and called “casser maison”, literally “breaking the house”, and pertains to a ritualized form of construction of the self through the emptying of the place. He also states that possessions are often considered to be at the heart of the construction of the home. An assumption was that the participants were affluent, since the apartments were in the high price range, had high standards and were situated in areas considered attractive and thus corresponded to the target users of the PLUS-project.

Three FGIs were carried out in north Stockholm with the author as a moderator. Twelve people aged 59-93 took part (Table 1). There were four people in each FGI. Both genders were represented in each group. In one, the participants had lived in their apartments for six years and in the other two focus groups, less than one year. When moving to their new apartments, the housing area for all participants was reduced. Most of them had previously
lived in single-family dwellings. The apartments that the participants now lived in varied in size from two to four rooms including the kitchen and were 69 to 135 square meters.

Table 1. Participants (n=12) in focus group interviews about changes with new modes of living.

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<th>Characteristics</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender and age (years)</td>
<td></td>
</tr>
<tr>
<td>Females (62, 66, 68, 70, 79, 85, 93)</td>
<td>8 (67%)</td>
</tr>
<tr>
<td>Males (59, 78, 81, 82)</td>
<td>4 (33%)</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
</tr>
<tr>
<td>Working</td>
<td>1 (8%)</td>
</tr>
<tr>
<td>Retired, working part-time</td>
<td>1 (8%)</td>
</tr>
<tr>
<td>Retired</td>
<td>10 (84%)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Married/common law spouse</td>
<td>6 (50%)</td>
</tr>
<tr>
<td>Widowed</td>
<td>6 (50%)</td>
</tr>
</tbody>
</table>

3.2 Procedure

The FGIs took place in a shared premise of each tenant ownership association. The focus was on what the participants did with furniture and other interior products when they moved to newly built and smaller housing. The interviews consisted of questions in a sequence of themes (Table 2). The three FGIs were conducted in the same way and took over one hour to complete.

Table 2. Themes and questions in focus group interviews about changes with new modes of living.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. New housing</td>
<td>What did you do with your household goods when you moved?</td>
</tr>
<tr>
<td></td>
<td>Have you bought any new pieces of furniture or other interior products?</td>
</tr>
<tr>
<td></td>
<td>Have you found the furniture that you have been looking for?</td>
</tr>
<tr>
<td>2. Changes</td>
<td>How did you think it would be before you moved regarding activities, your</td>
</tr>
<tr>
<td></td>
<td>domestic comfort and time spent in the home? How did it turned out to be?</td>
</tr>
<tr>
<td></td>
<td>Have your activities in the home changed? What new things do you do?</td>
</tr>
<tr>
<td></td>
<td>Have you refrained from doing things since you moved here? Why?</td>
</tr>
<tr>
<td></td>
<td>Have your demands on furniture and other interior products changed?</td>
</tr>
<tr>
<td>3. New needs</td>
<td>What are your needs like today for furniture and other interior products?</td>
</tr>
<tr>
<td></td>
<td>What do you think about your future needs?</td>
</tr>
<tr>
<td></td>
<td>Where do you prefer to sit at home?</td>
</tr>
<tr>
<td>4. New wishes</td>
<td>Is there any furniture or other interior products that you think need</td>
</tr>
<tr>
<td></td>
<td>improvement?</td>
</tr>
<tr>
<td></td>
<td>Do you think your future needs can be satisfied by smart furniture or</td>
</tr>
<tr>
<td></td>
<td>other interior products?</td>
</tr>
<tr>
<td></td>
<td>What does added value means to you?</td>
</tr>
<tr>
<td>5. Ideas for improvements</td>
<td>What pieces of furniture or other interior products do you consider as</td>
</tr>
<tr>
<td></td>
<td>suitable for people in all ages? Why?</td>
</tr>
<tr>
<td></td>
<td>Do you have any ideas about furniture or other interior products</td>
</tr>
<tr>
<td></td>
<td>designed with the needs of seniors in mind that will attract and please</td>
</tr>
<tr>
<td></td>
<td>a wide range of consumers?</td>
</tr>
<tr>
<td>Conclusion</td>
<td>Do you have any further thoughts about what has been said in this</td>
</tr>
<tr>
<td></td>
<td>discussion?</td>
</tr>
</tbody>
</table>

Open-ended questions were used to allow the individuals to respond without setting boundaries or providing clues for potential response categories and to allow ample opportunities to comment, explain and share experiences and attitudes. The interviews were audio recorded. In order to concentrate on the discussions and observe the interaction among the participants, no field notes were taken during the FGIs.
3.3 Treatment and analysis of data

The audio-recorded data were captured by means of a tape-based approach that is slightly less time consuming than a transcript-based strategy (Krueger & Casey, 2000). This approach relies on listening to a tape recording of each interview and then developing an abridged transcript of the relevant and useful portions of the interview. It is a condensed version of the interview with irrelevant conversation removed. Only a member of the research team with a thorough understanding of the purpose of the study can develop an abridged transcript (ibid.).

In the analysis, similar trends of design-relevant findings were drawn together and discussions were compared to reveal patterns. The data were then examined in terms of how trends and discussions related to the variation between individuals and between groups. It appeared that the themes and questions did indeed consider pressing problems and issues, and dealt with the participants’ everyday lives since they easily and sometimes eagerly discussed and shared their experiences and attitudes. The audio recordings were listened to one more time as this paper was being written with special attention to the interactions in the groups in order to ensure capturing a sense of the whole in all FGIs with both consensus and contradictions within the analysis.

4. Results

The results of the FGI study are summarized and presented with selected quotations in order to bring user needs and aspirations to life. The quotations were chosen to highlight common and shared opinions but also to illustrate diverse views between individuals and groups such as age groups and gender groups.

4.1. Changes

Results from all three FGIs demonstrate that moving to more compact living is a critical event involving changes in housing that took time to understand. Aspects mentioned were changes in the living situation and the spirit of togetherness, and the fact that the move required a massive reduction of possessions and resulted in the need for another type of furniture and other interior products, such as lighting. Many of the participants expressed that the reduction of possessions was emotionally tough and time consuming. It took time to make decisions about what possessions to keep and what to do with the rest. According to some, buying new furniture is done gradually and not directly in connection with the move. An apt choice of words was, “It’s about meeting the demands of the new living; you have to pick and chose and buy things that will give comfort and pleasure in the future.” Several participants described wishful thinking about space before moving in and they were surprised that they would not have room for more of their furniture and household goods. One woman said, “I got a shock the first time I came to the apartment; there was no room for the grand piano.” It often was the case that belongings held memories, sentimental values and was part of the owner’s identity, which made it emotionally hard to dispose of them. As humans, we may connect and interact with some products that help us to communicate and construct who we are, or our commitments to deceased family members. Some participants said that they had a good cry when they got rid of certain possessions. An apt choice of words was, “Of course you want to keep and take care of your old possessions.” Books were mentioned in two of the FGIs as hard to separate from because they are a part of one’s identity. Owners were often anxious that certain possessions should be inherited by their children or in other ways stay in the family, or have a future life pleasing others somewhere else. The oldest participant, a 93 years old woman, said that, “I keep some possessions just because children, grandchildren or great-grandchildren may change their mind and gratefully receive them. You know they have other tastes, so to speak.”
Many participants appreciated the feeling of togetherness, care, helpfulness and safety that arose when people in the same life phase moved into the same building at the same time. One person who had fallen and broken her leg some years ago experienced that living in a supportive and accessible apartment made her feel that getting older did not seem so dangerous, “I think I am going to manage here in any case.” And the group agreed, “We feel good here, it is a place where we can grow old,” was a comment in another FGI. “In this building we read a lot and drink a lot of red wine,” was another comment.

4.2 New needs

Many participants experienced that it was hard and cramped moving to a small apartment from a single-family house or a larger apartment. They wished for more space, according to some because a home that is too cramped leads to domestic discomfort. One man reflected in this way, “No, I’m like many others who have moved here; we have brought more or less suitable furniture; it simply has to fit in.” On the contrary, some single women among the youngest of the participants had another perspective and expressed themselves like this, for example, “You cannot just bring your furniture. In fact, these new apartments require small and dainty furniture. You cannot have a big and impressive sofa here because no space will be left. I have disposed of some furniture just because the proportions of the living room were wrong.” Another woman stated, “I haven’t brought my dark furniture to this extraordinary, airy and elegant apartment. I want my new life to be the way it is nice here.”

Changes of attitudes among different generations were discussed in the interviews. The oldest participants thought that you should make use of things and not get rid of them. They wanted to keep pieces of furniture that had been handed down from parents to children even though they were not used in an instrumental way. Some considered themselves being raised in the “old tradition of gratitude and orderliness” where inheritance was important and related to responsibility and where property was fundamental. One person stated that, “Things we have had with us affect us. It differentiates our relation to things from that of our children and grandchildren.”

In Sweden, newly built apartments for seniors often have many windows (Fig. 1). Some of the windows have a low bottom window frame, not only to shed more daylight into the apartments but also to include more people, for example wheelchair users, in being able to enjoy the view. According to the participants in the FGIs, light and airy homes with daylight and a view gave a feeling of freedom and increased well-being. Several people experienced that the rooms in the newly built apartments invited one to decorate in a light and airy way, with modern and dainty furniture. But rooms with too many windows result in few continuous wall surfaces. This made it difficult and inflexible to rearrange furniture. Such apartments are also designed to give space for people with disabilities as well as their assistants in order to offer care in the home. The kitchen, bathrooms and bedrooms in particular meet such needs, often at the expense of a smaller living room. However, shared premises such as dining rooms and guest rooms seemed to compensate for smaller space in the apartments. Access to the shared rooms made extra furniture like chairs and beds unnecessary in the apartments. It seemed like the guest rooms also were appreciated by visitors that stayed overnight.
4.3. New wishes

For the individual it was difficult to speculate on future needs since they depend on one’s personal health. One participant who had been critically ill due to skeletal cancer and was periodically restricted to her wheelchair said that she did not have any plans for the future. She experienced life here and now, and enjoyed life more today. “As it should be for everybody,” the group stated. “One should not mourn; one has to live in the present,” was another comment. When there was a discussion of what was suitable for people restricted to a wheelchair one person stated, “That thought hasn’t crossed my mind, because I’m not in that situation.” Some participants thought that the fact that it was getting harder to distinguish and remember things was important to consider when buying new things. The increased importance of lighting and contrasts between dark and light colors was mentioned in several FGIs as aspects that compensated for changes in eyesight. Ergonomic requirements in the home with suitable heights and angles on chairs and tables were by a man considered to be similar as in offices. “But you do not want the feeling of an office at home,” he went on with a laugh. In one FGI, a woman wanted to see more adjustable tables and chairs in domestic furniture shops. Differences in body sizes and body movements were discussed in the FGIs and the resulting complexity of trying to satisfy all people. Products should be smart, easy to use and not too “technical”, according to one woman. One person commented, “You do not become more flexible with age.” A participant in another FGI banged her fist in the table and said, “Either the furniture or I have to be flexible.” The oldest participant, a woman, stated that, “We have conformed to what we are used to and do not have great expectations for furniture.”
One question concerned what added value meant to the participants. Answers were characterized by including both aspects of usability and product experiences. An apt choice of words was, “Added value for me is that a product complies with its basic values and that it gives something in addition to that. What it gives can be of various kinds. It can give extra pleasure, an extra aesthetic experience or some kind of extra kick.”

4.4. Ideas for improvement

Differences in expectations of sitting comfort were discussed, from high comfort in cars to modest in the home. Comfortable, practical and durable furniture and other interior products that are easy to clean and maintain were valued and needed. Examples of issues raised were: ideas about indoor rollators that could facilitate mobility in the home and transport things; computer cupboards integrated in the interior; stools making it easier to work in the kitchen for a longer time; possibilities to raise the head of the bed; climbing stools that make it safe and easy to reach higher; dust safe built-in storage; sitting furniture for the hall; and various supports that relived pressure from heavy books, laptops or newspapers. What was vital for all the suggested ideas was that they should provide domestic comfort and not be bulky or cumbersome. An example of a smart, space saving and effective piece of furniture suitable for small apartments mentioned in one of the FGIs was a low climbing stool with wheels that lock when you stand on it, and that was an integrated part of the kitchen interior. All participants agreed. However, according to one participant, one should not climb due to the risk of falling. Participants experienced that it was difficult to find time to look for and find furniture in shops.

A comment that all participants in one FGI agreed on was, “I regret that in my prior life I bought so many big, broad, soft easy chairs. You don’t sit so well in them anymore. The things you like change. We may reflect about furniture that suites us for our entire lives, but I’m not so sure. I regret, for example, that I never considered and put enough money into better dining room furniture; comfortable chairs with proper armrests that you can sit in and eat for a long time. If I had bought comfortable chairs when I was newly married, I would be very happy to still have them today. This never-ending buying just because you don’t reflect on the fact that you should have the pieces of furniture in more than one way.”

In a discussion of comfortable furniture and a comment on the fact that people nowadays spend a lot of time sitting, there was a contradictory opinion of the importance of physical activity and the need to motivate mobility: “I put things I often use high on shelves expressly to do that motion; I do that as physical training.” The comment was followed by laughter and support from the majority of the group. Adjustable easy chairs that allow changing your sitting positions were considered to be good.

5. Discussion

The results indicate that an FGI study makes it possible to gain an understanding of how people in the third age think and reflect when they have recently moved and are living in a smaller space. It offers companies the opportunity to gain deeper insights into the content of an extended life phase and the consequences this has for needs and aspirations. The results from the FGI study can help to achieve a better understanding of the target users’ demands, leading to a better picture and understanding of the Swedish senior market for the furniture industry.
5.1. New knowledge about people in the third age

The outcomes of the focus group interviews offer deep insights that can provide a better understanding of the content of an extended life phase and its consequences for needs and aspirations. This can give new knowledge for the development of successful products from the realistic viewpoint of users, which is important for meeting the demographic changes and the demands of tomorrow’s old population and. Accessibility to facilities and information of where to go when individuals in this life phase want to buy something special are vital aspects for attracting people to and developing marketplaces for seniors. Major aspirations of the FGI participants were to live in and take care of their homes as long as possible in order to remain independent and to improve quality of life. The results show that the home is very important and has a great impact on people’s well-being. Living in a supportive and accessible environment gives a feeling of independence, self-determination and security that many people in the third age seems to strive for.

5.2. New knowledge about housing and furniture

That the participants had chosen to move to housing especially developed for seniors indicated their insight that the design of the environment can encourage successful adaption to changes that age may bring. The participants expressed the importance of the design starting from user’s physical and cognitive assets, skills, limitations and needs for rest and mobility. However, to be used with dignity and be desirable for seniors, a piece of furniture has to be attractive and pleasurable. Affective and social aspects have to be considered in a sensibly well-balanced way in the decision-making in the design process. To be desirable on the senior market, a piece of furniture has to reflect the user’s identity, create a homelike feeling and not be perceived as a typical assistive product or a product obviously for elderly people, residential care or offices.

The results of the FGI study indicate that the needs for buying new pieces of furniture or other interior products often are triggered by the exchange of existing possessions for something more appropriate, functional and pleasurable. To meet these needs and aspirations it is of vital importance that the designer has knowledge about and considers both the values of the existing possessions and the demand that they do not fulfill. Schifferstein & Zwartkruis-Pelgrim (2008), state that enjoyment may be the main driver of attachment to new products, whereas memories may be more important for old products. Objects people have owned for a long time may evoke many memories, and are likely to accumulate even more memories over time. Retro or vintage products may also have the potential to evoke memories and therefore be perceived as attractive. Some of the participants who had bought new furniture for their new apartment had chosen a mixture of both old and contemporary pieces. The results from the FGI study indicate that a barrier to consumption may be that many owners, especially in older generations, are attached to their possessions and want to keep them even if they are not considered quite suitable in an instrumental way or from a usability point of view. Some participants also expressed that their neighbors behaved similarly and kept too many possessions. This was interpreted as a factor contributing to their neighbors not enjoying living in the new setting. Results from the FGI study are in agreement with findings of Pynoos (2003) who states that, “Too often, older persons adapt their behaviors to their environments rather than change their settings to meet their needs.”

With the ambition to lengthen the life span of products and strengthen the bond between consumers and their products, Schifferstein & Zwartkruis-Pelgrim (2008) suggested that designers should create products that are both useful and enjoyable. One of their suggestions is that designers should design products that evoke enjoyment, or facilitate the formation of
associations between products and people, places or events (memories). Schifferstein & Zwartkruis-Pelgrim (2008) also point out that the strategy for increasing product enjoyment is likely to be most successful if it also supports the accumulation of memories. Their outcomes suggest that a strategy based on the accumulation of memories is the most promising for increasing attachment in the long-term. However, if the interaction with a product is so engaging that it stimulates product use, it also increases the opportunity for memorable events to occur. For instance, if sitting at your dining table at home is an enjoyable experience, it makes you feel safe. It may enable you to see a beautiful view and feel free. If in addition the table is easy to extend so that you can do it yourself, it makes you feel independent and you will be more likely to invite and meet family and friends, and so on.

From the results, it was not possible to identify an unambiguous ideal PLUS-product. It is of vital importance to have insight and respect for the fact that the individual variations among people in diverse phases of the aging process are as great as or greater than those between individuals in other phases of life. Each generation has developed different technological skills, knowledge and experiences. This makes it necessary to consider peoples’ life course to better understand the cultural changes that are occurring as younger generations gradually replace older ones in the population. The considerable age span of 34 years among the participants in the FGIs also shows that the target users of the PLUS-project, people in the third age, belong to different generations. Conditions for further work in the practice of design are a closer definition of the intended target group and channels to come onto the market according to each company’s category and vision.

There are principal differences between artifacts involved in housing environments. On the one hand, there are the general parts of the building environment (e.g., public spaces and housing environment), which in the best of worlds should be accessible and usable for all. On the other, there are all the small tools and articles for everyday use and amusement, and there are numerous artifacts in between. The principal differences may be a challenge in homes of old people who are in need of help, because the artifacts involved in such housing environments can be both personal belongings of the primary user and things to support secondary users, such as family members, home-help service or medical caregivers. The housing environment may also differ from an individual’s own home to residential care facility that to some extent consists of shared and more or less public spaces. In general, people in different life phases, benefit from different design solutions, and those in a certain life phase may in the context of different environments benefit from different design solutions. To find a single design solution accommodating all diverse requirements is sometimes possible, but not always. Such solutions often tend to be compromises and not very good for anyone (Paulsson, 2006). There are situations when the ideal design solutions for people in different life phases, or different environments, are contradictory. Furniture design for public spaces and the working environment are in a Universal Design context the art of designing “for all” environments, usable for “all people to the greatest extent possible” (Mace, Hardie & Place, 1991). Furniture design is also the art of designing individually adapted products for care, work, housing, etc.

5.3. Benefit for the system of product development

The outcomes of the FGI study can be of value in early phases of the design process because they can be used to facilitate designers’ structured attempts to design new or improved products. One of the aims of the FGI study was to discover user or consumer needs that were as yet unknown, undefined, and/or unanticipated. It is in the generative phase that designers may look for ideas and opportunities to meet unfulfilled user needs. Even though many of the
questions in the FGIs dealt with new needs, new wishes and ideas for improvement, they only elicited limited findings about them. According to van Kleef et al. (2004), FGIs are more appropriate for marketing purposes, as they reveal more abstract consumer needs and values that are too abstract and allow too many degrees of freedom for unambiguous translation into product design. However, the present paper emphasizes the importance of considering needs and values that are beyond usability. These may be regarded by some professions as abstract and hard to capture. Thus, the system of product development can benefit from a better articulation and clarification of needs and values beyond usability, in order to make them more explicit to support more sensible and well-balanced decision-making in the design process.

Despite the FGIs poor outcomes of ideas, a design practitioner can still interpret several needs and profit from the participants’ discussions, opinions and attitudes. The outcomes of the FGI study provided some qualitative open findings, which bring user needs and aspirations to life and are valuable for design practitioners. Opportunities to elicit more detailed and specific in-depth findings on unfulfilled needs are likely to be better in other user-centered design methods such as situated interviews or usability tests, FGIs with prototypes and other more participatory methods or in a combination of methods.

It seems, on the other hand, that FGIs have a bad reputation in the practice of design in some fields. Apple’s former leader Steve Jobs, for example, does not like the idea of asking people what they want and then trying to deliver on that. “It’s really hard to design products by focus groups,” he told Business Week in 1998. “A lot of times people don’t know what they really want until you show it to them.” However, products have life spans of different lengths and product changes take place at varying intervals in different product fields. Product changes are slower in the sphere of domestic furniture than in the software area, for instance. Different product fields embody different degrees of operational simplicity or complexity, as well as the potential for different kinds of satisfaction. Our aim in using FGIs was not to ask what the user wanted, which may be a dangerous approach, but to enrich the knowledge needed for genuinely understanding user needs and values. In the practice of design in the area of Aging and Design, it becomes especially important to expose designers to old people in order to recognize situations and expand their empathic horizon because they tend to have different experiences and expectations. It is an accepted fact that user-centered design methods can help us get closer to users and better understand their needs and aspirations.

There are different views on successful innovation strategies and how they are dependent on a company’s category and vision. Verganti (2008), for example, explains that analysis of what he calls “design-intensive manufacturers” shows that their innovation processes hardly start from a close observation of user needs and requirements. Rather, they follow a strategy called “design-driven innovation.” This strategy aims at radically changing the emotional and symbolic content of products (i.e., their meanings and languages) through a deep understanding of broader changes in society, culture, and technology. Rather than being pulled by user requirements, design-driven innovation is pushed by a firm’s vision about possible new product meanings and languages that can diffuse in society. Verganti (2008) also emphasizes the importance of networks, collaborative research and the interaction with interpreters to access, share, and internalize knowledge on product languages as well as to influence shifts in socio-cultural models.

To design improved PLUS-products, as well as products in general, results from user-centered studies have to be communicated to the system of product development. More preferably,
people in the design process, especially designers, should be closely involved in creation of knowledge, followed by hands-on design work. An improved dialogue between the key actors can be created by establishing face-to-face meetings between end-users and designers. Giving designers an active role in carrying out the pre-conditions and giving the end-users an active role to act and talk in the studies.

Design is concerned with how things ought to be, with devising artifacts to attain goals (Simon, 1969). With an ethical perspective, should design concern what we can do for our fellow human beings and improve quality of life, both individually and collectively. According to Papanek (1984) are designers able to cause real change in the world through good design, and they have responsibility over the choices they make in design processes. Involving users in the design process is not a guarantee in and of itself of finding relevant reasons for products to exist. But user-centered design methods carried out with a holistic perspective of humans may help to address the essential issues that people are faced with on a day-to-day basis. Designers with biases or an out-of-date image of the target group may not develop design solutions that influence and encourage rethinking and consideration of human. Design is too important to be left to designers. For designers, user-centered design methods may be a source of inspiration and an opportunity for innovation. Coming closer to the user increases the understanding and may uncover problems or issues that have not previously been addressed. For businesses, the approach may turn passive consumers into active participants and the resulting products may broaden the end user base, increase appeal and improve competitiveness. Involving old people in the design process can be an approach to develop products that are desirable for all users in different life phases or assistive products that connote the user’s lifestyle and personality.

The FGI study presented involved only a limited number of people with something in common and assumed similarities that were relevant to the study. It is worth noting that the age span among the participants turned out to be as wide as 34 years. The oldest participant could in fact be a grandparent to the youngest. However, this made it possible to analyze some general differences in experience, opinions and motivations for behavior among different generations. The FGI study explicitly focuses on the end-user perspective. In the design process, there are more views to consider and balance. Those who seek to use the results have to consider the study and decide the degree to which this might be applied to their situation.

An FGI study can be a way to elicit user knowledge and user experience to raise problems and address relevant and pressing issues in everyday life. The purpose is explorative in that it aims to identify all potentially relevant issues, not just the translation into product design (van Kleef, van Trijp & Luning, 2004). Since the FGIs were carried out in shared premises, no instrumental human-product interaction occurred with furniture or other interior products in the home environment. Without physical contact, it is hard to elicit in-depth findings about design-relevant end-user aspects on usability and product experience. Not unexpectedly, the results gave poor multisensory, in-depth findings on aesthetic experiences. Further studies could therefore benefit from being carried out with instrumental human-product interaction. In-depth design-relevant end-user findings may be about aspects that enhance quality of life by improving the user experience of everyday activities and interests in tangible ways such as, product attachment and building in delight factors. All objects in a room are part of and contribute to the user’s experience of the room. An exchange of one piece of furniture unconditionally affects the appreciation of the whole room gestalt. This explains why individual pieces of furniture cannot be isolated from that totality of a room’s form, which is one of the major reasons why furniture design is such a complex and sensitive activity. This
fact highlights the importance of understanding the user, considering peoples’ life course, cultural aspects and addressing emotional aspects such as domestic comfort and pleasure in the design of furniture and other interior products.

5.4. Forthcoming use in research

The results have been used as a starting point in a subsequent study with situated interviews in homes. The study uses an open thematic interview guide inspired by results from the present study and has covered themes such as comfort, pleasure, interaction and ideas of improvement of furniture and interiors. Further studies with users in their home focusing on issues of everyday life will probably provide valuable in-depth findings. This is due to the impact of the authentic environment, the opportunity for the researcher to observe human-product interaction and to raise and elicit situational issues. Such studies with instrumental human-product interaction, or other studies with existing products or prototypes in usability may present more specific findings on usability and product experiences, knowledge that would be of greatest value in the later parts of the design process.

5.5. User requirements for new PLUS-furniture

Products that were valued by the participants can briefly be described as usable, pleasurable, inspiring, make it easier to be with others, provide an aesthetic experience, an emotional relation and an opportunity for living in the home for a long time. General usability requirements elicited in the FGI study are, for example, properties that make furniture easier to clean (i.e., enable the user to reach under with a vacuum cleaner, are easy to move and not too big and bulky and/or movable with wheels that do not damage the floors). More lighting and contrasts between dark and light colors are also needed when you get older. Built-in solutions such as space efficient wardrobes, stools in the kitchen and computer cupboards were appreciated. This was also the case with easy chairs and chairs that were stable and safe, not too low or too soft, with easy ingress and egress allowing you to rest your legs and change sitting position. Furniture should be easily accessible and suitable for many diverse users. Beds should allow raising and lowering of each end separately. Material properties were discussed in the sense of taking care of furniture and possibilities to wipe off with a wet rag. Dark surfaces were, for example, considered to require more cleaning because dampness and dust were more visible. Wood was mentioned as a preferred material. The needs and aspirations for physical activity highlight a complexity in usability aspects and the importance of motivating mobility.

Focusing on the participants’ positive comments on product qualities, a series of user requirements were formulated for future PLUS-products (Table 3). The framework of product experiences introduced by Desmet & Hekkert (2007) and a concept of usability were used to sort and present the findings in a series of user requirements for future PLUS-products. The intention in using the categories of the framework of product experience in describing user requirements was to articulate and clarify the values of product experiences and make them more explicit in order to support more sensible and well-balanced decisions making in the design process. Desmet & Hekkert (2007) mean that even though these three components of an experience can be clearly conceptually separately, they are very much intertwined and often difficult to distinguish in our everyday experience. Requirements presented in a holistic framework may help to recognize the values as experienced by users and give support to the decision-making in the product development process in designing new products for the intended target market.
Table 3. User requirements for PLUS-products elicited in the FGIs and presented in four categories: usability and three levels of product experiences, based on the framework of Desmet & Hekkert (2007).

<table>
<thead>
<tr>
<th>Concept of usability</th>
<th>Affective product experience involved in human product experience</th>
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<tbody>
<tr>
<td></td>
<td>Usability aspects</td>
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<td></td>
<td>Space saving</td>
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<td></td>
<td>Flexible</td>
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<td></td>
<td>Easy to use</td>
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<td></td>
<td>Easy to clean</td>
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<td></td>
<td>Easy to move</td>
</tr>
<tr>
<td></td>
<td>Offer easy reach</td>
</tr>
<tr>
<td></td>
<td>Usable over time</td>
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<tr>
<td></td>
<td>Stable and safe</td>
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<tr>
<td></td>
<td>Prevent falls</td>
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<tr>
<td></td>
<td>Healthy</td>
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<tr>
<td></td>
<td>Sustainable</td>
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<tr>
<td></td>
<td>Efficient</td>
</tr>
<tr>
<td></td>
<td>Usable in more than one way</td>
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<tr>
<td></td>
<td>No sharp edges</td>
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</table>

Jordan (2000) also points out the need of understanding people holistically, from how they use products to the role products play in their lives. His utilization of the four different types of pleasure presented by Tiger (1992) in the concept Pleasurable Design and that people may seek in products, can also be a feasible way to categorize different types of user benefit: physio-pleasure; psycho-pleasure; socio-pleasure; and ideo-pleasure.

5. Conclusions

An approach to furniture design beyond usability is needed to develop successful products from the viewpoint of users, since user benefit from more than general, must-be-met, aspects of functionality and the mechanical operations of products. The importance of considering the diversity of old peoples increases in the design of products that benefit users with emotional aspects, identity and meaning. Showing consideration for people and the environment, with a careful approach to life styles and values can ensure the furniture companies future competitiveness with products that have a higher economical value, are harder to copy and are desirable to users.

The present study made evident that it is important to apply a sensible and well-balanced approach to product design. Messages that furniture communicates should be planned with care and emphasis in order to make them relevant to most people, in diverse phases of life and not be stigmatizing to those who need them. In addition, a dialogue between user experiences and usability aspects is needed in the development of successful products from the viewpoint of users. Consequently, designers should create furniture that supports the physical, psychological and social changes that aging may bring and meet changes in society to better correspond to diverse users in the third age who strive for an identity as an independent and self-determinant individual.

Results from focus group interviews, such as in the present study, may be most beneficial for concept generation in early phases of the design process. Designers may benefit from being closely involved into the creation of end-user insights to ensure that the findings obtained are well tailored to the specific needs of designers; otherwise, there may be a risk that vital in-depth findings are filtered out in the treatment of data.
Acknowledgement

The PLUS-project is supported by VINNOVA (The Swedish Governmental Agency for Innovation Systems). Acknowledgments are also given to the participants and Seniorgården that supported us in identifying and inviting people to the FGIs.

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References


Wishes for Furniture Design among Persons in the Third Age
Interviews with Users in their Homes

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Abstract: Designers’ work sometimes originates from a simplified view of human demands and needs, which may result in furniture that does not fulfill the user requirements. If we consider old people as one group with fairly similar needs and demands rather than have realistic images of old people as a heterogeneous group there is a tendency that it will result in misguided efforts to design for wellbeing.

The aim of the present study was to get understanding and insight in modern ageing and individual needs, wishes and aspirations for interiors and furniture, by thematic interviews of users in their homes. Eighteen persons aged 53-82 took part in the study. A thematic interview guide was used, covering themes such as comfort, pleasure, interaction and ideas of improvement of furniture and interior design. The results demonstrate that products perceived as comfortable, flexible and pleasurable leads to attachment and emotional experiences as dignity, meaningfulness and freedom. It is also the case that different kinds of relations to furniture and interior design are valued and prioritized differently depending on the situation and the individual’s preferences.

Key words: Furniture design, Interior design, Experience, Emotion, Ageing population

1. Introduction

Sweden and other industrial countries stand in front of a demographic development that results in the fact that the group of old people, within the next decades, is becoming larger both in relation to the present size of the group and to other age groups. From 2020 there will be substantial increases in the number of old, especially among those over 85 years [1]. An international comparison shows that the pattern is the same in most Western countries. Many citizens go into the so called “third age” at the same time as the lifespan is expected to increase. The “third age” is an ageless and provisional concept articulated by Peter Laslett [2] in order to capture new lifestyles among old people. The “third age” refers to the period when people fully or partially leave the job market, career and the most demanding family obligations, but still live a life of relative independence of others’ help and support. People in the “third age” constitute a growing market segment, and the characteristics of this market are changing. It is also the case that both purchasing power and consumption increase in connection with retirement [3]. A lot of persons in the “third age” feel the definition of old age needs to be expanded, not least of all because their experiences are an underestimated source for innovations. If we consider old people as one group and do not consider the fact that younger generations is continuously replacing older there is a tendency that it will result in misguided efforts to capture this new market. It is also the case that persons in the “third age”
find it difficult to find furniture that meets their present and future needs. To meet this growing market the project *Development of the Swedish Wood and Furniture Industry for Consumer Oriented and Competitive PLUS-products* [4] started. This study has been carried out within that project which is further on in this paper referred to as the PLUS-project. PLUS-products are a conceptual category of products attracting a wide range of different users and are functioning during an as long period of life as possible. Until now, the Swedish furniture industry has met customers from the public and private sector that bought furniture to different kinds of care housing. However their contact with today’s old age end-users seems to be very limited. By involving persons that choose, pay and use their furniture themselves, it is the PLUS-project intention to create knowledge that is valid in a wide range of different circumstances. There is a gap between furniture designed for the care sector and mainstream furniture designed for the consumer market, where the user often is seen as healthy and well functioning. The gap are depending on the structure of the business and leads to too much focus on activities and usability in the care sector and too much focus on the surface, aesthetics and current trends and lifestyles in the home sector. There is a need to meet people in their homes with a perspective that they are experts on their personal everyday life.

Current research shows that the home is very important and has a great impact on the basis of different dimensions like self-determination, independence, safety, meaningfulness and freedom [5]. Findings also indicate that the home has a central place in the lives of very old people because this is where they live and spend so much time [6]. It is important to be conscious about patterns concerning how old people moves between homes change over time, not only between some persons in a “third age” that get into a “fourth age”, which are characterized of dependency and decrepitude, but probably also between different generations of old people [7]. The aim of the present study was to get understanding and insight in needs, wishes and aspirations of persons in the “third age” concerning furniture and interior design. The results of the study were to be used in design of new or improved PLUS-products.

2. Method
The perspective of the study was that users are experts of their everyday lives and that their experience and knowledge are needed as a resource for design of PLUS-products. The ambition was to gain enriched knowledge about product experiences by meeting persons in their own homes, listen to their lived experiences, get an insight in their view and understand how they use furniture and interior design. As the author is a furniture maker and a furniture designer, his pre-understanding influenced the direction of the dialogue with the participants and also which results that was selected for presentation in this article. The advantage of situated interviews is that it gives a close connection to how people use and are affected by the environment. A situated interview was expected to give a deeper understanding of people’s emotions, thoughts and wishes of furniture and interior design, than a written enquiry.

2.1. Participants
Table 1 presents selected socio-demographic characteristics of the 18 study participants. Six persons were living singly and were interviewed individually. Twelve were couples living together and were interviewed in pairs. Eight persons belonged to and the others were on their way into the “third age”. The interviews were done in
Lund and Stockholm. Eight of the participants had recently moved from single-family houses to apartments specially developed to fit the needs of seniors by a Swedish company. They develop apartments for people over 55 years with their business idea to offer living in beautiful and functional homes as long as oneself wishes (Fig. 1). All the persons were well educated and had a good financial situation. The majority of the participants had recently participated in a survey or a focus group interview and shown interest in continuing to participate. The ambition with the recruitment was to get reflecting and interested persons.

<table>
<thead>
<tr>
<th>Variable</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender and age</td>
<td></td>
</tr>
<tr>
<td>Female aged 55, 56, 58, 60, 64, 67, 69, 70, 71 and 79</td>
<td>10 (56 %)</td>
</tr>
<tr>
<td>Male aged 53, 59, 63, 66, 69, 75, 79 and 82</td>
<td>8 (44 %)</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
</tr>
<tr>
<td>Working</td>
<td>8 (44 %)</td>
</tr>
<tr>
<td>Retired</td>
<td>8 (44 %)</td>
</tr>
<tr>
<td>Work part-time and partial pension</td>
<td>2 (11 %)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Married/common law</td>
<td>14 (78 %)</td>
</tr>
<tr>
<td>Widowed</td>
<td>3 (17 %)</td>
</tr>
<tr>
<td>Single</td>
<td>1 (6 %)</td>
</tr>
<tr>
<td>Place of birth</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>17 (94 %)</td>
</tr>
<tr>
<td>Iraq</td>
<td>1 (6 %)</td>
</tr>
<tr>
<td>Level of education</td>
<td></td>
</tr>
<tr>
<td>Some/completed secondary school</td>
<td>6 (33 %)</td>
</tr>
<tr>
<td>Post-secondary or higher</td>
<td>12 (67 %)</td>
</tr>
<tr>
<td>Type of housing</td>
<td></td>
</tr>
<tr>
<td>Apartment</td>
<td>7 (39 %)</td>
</tr>
<tr>
<td>Apartment specially developed to fit the needs of seniors</td>
<td>7 (39 %)</td>
</tr>
<tr>
<td>Single family house</td>
<td>4 (22 %)</td>
</tr>
<tr>
<td>Also has a country cottage</td>
<td>6 (33 %)</td>
</tr>
<tr>
<td>Self reported financial situation (Range 1-7*)</td>
<td></td>
</tr>
<tr>
<td>Very good (Score 1)</td>
<td>12 (67 %)</td>
</tr>
<tr>
<td>Good (Score 2)</td>
<td>2 (11 %)</td>
</tr>
<tr>
<td>Rather good (Score 3)</td>
<td>4 (22 %)</td>
</tr>
<tr>
<td>Self reported health problems that has effect on interaction with furniture</td>
<td>8 (44 %)</td>
</tr>
</tbody>
</table>

*Lower score means better self reported financial situation
2.2. Interviews

In the situated interviews an open, thematic interview guide was used, covering themes such as comfort, pleasure, interaction and ideas of improvement of furniture and interiors. The interviews were audio recorded. The interview procedure started sitting in an appropriate place chosen by the participants. In this first part of the interview the participants were informed about the research project, the specific study and that the attention was on everyday situations. Some opening questions were asked:

1. Which room means most to you?
2. What are you specifically pleased about in your home?
3. Where do you prefer to sit in your home?
4. Do you experience any problem with furniture and interiors?
5. Do you have any wish for improved furniture and interior?

The interview continued with a go-along method c.f. [8]. According to how the persons answered two-three places in the home were selected that were considered central to look closer into and questions from an open thematic interview guide (Table 2) were asked in each of the chosen places. Consecutive questions that were asked were e.g: in what way, how do you mean, why don’t you use certain things, what feelings do you want to give expressions for with this place. The interview guide was designed with the intention to elicit needs of usability aspects as well as product experiences. Photos of the interior were taken during the go-along. The go-along part was followed by sitting down again and the persons were asked two questions: (1) Which qualities would mean added value to furniture and interior design? (2) What kind of furniture would you buy if you got a check on 25 000 SEK (appr. 3 375 $)? Ten photos of different easy chairs from companies cooperating in the PLUS-project were also shown and the persons were asked if they could consider having that particular furniture
in their home. Finally some questions were asked to get information about the participants. The interviews lasted between one to two hours. After the interview a sketch of the house plan was made by the researcher.

Table 2. Themes and questions for the go-along part of the interview.

<table>
<thead>
<tr>
<th>Themes</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfort and pleasure</td>
<td>Can you describe a <strong>good day</strong> in this room?</td>
</tr>
<tr>
<td></td>
<td>Can you describe a <strong>bad day</strong> in this room?</td>
</tr>
<tr>
<td></td>
<td>What do you <strong>feel</strong> in this room?</td>
</tr>
<tr>
<td>Interaction with furniture</td>
<td>How do you use furniture and home furnishings in this room?</td>
</tr>
<tr>
<td></td>
<td>How does it come that the room is <strong>furnished</strong> in this way?</td>
</tr>
<tr>
<td></td>
<td>Do you consider that some piece of furniture in this room has <strong>particularly positive qualities</strong>?</td>
</tr>
<tr>
<td></td>
<td>Do you consider that some piece of furniture in this room has <strong>particularly negative properties</strong>?</td>
</tr>
<tr>
<td></td>
<td>Do you experience any usability problems?</td>
</tr>
<tr>
<td>Ideas of improvements</td>
<td>How should the perfect interior in this room look like?</td>
</tr>
<tr>
<td></td>
<td>Do you have any ideas of <strong>improvements</strong> of furniture and interior design in this room?</td>
</tr>
<tr>
<td></td>
<td>Is there anything you <strong>want to do</strong> in this room that you can’t do today?</td>
</tr>
</tbody>
</table>

In order to concentrate on the dialogue, no field notes were taken during the interview. The audio-recorded data were captured by means of a tape based approach [9]. This is slightly less time-consuming than a transcript-based strategy. The tape based approach relies on listening to a tape recording of each interview and then developing an abridged transcript of the relevant and useful portions of the interview. It is a condensed version of the interview with irrelevant conversation removed. Only a member of the research team with a thorough understanding of the purpose of the study can develop an abridged transcript [9].

3. Results
Not unexpectedly, the group of participants was very heterogeneous. Humans have dissimilar demands, experiences, preferences, dimensions and capabilities. Also houses have a variation of demands and shapes.

3.1. Result of the introductory interview
For the first part of the interview, the kitchen and the living room were chosen as the most appropriate place followed by the dining room. This was in agreement with the fact that the kitchen and the living room were regarded as the rooms that meant most to the persons, followed by the bedroom. When the participants was asked what he/she was especially pleased about in the home, two major aspects dominated: (1) Space and daylight and (2) Outdoor contact and view, each aspect commented on by more than half of the interviews. Other frequent aspects were: central location of housing, charm of the house and the fact others cold not look in from the outside. Almost all answers about perceived pleasure in the home had to do with feelings of freedom and not being confined into one's home. In half of the interviews, the living room was regarded the most preferred place for
sitting, followed by the kitchen and the veranda. The reason for preferring these places were watching television, reading and eating. Other reasons mentioned were comfortable sitting, nearness to a table and a lamp, the daylight and the view from a window.

The questions about problems with and wishes for furniture and interior design lead to answers related to usability and affective experiences. Several participants thought that light and airy rooms with comfortable furniture are more important when you get older. Examples of answers were: "I would like to see the air right through the easy-chair, then everything feels nice and airy"; "As a matter of fact, new-built houses demand small and dainty furniture" and "You need handy and flexible things in a new-built apartment when you don't have so much space". One person mentioned that she did not feel as old as the security function of the oven indicated when it turned off the heat non-intendedly. Some persons suffered from a mix of styles in their home and ugly things like the TV set. Others missed outdoor contact or a balcony. Some felt that visual balance in the rooms is worth striving for. Wishes were expressed for tasteful details like handles and built-in solutions that make rooms look more open, spacious and practical. "We gladly pay for what gives us pleasure, we do not only buy something" thought the youngest interviewed couple, also pointing out that they were interested in design furniture. Among the oldest participants there were persons saying that they were careful with their money. Some persons would rather use money for aiding the third world than for private furniture.

3.2. Go-along part of the interview

This part included questions about what makes a good and a bad day in the home. Aspects like outdoor view and contact, daylight, breathing-space, being together with others, memories and having things to do were all experienced as positive and improving wellbeing. Among aspects that caused bad days were poor health, bad weather, boredom, feelings of being confined and malfunctioning things.

From the participants' comments during the go-along, we can draw a picture of modern ageing in Sweden. The interviews gave a picture of individuals with a strong desire to avoid losing their independence and a fear of being forced to move to a nursing home. Many persons said that they tried to avoid this by keeping healthy in all possible ways. Most of the participants seemed to be active persons. An apt choice of words was: "I am active and cannot sit still - I want to come up with a variety of things". A couple in their 80's (Fig 2) thought that they were occupied all the time:"You should know that we are out sailing in the summer and travel a lot. Major parts of our life take place outside our apartment". Participants had aspirations that their homes should express feelings of peace and quiet but also provide inspiration and motivation for coming up with a diversity of things. Several of the wishes for changes of the home interior had to do with improved possibilities for being together with others, like more space in general or improved furniture qualities such as dinner tables with easy extension. All participants had computers, internet access and a permanent, and in some cases impressive place for the computer (Fig. 3) and they appreciated the internet, which is supported by the fact that the retired Swedish population are in top in international studies of internet use and that 80 % of persons aged 45-65 uses internet in Sweden compared to 68 % in the US [10].
Figure 2. The photo shows a living-room of a couple who felt that they had succeeded in getting rid of things. This area was also used for morning gymnastics. The fireplace without smoke or smell was appreciated by the couple and gave warmth, coziness and memories.

Figure 3. Examples of computer places in homes of persons in the “third age”. A. One of the wardrobes in the hall was used for home office supplies, B. The computer placed in a separate room that also was used as a guestroom and C. The work station placed on a computer furniture in a bedroom.

Many participants expressed that the interior should be suitable, comfortable and pleasurable for them here and now in a practical way. The experiences of getting rid of things, some of them old and inherited seem to give an
overall experience that makes quality more and current design trends less important, and some of the persons’ wished that also the next generation should be delighted by their furniture. Furniture with history and charm was appreciated by the participants, as well as furniture associated with memories of the past. One person said: “The connection with an object is nice as long as you can keep it, it gives meaning. You are not just thrown into life without roots - interiors and furniture can help representing a link to the past.”

When it comes to physical relations to furniture, the participants mentioned needs for breathing materials that could transport moisture and help keeping one's thermal comfort. The author also observed and several persons showed that they used cushions on their chair seats to make them more comfortable and not that cold and hard, a need that increases with age, according to the participants.

In the interviews a perfect interior in general was described as more coherent, modern, comfortable as well as lighter and airier. Stereotypical and conventional furniture was considered as boring while, on the other hand, funny form and small details could bring joy to users. Several persons thought that cords of telephones, computers and lights caused a lot of problems. Wishes were expressed for a secluded corner for the workplace as well as needs for adjustable and mobile light next to or integrated in the easy-chair. Some persons needed space for physical exercises or for home video games in front of the TV. One person commented that "It is important to keep one's things in order when you get older - everything must have its place when living in a small apartment". To facilitate activities in the kitchen, wishes were expressed for a smart and mobile stool for easier work in a semi-sitting posture, but also a kitchen sofa that makes it possible to rest and listen to the radio while cooking a meal. Almost all persons were in need of a chair or stool in the hall for sitting on when putting on one's shoes. Because of lack of space in the hall, some of the participants solved this problem by a wall-mounted folding chair.

### 3.3. Concluding questions

The last part of the interview started with questions about the participant's ideas of added values to furniture and interior design. The answers show a mix of usability and product experiences elicited by different kinds of interactions; instrumental, non-instrumental and non-physical [11]. For example such as: "An added value might be that a piece of furniture is comfortable and has functions and a shape that are nice and satisfying". Answers demonstrated that it is not enough with one improved quality - a combination of positive values co-act and reinforce each other. Many participants valued pieces of furniture with narratives, old as well as new, that gives a feeling, a relation and charm. Also different aspects of sustainability were highly valued: timeless appearance, functionality and beauty over time, non-breakable quality, adaptable and with possibilities for cleaning, maintenance, change and reuse.

The participant was further asked what furniture he/she would buy if he/she got a check of 25 000 SEK (appr. 3 335 USD). A fictitious furniture check was used in the interview. This question resulted in a great variety of furniture. Couches were mentioned in four interviews, followed by easy-chairs, beds and chairs. Other examples of furniture were different kinds of tables, kitchen table light, a rug and outdoor chairs. To bring the interview to a close, ten pictures of different furniture, from the PLUS-project companies, were shown to the participant (Fig.
4). The participants were asked if they could consider having that particular easy chair in their home. To get more specific data the answers were followed up with consecutive questions. The pictures and the questions were used to elicit reflections of the furniture in relation to their home. The most preferred easy chair was favored by six out of the eighteen persons. Examples of positive associations elicited by the most preferred easy chair were that it looked beautiful, lovely, not too modern, safe, comfortable and inviting. It had rounded, soft and nice armrest and a high back that looked suitable. Examples of negative associations with this easy chair were; didn’t suit the interior, too conventional, space demanding as well as big and bulky.

Figure 4. Photos of easy chairs that were showed during the interview. The numbers refer to how many of the eighteen participants preferred that particularly easy chair in their home.

Some participants regarded that some pieces of furniture gave associations to an office, an institution or a nursing home and that they were not considered to suit a private home. Further negative aspects of furniture, mentioned by several persons were visual proportions between design elements and that some chairs looked difficult to get up from.

4. Discussion
The results show a variety of different needs, wishes and aspirations not only for usability aspects but also for product experiences in three components or levels: aesthetic experience, experience of meaning and emotional experience [11]. Common usability aspects that were needed and valued were comfortable, ergonomically, practical and sustainable furniture and interior designs that are easy and convenient to handle, move, clean and maintain. A comfortable home means a series of different things, comfort includes various factors such as efficiency, ease of use, recreation, wellbeing and intimacy and the participants used such aspects to describe both usability and experiences of the home. General positive aesthetic experiences expressed by the respondents are dainty, light and airy furniture and interior design that has visual balance and makes the rooms seems more
spacious. Warm, soft and rounded are some tactile experiences commented as positive. Interaction with furniture and interior designs that elicit positive experience of meaning can in general be characterized as reflecting the user’s identity, creating a homelike feeling, and not being seen as typical for elderly or disabled. The results show that general emotional experiences worth striving for are attachment, inspiration and motivation, feelings of freedom, dignity, independence and spirits of togetherness.

When it come to user requirements on furniture and interior design it seems like all three kinds of interaction; instrumental, non-instrumental and non-physical [11], can be the most vital for eliciting desirable product experiences depending on circumstances and individuals. Therefore it is necessary to be conscious about the heterogeneity among the persons in the “third age” and the increasing complexity and variability among needs, wishes and aspirations. The results indicate that many of the persons in the “third age” do not identify themselves with elderly and they feel the definition of old age needs to be expanded. Knowledge about them and their experiences seems to be an underestimated source for innovations. A basic condition for a design work is a description of the intended target group. It is also vital to know what the products compete with. It might be things in other categories or services. The results show examples of that it can be journeys and tourism, products for health and wellbeing that manage to retain one’s independence or charity like giving aid and distributing money to the poor. It also seems common that persons in the “third age” have several houses that they maintain into their later years.

Consideration has to be taken to the fact that the presented results are based on the experiences by eighteen persons that voluntarily participated in the study and welcomed a researcher in their home. The participants’ were chosen to represent the intended target group of the PLUS-project. The researcher also has a certain pre-understanding of furniture design. It is difficult to say how much the participant’s answers and comments were influenced by current fashions and trends. However, the context and proximity to everyday situations and living persons in homes made the researcher gain enriched knowledge and an insight in needs, wishes and aspirations among Swedish persons in the “third age”. Focusing on the participants positive comments on qualities, a series of user requirements could be formulated for future PLUS-furniture and PLUS-interior design (Table 2).

Table 2. User requirements for PLUS-furniture and PLUS-interior design.

<table>
<thead>
<tr>
<th>Usability aspects</th>
<th>Aesthetic experiences</th>
<th>Experience of meaning</th>
<th>Emotional experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfortable</td>
<td>Dainty</td>
<td>Charming</td>
<td>Gives feeling and relation</td>
</tr>
<tr>
<td>Space saving</td>
<td>Light and airy</td>
<td>Unconventional</td>
<td>Intimacy</td>
</tr>
<tr>
<td>Flexible</td>
<td>Open</td>
<td>Suit the interior</td>
<td>Spirit of togetherness</td>
</tr>
<tr>
<td>Practical</td>
<td>Makes rooms more</td>
<td>Reflect users personality</td>
<td>Pleasurable</td>
</tr>
<tr>
<td>Reachable</td>
<td>spacious</td>
<td>Tells a history</td>
<td>Inspiring</td>
</tr>
<tr>
<td>Functioning over time</td>
<td>Coherent</td>
<td>Fun</td>
<td>Motivating</td>
</tr>
<tr>
<td>Easy to use</td>
<td>Beautiful over time</td>
<td>Peace and quiet</td>
<td>Connection with the past</td>
</tr>
<tr>
<td>Safe</td>
<td>Harmonious</td>
<td>Modern</td>
<td>Inviting</td>
</tr>
<tr>
<td>Healthy</td>
<td>Soft</td>
<td>Timeless appearance</td>
<td>Dignity</td>
</tr>
<tr>
<td>Sustainable</td>
<td></td>
<td></td>
<td>Meaningfulness</td>
</tr>
</tbody>
</table>
5. Conclusions

Results of the present study demonstrate that most of the old people want to stay in their home as long as possible, that the home is very important and that it has great impact on the basis of various personal dimensions: self-determination, independence, safety, meaningfulness and freedom. It is of vital importance to have insight and respect for the fact that the individual variation among individuals in different phases of the age process are as huge as in between individuals in other phases of the life.

This paper indicates that it is possible to get a better understanding of how product experiences can contribute to wellbeing, comfort and pleasure in homes. The used method with situated interviews in homes gave the participants a connection with time and place and elicited rich information and significant stories about everyday life. A study in an artificial laboratory environment would probably not elicit the same amount and validity of qualitative data. Pictures taken on interiors and pieces of furniture in their context contribute to give a deeper understanding and enriched empathy for the users. Results will hopefully lead to that the companies get clearer information of their target group. Results may also be of value for designers, because it can be used to facilitate their structured attempts to design for experience, that is, attempts to deliberately influence the experiential impact of new design. The study explicitly focuses on the end-user perspective. In the design process there are more views to consider and balance.

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7. References


