Building on Experiences

The Hospital Stakeholder Participation Method

Quiel Beekman, June 2008

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Quiel Beekman
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"The only source of knowledge is experience"

Albert Einstein

Abstract

Royal Haskoning BM (healthcare department at Hoofddorp) operates actively in the healthcare market, designing and consulting within care housing projects. Anticipating changes in the healthcare sector, Royal Haskoning foresees a strategic value that could profit the contractor by involving hospital stakeholders (employees, visitors and patients) in the early stage of the design phase of hospital building projects.

User participation in architecture has been implemented but to a limited extent. Compared to user participation in product design, the involvement has many shortcomings, e.g. the user group of patients and visitors has never been involved, the stakeholders were only involved in the evaluative end phase of the building design process and there was often a mismatch in communications between hospital stakeholders and architects.

In order to enable the design team (the architects) to benefit from the hospital stakeholder involvement, a common language must emerge which facilitates the design team to access stakeholder experiences and use these experiences for information and inspiration in the early phase of the hospital building design process. This common language should be a commonly shared design language that hospital stakeholders and the design team use to communicate verbally and visually.

The common design language is the foundation of the Hospital Stakeholder Participation Method and includes both conventional design research methods (observation and interviewing) in order to obtain observable and explicit stakeholder knowledge, and generative techniques (group session, sensitising and generative tools) in order to obtain tacit and latent knowledge. Implementation of this method in an early stage of the design process would expose fully the hospital stakeholders' experiences that contribute to an optimal hospital environment.

1 Project Introduction

In this chapter, the graduation project will be introduced (1.2) and a concise description given about Royal Haskoning. After that, in section 1.3, the report outline will be illustrated. First of all, the origin of this graduation project will be described (1.1).

1.1 The origin of this graduation project

In 2007, the CBZ[1] (The Netherlands Board for Healthcare Institutions) organized a competition in which architects were challenged to develop a vision about healthcare in a hypothetical city in the Netherlands in the year 2025. A multidisciplinary project team consisting of architects (EGM architects), project developers (Royal Haskoning), people from a medical background and a student of Industrial Design Engineering (TU Delft) was born. During this project the idea developed that architects were used to designing *for* users, but unlike product designers are not used to designing *with* users. This idea arose during several conversations between the student of Industrial Design Engineering and the architects. Soon the question was raised as to what extent it is possible to involve hospital stakeholders actively at an early stage of the designing phase of a hospital building. Is it possible to develop a method which facilitates this involvement? Eventually from these questions and a lot of curiosity, this graduation project grew.

1.2 The graduation project

The health care sector has recently been liberalized and, due to changes in health care legislation, market forces have been introduced to guarantee the long-term affordability of care. Care suppliers will be care entrepreneurs and patients will be customers. Patients can decide where and from whom to get treatment.
It is time for health care institutions to develop a business strategy, in which customers, employees and housing play a significant part. Liberalization will create opportunities for organizational changes, a higher innovation rate and increased access by commercial players and activities.

At this moment, designing from a stakeholder's perspective (user-centered design) is still an underexposed aspect of the building process. It is an integration of design and the applied social sciences (Sanders, 2000). Design firms began experimenting with the social sciences in de early 1980s. Social scientists were employed to identify the user and to translate their experiences into a language the designer could understand and use; the user-centered design process. The user is not really a part of the team, but is spoken for by the researcher (Sanders, 2002).
The involvement of hospital stakeholders[2] (the hospital building users; medical staff, patients, visitors and the general and technical services), in the design process (Participatory Design) will be a step further. The inclusion of all relevant stakeholders changes the nature of design activity from one of individual creativity to one of collective

[1] CBZ stands for: College Bouw en Zorginstellingen. The CBZ performs an essential role in the accommodation of intramural healthcare facilities. The Board's field of work includes hospitals, nursing and residential care homes, mental healthcare institutions, and institutions for care for the disabled. As an independent authority, it is one of the organizations tasked with implementation by the Ministry of Health, Welfare and Sport.
[2] Hospital stakeholders can be divided into two groups, those concerned with decision making and the actual building users, the latter will be addressed in this report. For further elaboration on the terminology see chapter 9 "Glossary"

creativity. It is a new design movement (post design) that will require new ways of thinking, feeling and working. Involving hospital stakeholders will improve the quality of the outcome; they represent a tremendous source of information and knowledge. (Granath, 2001)

Royal Haskoning operates actively on the health care market, designing and consulting within care-housing projects. Traditionally within these projects, communication was between a few key players from the care institutions.
Royal Haskoning foresees a strategic value that will profit the contractor by involving the health care institution's stakeholders (employees, visitors and patients) in new accommodation projects. Therefore, Royal Haskoning considered it interesting to find out whether a method could be developed, in which the ideas of end-users can be incorporated in the early phase of the design process that will contribute to an optimal working and living environment. This perspective should reveal surprising insights and led to new ways of thinking. In fact, it is a shift in attitude from designing *for* users, to one of designing *with* users (Sanders, 2002).

During this graduation project, a method has been developed in which hospital stakeholders actively participate in an early phase of the design process. Their insights and experiences will be incorporated into the building design.

1.3 Report outline

This report will describe the development of the Hospital Stakeholder Participation Method. The method consists of several steps as depicted in Figure 1. The chapters of this design report correspond directly with the steps in Figure 1. The boxes in the figure contain numbers in the lower right corners, which correspond with the chapters. The report consists of the following chapters:

Chapter 1: Project Introduction
Chapter 1 introduces the graduation project and illustrates the report outline.
Chapter 2: User Participation
This chapter elaborates on the current applied design research in architecture and product design and will give an introduction to the different levels of knowledge.
Chapter 3: Stakeholder Information
This chapter describes the kind of information needed to reveal stakeholder insights and describes where to get this information and from whom. The chapter also divides the hospital environment into five information spheres in order to address and access the stakeholder information.
Chapter 4: Research Methods
Chapter 4 brings the theory of the levels of knowledge in practice and describes the research methods that are most suitable to obtain the stakeholder information.
Chapter 5: Finding a Hospital
This chapter describes the struggle to find a hospital for the field research. In this chapter, "Het Westfriesgasthuis" will be introduced as being the case hospital.
Chapter 6: Involving the Stakeholders
This chapter describes the process of approaching hospital stakeholders. Approaching is defined as getting in contact with hospital stakeholders. The involvement of stakeholders, making them participants and interviewing them, will also be described in this chapter.
Chapter 7: The Learning History
This chapter consists of the data analysis of the field research in "Het Westfriesgasthuis". The data has been translated into a jointly told tale and from this tale, the explicit stakeholder knowledge has been exposed. Part of the Learning History is the

researcher/designer's translation of the explicit stakeholder knowledge into the implicit meaning.

Chapter 8: Subsequent Steps

The development of the hospital stakeholder participation method does not stop with this graduation project. The subsequent steps for completion of this method will be revealed in this chapter.

Chapter 9: Recommendations

The researcher/designer's findings and recommendations for subsequent research.

Chapter 10: Glossary

Contains a list of terms and their definitions.

Chapter 11: References

This chapter consists of published articles used as source material for this graduation report.

Figure 1. The building blocks of the Hospital Stakeholder Participation Method. The corresponding chapters are shown in the lower left corner and the obtained knowledge is depicted on the side of the building blocks

2 User Participation

Participatory Design is an approach to design, that attempts to actively involve the end users in the design process to help ensure that the product designed meets the needs and is usable. In participatory experiences, the roles of the designer and the researcher blur and the user becomes a critical component in the process (Sanders, 2002). In order to develop a suitable method, which involves hospital stakeholders, some literature research has been conducted to reveal current approaches. It has been stated that one of the current shortcomings in Participatory Design in architecture is that the stakeholders seldom get involved at an early stage of the designing phase of the project (Granath, 2001). To what extent has Participatory Design been implemented in architecture? What are the strengths and shortcomings of the currently applied methods? This chapter covers the user participation in architecture (2.1) and compares it with Participatory Design in product design (2.2). In section 2.3 the fields of design research will be mapped out and Participatory Design in architecture will be compared to Participatory Design in product design. In section 2.4 the research objectives will be given and finally this chapter will be concluded in section 2.5.

2.1 User participation in architecture

In this section, some examples of user participation in architecture will be described.

A Scandinavian approach

Experiences of user participation in architecture are mainly to be found in Scandinavian countries (Granath 2001). In the late sixties Professor Johannes Olivegren was one of the pioneers in the field of housing design. Although some examples of user participation can be found, the attitude towards user participation is ambiguous amongst architects. It is a widely held view that architecture is a private and not a collective activity. Besides that opinion some shortcomings of the participatory process are, that the building users are rarely involved in the project early enough to have a chance to influence the conceptual design phase. More often they may only suggest changes in details of a more or less fixed design. Therefore, the user input is often seen by architects as negative, affecting costs, causing delays etc.
However there are some supporters of user participation who say that, in order to obtain a much more effective design, new methods that can improve architecture need to be encouraged.

In public buildings such as hospitals, there are essentially three groups of users. The politicians, who represent people in society and may also be the owners and financiers. There are the managers and the employees who actually use the building in their everyday activities and thirdly, the patients and visitors. This last category of users, uses the building as part of a service provided within the building and is often excluded from the design process. It is understood that the actual users are not yet employed when the design takes place and those who will visit the building when it is finished is an ill-defined group (Granath 2001). Therefore, the participation almost invariably is a matter of formalised democracy involving politicians and managers.

There are signals of Participatory Design in Scandinavia, but the implementation has limitations, not all architects seem positive and end-users are often excluded.

Community Planning

In the United Kingdom (UK) Participatory Design in architecture, with local involvement in the planning and management of the environment, is called community design. The Community Architecture Movement, which started in the UK during mid-1970s, advocates the participation of communities in decisions affecting their built environment. It has already been seen in the past that heteronymous and paternalistic approaches of governments and professionals have failed to provide satisfactory solutions to the housing problem. Community Architecture on the other hand has shown, in many cases, that involving people in their own projects can yield several social and economic benefits that are not possible with a conventional approach (Moatasim, 2005).

Another term is Community Planning. The founder of Community Planning is John Thompson. In the 1980s he pioneered the introduction in the UK of Community Planning as a tool for engaging local people in the design of their own neighbourhoods and has subsequently been responsible for a series of seminal projects that have simultaneously delivered physical, social and economic change. There are many effective methods to involve people in physical planning and design; user groups, workshops group discussions etc. [3]
Community Planning has not yet been officially adopted in the Netherlands, but is sporadically used in some building projects[4]. A recent example is the involvement of the neighbourhood in a district at Zwolle[5]. The district is to be enlarged and the new buildings have to match the current houses. The neighbours were not only able to make suggestions about the streets, the parks and the architecture but also about the brickwork and the gardens.

Figure 2. A workshop Community Planning in Zwolle, the Netherlands. One hundred and thirty neighbours drew their future neighbourhood and discussed about it, supported by a professional design team.

3 www.communityplanning.net
4 www.kei-centrum.nl/communityplanning
5 www.prinsenpoort.nl

The STAGG tool

In 1997 the STAGG[6] (a foundation for architectural research buildings and health care), concluded that there was limited focus on the patient's vision concerning hospital buildings. STAGG decided to map patient perspectives concerning the development of building plans. This resulted in the development of a tool, which would be applied to reveal patient perspectives concerning inpatient department hospital stays, in order to improve the quality of the hospital building.

The tool is meant for all involved in constructing the hospital building, the board of directors, authorities, hospital employees, assurances, management consultancies and architects. The aim of the tool is to stimulate a discussion amongst all involved (Hoekstra, 2001). In practice this tool proved to be very useful, causing STAGG to develop a similar tool focussing on residential accommodation in health care.

An UK approach

Preliminary research in Participatory Design in a healthcare environment conducted with architects, healthcare planners and facility managers in the UK led to the following conclusions (Hignett, 2008):

- The architects felt that they had the expertise, while the clinicians were working on a building project for the first time.
- The architects and planners felt they lacked the "clinical knowledge to challenge clinicians".
- The design climate felt as though the architects were at the top of the food chain.
- Various stakeholders felt they were meddling in an area they knew absolutely nothing about.

It was felt that involving patients would just be providing them with a platform for the articulation of frustrations. This view was born of the feeling that patients by definition are less informed and less professional people. However some interviewees thought the patient role should be increased.

In conclusion

User participation has been implemented in architecture, but the opinion of architects about Participatory Design in architecture is ambiguous.
There are certain strengths and shortcomings in the currently applied methods.

Strengths:

- Community Planning is a form of end-user participation
- A tool has been developed by STAGG to experience patient perspectives

Shortcomings:

- Community Planning only focuses on the direct neighbourhood, not on (public) buildings
- The STAGG tool has limitations; it only focuses on inpatient department stays, not outpatient treatments and only from a patient's perspective. The tool focuses on the up-to-date knowledge and not on the unspoken wishes and needs.
- The third group of building users (patients and visitors) has never been involved
- Some architects believe architecture is a private and not a collective activity
- Participatory Design seems much more a result of higher democracy than a joint vision based on experiences of the actual users.
- Mismatches in research communication occur between clinicians and architects.

[6] STAGG stands for; Stichting Architectenonderzoek Gebouwen Gezondheidszorg

The implementation of user-centered design occurs in architecture, but only in an evaluating stage of the design process. The implementation of Participatory Design is very limited, only in Community Planning. Referring to the question that led to the graduation project, "to what extent is it possible to involve hospital stakeholders actively in an early stage of the designing phase of a hospital building", the answers cannot yet be given. The current methods are simply not adequate. The current approaches do not focus on the early designing phase and therefore a new method has to be developed.

In product design, methods are applied to involve users in the early stage of the design process. In the following section, one of these methods will be described.

2.2 Participatory Design in product design

Designers need information about the context[7] of personal interactions with products in order to design products that fit into the lives of the people who will use them (Sleeswijk Visser et al, 2005). Next to product form, function and usability, deeper levels of product experience such as emotions, values, needs and dreams (Stappers et al, 2007) have become ingredients which inform the designer.

The integration of design with the applied social sciences is relatively new. Design firms began experimenting with the social sciences in the early 1980s. The experiment was design driven, with social scientists being brought in to serve the design process (Sanders 2002). This approach is called user-centered design; it is the design process of designing *for* users.

Designing *with* users will be a step further, it is called Participatory Design. Participatory Design is the belief that all people have something to offer to the design process and that they can be both articulate and creative when given appropriate tools with which to express themselves (Sanders 2002). Participatory Design originated around 1999, the roles of the designer and the researcher blur and the user becomes a critical component of the process.

Traditionally, user participation has been applied in evaluative research: testing existing products or prototypes of developed concepts. When stakeholders are involved at such a late stage of the design process, they may only suggest changes in details of a more or less fixed design. Participatory Design focuses on the early phase of the design process. The early phase of the design process is characterized by the mix of research, analysis and idea generation. Imagery and spatial thinking play a large role in these activities (McKim, 1980). Generative tools are developed to enable people to express themselves when participating in Participatory Design, focussing on imagery and spatial thinking. By exploring user contexts, the design team would be informed and inspired in the early phases of the design process.

One of the methods used to inspire the design team is called Context mapping. It is a method to chart the user experience through Participatory Design studies, and communicating the insights with and to design teams (Stappers, 2007). Context mapping is a Participatory Design method tightly coupled to the faculty of Industrial Design

[7]Context refers to all factors that influence the experience of product use (Sleeswijk Visser et al, 2005).

Engineering at the University of Technology Delft. Participatory Design is a time-intensive process. The process will be explained based on Figure 3.
Figure 3 depicts the process, that starts with the preparation and setting up the goals of the design project. The process proceeds with gathering information from users, which is then structured, shared with the design team, and deployed in idea generation and conceptualization.

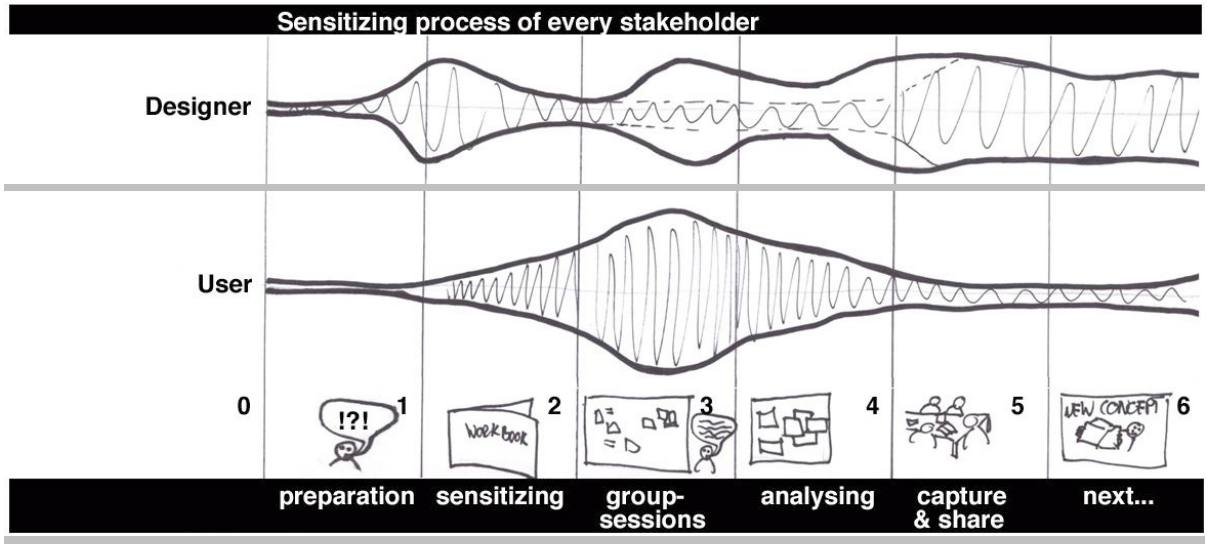

Figure 3. The steps of the Context mapping process and the involvement of the users and the designer.

Preparation

Every user study starts with a preparation phase. Setting up the study involves the formulation of goals, planning, selecting participants, choosing techniques, etc. With generative techniques, however, extra attention is needed in formulating goals (Sleeswijk Visser, 2005).

Sensitizing

During the sensitizing phase, sensitizing tools such as generative workbooks will be used. These tools will be handed out prior to the group-sessions and the participating users will fill in or use this tool, which deals with the topic, selected for the project. Sensitizing is a process where participants are triggered, encouraged and motivated to think, reflect, wonder and explore aspects of their personal context in their own time and environment (Sleeswijk Visser, 2005). A sensitizing package consisting of little activities or exercises is sent to the participants at home in the period before the session. They may get several days to weeks to complete the sensitizing package. This tool will be used as input for the group sessions.

Some examples of sensitizing tools (Sleeswijk, 2005):
Disposable camera. Participants are sent disposable cameras and are asked to take pictures of things in their environment or things that appeal to them for certain reasons. They are asked to write comments about each picture. This technique delivers strong visual material and gives a lot of freedom to the participants. The ideal application of this method is to send disposable Polaroid cameras to the participants, because then the time between taking a picture and writing down the comments is kept short, and the reasoning is fresh.
Workbook. This is a small booklet with open-ended questions to answer, things to draw, such as 'draw a diagram of the things you did while travelling to work this morning'. To make it easy for people to express themselves, often little stickers are included as starting points for participants to express their thoughts or

feelings. It must become their personal workbook and be fun so that they keep working on it.
Diary. A diary is like a workbook, but is focused on asking the participant to do, write or draw something each day. This supports the participant to continually think about the subject and maximizes the use of the time span before the actual session.
Postcards. Pre-stamped postcards can be sent to participants. Every postcard has a little question or exercise. The participant answers the postcard and sends it back. It is fun to get postcards and it demands very little effort from the participant. The surprise of getting the postcard draws the participant's attention to the subject of the study in a playful and engaging manner.

Group-session

A group-session is a meeting in which participants do generative exercises. Participants receive instructions and sets of expressive components, and create artefacts that express their thoughts, feelings, and ideas.

Figure 4. People making collages with an image-collaging toolkit

Their experiences are revealed when they are asked to present and to explain these artefacts to the other participants in the group.
Both the sensitising and generative tools used during the group sessions will reveal deeper levels of knowledge that cannot be attained by interviewing stakeholders about their product experience.

Listening to what the users say by interviewing them, can lead to the information they want to share. By observing the users, observable information will be provided. Explicit and observable knowledge will be revealed by what users say and think, what they do and what they use.
Knowing what the stakeholders say, think and do is not enough. The main limitation of conventional techniques (interviewing and observing), as far as designers of future products are concerned, is that they only offer a view on people's current and past experiences, but provide little guide to the future. In order to learn about potential future experiences, we need to include peoples' dreams and fears, their aspirations and ideas (Sleeswijk Visser, 2005). Discovering what users know, feel and dream of, can lead to empathizing with them. Their experience can be hard to express in words and therefore a tool that helps stakeholders to express their needs and wishes would be very useful. Besides this, future needs that are not yet recognizable can be revealed, so-called latent needs. This method will lead to the tacit and latent knowledge.

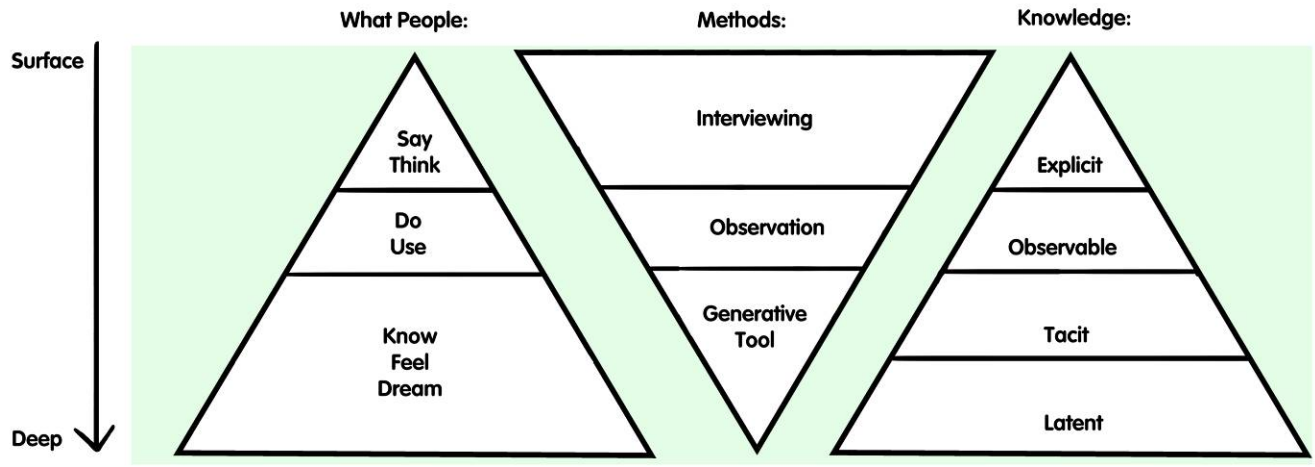

Figure 5. The different levels of knowledge (R), the different research methods in the middle and the ways we can learn from people (L) (Sanders 2005)

Analysing

The qualitative data collected in the sessions is rich and diverse. The artefacts created by the participants contain many stories and anecdotes related to the topic. The stories and anecdotes are usually recorded on video and audio. The audio files are often transcribed verbatim.

Capture & Share

The final step is bringing the results to the design process. For the early phase of the design process, the results can both inform and inspire the design team. Conventional 'written' reports often fall short in communicating effectively to design teams. Techniques that are more interactive, such as workshops, card sets, and persona[8] displays can be used to enhance the design team's understanding for and empathy with users.

[8] A persona is an archetype of a user. The persona's do not exist in real life but are used to illustrate the use of a product or product context.

2.3 Architecture versus product design

User participation in product design differs from user participation in architecture. In order to develop a method to involve stakeholders in a hospital building in the early design process, using the knowledge of Participatory Design in product design could be very fruitful. Mapping the fields of design research gives a clear insight in the current user participation approaches.

The field of design research can be depicted in a map[9] (Figure 6).

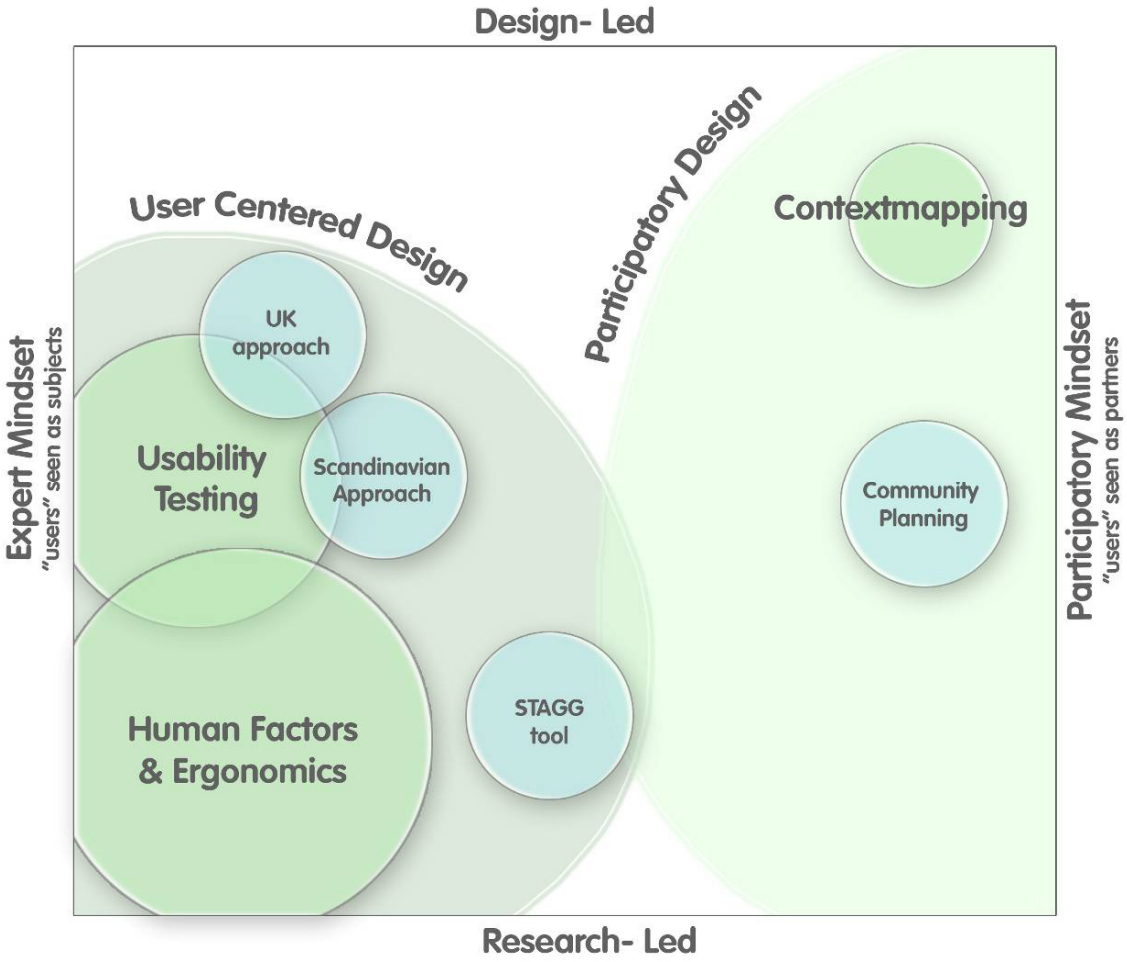

Figure 6. The field of design research; illustrating the "location" (in blue) of the current user participation methods applied in architecture described in 2.1.

The zone on the left illustrates the user-centered design and contains the green bubbles "usability testing" and "human factors & ergonomics". These bubbles of design research are about testing existing products and about products that perfectly fit with the users utilizing the products. It is the traditional approach to user participation. The "Context mapping" bubble represents the approach covered in section 2.2, that has been applied in product design. The blue bubbles represent the architecture design research approaches as described in section 2.1.

9 The map is based on the Topography of Design Research (Sanders, 2006).

There are two dimensions to the map. The vertical describes the origin of the design research approaches. The top half (design-led) contains design research methods and tools that have been introduced into practice from a design perspective. The lower half (research-led) contains design research methods and tools that have been introduced into practice from research.
The horizontal dimension: The left side stands for the expert mindset. At the bottom on the left side, the researcher is the expert. Researchers talk about the people that they do research on as subjects. At the top on the left side, the designer is the expert. The expert mindset is all about designing for people using specialized skills and expertise. The right side illustrates the participatory mindset. On this side, the researchers or designers invite the people who will benefit from the design into the design process as partners.
The Participatory Designers and researchers respect the expertise of the people and view them as co-creators in the process. The participatory mindset is about designing *with* people. Moving from left to right represents a shift in the question as to who should be considered the expert. Is he/she the designer, the researcher or the user?

As can been concluded from Figure 6, Context mapping is a design research methodology in which users are seen as partners in the design team; it is the participatory mindset. The focus is very design-led e.g., the design methods and tools have been introduced in practice by a designer, not a researcher. None of the blue architecture bubbles has these characteristics. Only Community Planning can be found in the Participatory Mindset zone, but the research methods and tools have not been introduced completely from the design perspective.

Developing a research method for a hospital building in the participatory mindset from a designer's perspective will be innovative and a challenge. The shortcomings of the current methods in architecture, the knowledge of the existing methods in product design and the current market forces in the healthcare sector were a great opportunity and the motive behind this graduation project.

2.4 Research objectives

The objectives of this research are: to get stakeholder insights by accessing stakeholder experiences in order to create an optimal healing and working hospital environment, revealing wishes and needs concerning the hospital building, and to look for a way to develop and utilize a method/tool to get these user insights.

Summarised:
1. Obtaining hospital stakeholder insights (reveal stakeholder knowledge and access stakeholder experiences)
2. Developing a method (based on obtained stakeholder insights, to reveal tacit and latent stakeholder wishes and needs).

2.5 Conclusions

When it comes to implementing Participatory Design, product design is leading. User participation in architecture happens, but to a limited extent. Often the actual end-users are not involved and the users are seen as subjects, not as co-designers. Developing a method in the participatory mindset, in which the actual end-users are the co-designers, will be an innovative opportunity to involve hospital stakeholders in an early phase of the building design process. By achieving the objectives, this opportunity can be translated into a hospital stakeholder participation method.

3 Stakeholder Information

This research project is about stakeholder experiences and insights. These insights could be a source of rich and valuable information. In order to gain the information required, one has to determine where and from whom to obtain it.
The required information is about the hospital environment. The overall image of the hospital environment covers the organization and the physical aspect of the building in which tasks are performed and time is spent by the people using the space, furniture and equipment (see Figure 7).

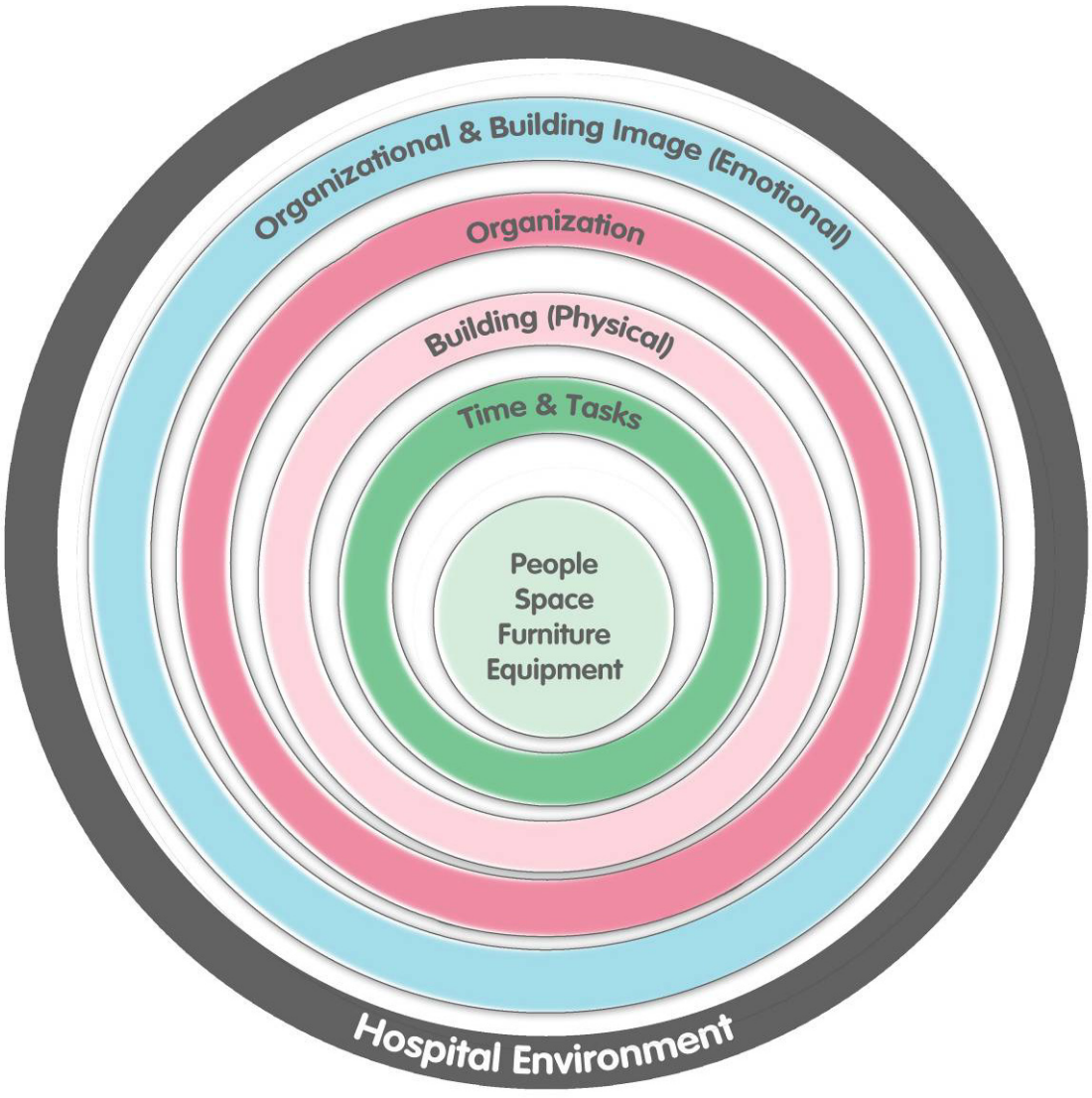

Figure 7. The hospital environment.

In order to facilitate the choice of stakeholders and access their information the hospital environment has been structured into five information spheres. These information spheres are directly derived from Figure 7 and depicted in Figure 8. In the latter the order of the spheres is not intended to suggest interdependency.

Figure 8. The five information spheres.

Firstly, the Research questions (3.1) will be described which arose from the five information spheres. The answers to these questions should reveal the information required. Section 3.2 (Hospital stakeholders) covers information sources. Section 3.3 (Stakeholders per information sphere) describes which stakeholders should be addressed in each hospital information sphere and section 3.4 concludes this chapter.

3.1 Research questions

From the information spheres the following research questions arose in order to access information:

1. What does the hospital image evoke in all stakeholders?
2. What is a day at the hospital like?
3. What are the stakeholders' wishes, needs, tensions and frustrations in the working and healing environment?
4. What are the stakeholders' wishes and needs concerning the hospital building that could have a positive impact in reducing stress?
5. What are the stakeholders' organizational visions, needs and demands in order to perform better?

By answering these research questions, the main objective "Obtaining hospital stakeholder insights" should be achieved.

The second research objective: "Developing a method to reveal tacit and latent stakeholder wishes and needs", is much more a methodological research question. To achieve this, the following research questions need answers:

1. What kind of method suits the hospital stakeholders (in their hospital environment)?
2. Does the diversity of hospital stakeholders require different methods?
3. What kind of methods are the hospital stakeholders willing to utilize?
4. Under what circumstances are they willing to participate in utilizing the method?
5. What are the themes that will be addressed by this method?

3.2 Hospital stakeholders

Hospital stakeholders are defined as: the medical staff, patients, visitors and the general and technical services (see the Glossary (Chapter 10) for a more detailed explanation).

The medical staff comprises all employees directly involved in healthcare. This refers to all hospital staff supplying: curative, preventive, palliative, medicinal, surgical and therapeutic care, not only including consultants, co-assistants, nurses and doctor's assistants but also unit managers, physical therapists, service employees[10] etc..
The patients are all people needing care, medical advice or medication. This includes the outpatient department, the wards, the Accident and Emergency department (A&E) people visiting the hospital pharmacy for medication or medical advice.
The visitors are people visiting a patient in a ward, or accompanying someone to the outpatient department , A&E or the hospital pharmacy.
The general and technical services comprise all other people working in departments such as cleaning, administration, communication, restaurant, reception desk etc..

The focus will be on the employees in the primary process which comprises all professionals directly affecting patients e.g. nurses, doctor's assistants, doctors, unit managers.
A unit manger is either a doctor or nurse with a lot of working experience in charge of a ward or an outpatient department and, together with a consultant and a coordinator, they form a management cluster. Every ward and outpatient department has a unit manager and sometimes one person heads both. Unit mangers are aware of all department activities, coordinate and a few still practise essential care tasks.

The employees in the primary process carry the caring tasks. It is true that without technical and general services a hospital would not function, however the caring tasks is generally perceived to be the essence of a hospital. They deal directly with the patients and are the care suppliers. The greater part of the hospital building is used for supplying care. The stakeholders involved in this research project are introduced in chapter 6.3.

[10] A service employee assists nurses on the ward and takes care of the patients' food requirements and can be contacted by patients by telephone.

3.3 Stakeholders per information sphere

This section describes each information sphere separately and explains for every information sphere which stakeholders could be addressed.

3.3.1 Hospital image

Hospital image refers to the feeling evoked by being or working in the hospital. The image is the sum of the impressions the stakeholder has about the hospital. It is an intangible research area. By becoming familiar with the hospital image, with the current frustrations, activities and gossip, not only will a common language emerge but these feelings, experiences and insights could contribute to an overall view. This view will benefit the researcher/designer[11]. Besides experiencing the stakeholder's point of view, the researcher/designer also becomes familiar with the hospital and the people living and working in this environment. As a result, the researcher/designer can anticipate and rely on experience and can thereby improve his/her interviewing technique and come up with new questions.

Concluding, the hospital image will contribute to:
- The researcher/designer experiencing the hospital image directly, providing foundation for conversation with stakeholders
- Widening knowledge about the current events & activities
- Making personal contacts
- Achieving insight in the perception of the image from a stakeholders point of view

The hospital image stakeholders are:

- The researcher/designer. This is the only information sphere in which the researcher/designer is one of the stakeholders, in order to become familiar with the hospital environment.
- The medical staff, the general and technical services, the patients, and the visitors.

All stakeholder perspectives on the hospital image could lead to usable information and because the hospital's character is subjective it gives an indication of the diversity of opinions.

3.3.2 Hospital day

The hospital day includes the stakeholders' experiences of a normal hospital day. It refers explicitly to: tasks, daily habits, routines, times and schedules, e.g. the time of admission into the hospital, the time meals are served, visiting hours, working hours, administrative tasks and consultation hours.

Concluding, a hospital day will contribute to:
- Familiarisation with the employees' daily routines and schedules

[11] researcher/designer instead of researcher or designer, because in Participatory Design the roles of the researcher and designer blur, as stated in section 2.2.

- Recognition of tensions, frustrations and obstacles which employees encounter in performing their daily tasks
- Awareness of a hospital day and related consequences from a patient 's point of view
- Familiarisation with hospital jargon and current events which could be used in subsequent stakeholder participation
- Gaining insights in the movement of stakeholders within the hospital building
- Gaining insights in the hospital routines from a hospital stakeholders' point of view

The hospital day stakeholders are:

- The medical staff, general and technical services, patients, and visitors.

All stakeholders present in the hospital building are part of the hospital day.

3.3.3 Healing and working environment

Healing environment is defined by: all people, furniture, equipment and space around the stakeholder. The working environment describes all areas the employee works in during a normal working day. These include: treatment rooms, wards, waiting rooms, hallways, offices etc. Resulting from familiarisation with the stakeholders' environment, the frustrations and tensions the environment itself brings should rise to the surface.

Concluding, the healing and working environment will contribute to:

- Familiarisation with the employees' working environment
- Experiencing the hospital environment from a patient's and visitor's point of view

The healing and working environment stakeholders are:

- The medical staff
- The general and technical services

Both groups of stakeholders are part of the working environment. This area deals with the environment in which they have to perform. It deals with the primary, supportive and management process of the hospital.

- The patients

The patients are part of the healing environment. The visitors are excluded because they are not working nor being treated within the hospital.

3.3.4 Organizational vision, needs and demands

This area is about the organizational vision, needs and demands that could lead to hospital building adjustments or improvements. Organizational vision refers to the stakeholders' opinion about future expectations and needs. Needs can be interpreted as wants or requirements that are negotiable and demands are actually needs that are not negotiable.
For example, a shift from treatments as inpatients towards treatments in the outpatient departments would lead to increased patient traffic to the outpatient departments. This automatically demands more treatment rooms and maybe even more employees. Perhaps even the treatment approach will differ and therefore the building needs to be adjusted and initially this change will lead to organizational changes and subsequently to building adjustments.

Concluding, the organizational vision, needs and demands will contribute to:
- Insights in organizational changes
- Insight in future building needs caused by organizational changes
- Raised stakeholder awareness about future changes and consequences
- Stakeholder predictions for the future

The organizational vision, needs and demands stakeholders are:

- The medical staff
- The general and technical services.

The organizational vision, needs and demands deal with the organization, the logistics within the building, the future shifts in the healthcare sector and therefore only the hospital employees are addressed in this area.

3.3.5 Building wishes and needs

The building wishes and needs sphere, directly addresses stakeholder wishes, needs, frustrations and tensions. This covers the stakeholders' explicit wishes and needs concerning the building in order to create an optimal hospital environment.

Concluding, the building wishes and needs will contribute to:
- Direct answers concerning the current building
- New angles to elaborate on questioning other stakeholders
- Insights in the stakeholders' experience of the hospital building

The building wishes and needs stakeholders are:

- The medical staff, the general and technical services, patients, and visitors

The building wishes and needs are applied to all stakeholders, stakeholder staying or moving within the hospital building.

3.4 Conclusions

This research is about stakeholder experiences and insights. At this moment the stakeholders are defined, as are the information spheres through which stakeholder knowledge and information will be obtained. For every information sphere the stakeholders to be addressed to obtain the desired and most valuable information are also defined. Now that the stakeholders and the desired information are determined, the next step is to choose the methods for obtaining this information from these stakeholders.

4 Research Methods

Participatory Design is not only a design research method in which users are seen as co-designers (as opposed to User Centered Design in which they are seen as subjects), it is involvement of users in an the early phase of the design process (instead of a late stage evaluating process), and also reveals deeper levels of knowledge as described in section 2.2.
Stakeholders' experiences should be achieved through field research. Experiences form part of the stakeholders' naturally occurring behaviour and therefore this behaviour has to be observed in the stakeholders' natural environment, in this case, the hospital building. Accessing hospital stakeholders' experience can be achieved in different ways. This chapter attempts to cover the research questions and methods. Section 4.1 brings the different levels of knowledge (see section 2.2) into practice. In section 4.2 every information sphere will be discussed separately and per sphere the most appropriate research methods will be suggested. Section 4.3 deals with the correlation between the information spheres. In the last section 4.4 this chapter will be gathered to a conclusion.

4.1 Bringing the different levels of knowledge into practice

Enabling people to express their thoughts and share their experiences, demands diverse research methods. Interviewing hospital stakeholders and asking direct questions would lead to very explicit information, because interviewing allows the interviewee to say only what is expressible in words. Interviewing alone is insufficient as stakeholders can decide only to reveal what they want you to hear.
Observation provides an insight as to what stakeholders do and what they use - observable knowledge. Observation cannot reveal what stakeholders think but exposes behaviour.

A guided tour is a suitable method to combine both. As interviewing leads to explicit knowledge and observation leads to observable knowledge, guided tours lead to both. During a guided tour, in which the researcher/designer will be guided through a part of the hospital, a ward or an outpatient department, the situation can be observed and questions can be asked. During a participatory guided tour, the researcher/designer experiences the situation giving rise to a vivid addition to the explicit and observable knowledge obtained. The conventional research methods offer a view on stakeholders' current knowledge and past experiences and in order to obtain insight in potential future experiences, different research methods are required.

Revealing tacit knowledge; knowledge that cannot readily be expressed in words (Polanyi, 1964), needs a different approach and cannot be revealed by conducting interviews or observing stakeholders. One of the approaches to reveal tacit knowledge is the application of generative methods. The title 'generative tools' refers to the creation of a shared design language that the designer/researcher and the hospital stakeholders use to communicate visually and directly with each other. The design language is generative in the sense that with it, people can express an infinite number of ideas (e.g., dreams, insights, opportunities, etc.) through a limited set of stimulus items.
Generative tools are characterized by their visual rather than verbal language. They are based on the belief that all people can project and express their needs, wants and aspirations through the use and interpretation of ambiguous visual stimuli (Stappers, 2005). See Appendix I for additional information about generative tools.

Besides the tacit knowledge, generative tools could reveal latent needs. The stakeholders' latent needs are the needs that will be realized in the future. It is a need stakeholders are as yet unaware of but once revealed and taken into account could result in strategic value for the hospital. All knowledge obtained with the generative tool leads to stakeholders' insights.

4.1.1 The hospital stakeholder insights as an input for the Generative Tool

The goal of the research methods (observation, interviews and guided tours) is to discover what stakeholders say, think, do and how they use the building. These stakeholder insights once revealed are but a part of the objective. Only explicit and observable knowledge can be obtained by the conventional research methods. To get to stakeholders' tacit and latent knowledge, new methods in the form of a generative tool need to be utilized. The insights obtained by the applied conventional research methods, besides contributing to the achievement of stakeholder insights, are used as input to develop the generative tool.

This generative tool contributes to completing the objectives

1. Obtaining hospital stakeholder insights (reveal stakeholder knowledge and access stakeholder experiences)
2. Developing a method (based on obtained stakeholder insights, to reveal tacit and latent stakeholder wishes and needs).

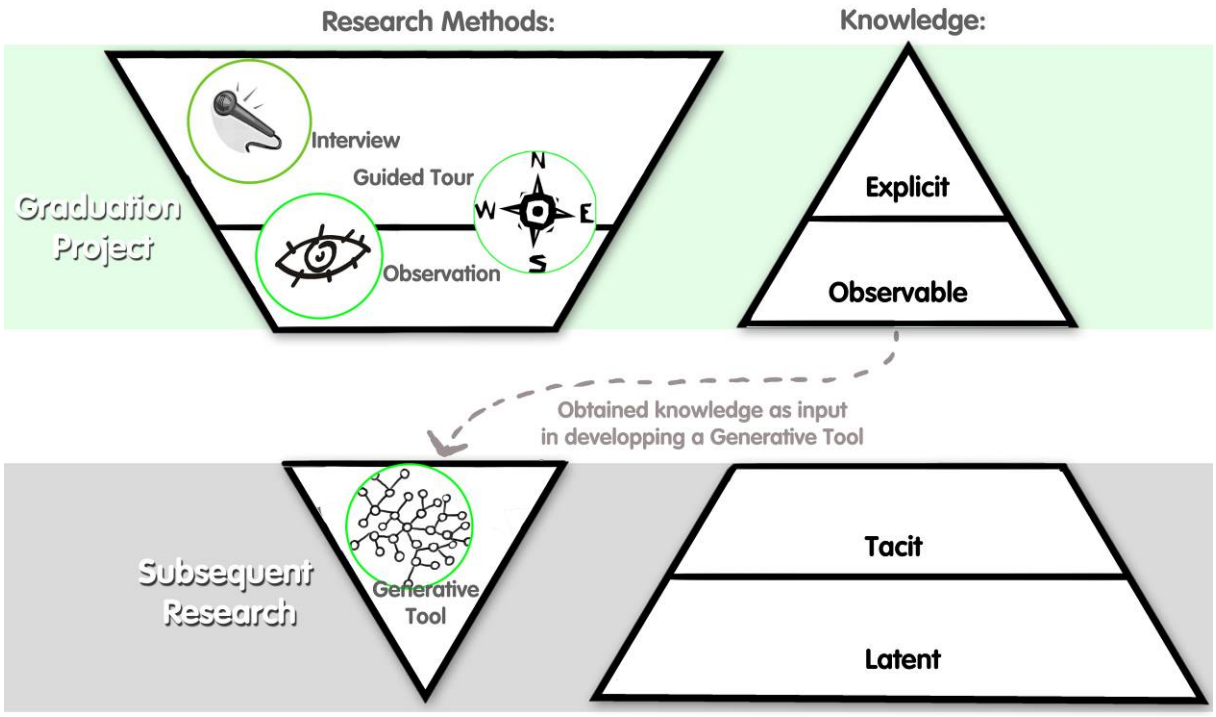

Figure 9. Explicit and observable stakeholder knowledge obtained from conventional research methods is used as input in developing a generative tool to reveal tacit and latent stakeholder knowledge.

4.2 Information spheres and research methods

The information spheres were defined in order to address the information easily. In this section, the most suitable research methods will be described for the spheres individually. Figure 10 depicts these information spheres and shows which research methods are thought most suitable.

Figure 10: The information spheres and the most suitable research methods. The eye icon indicates observation, the microphone interviews, the compass guided tours and the branches the generative tool.

4.2.1 Hospital image

The hospital image is an information sphere about emotion. The hospital image is not about the physical building, but about the hospital organization and the character of the building. The knowledge gained by accessing stakeholder experiences concerning the hospital image is very subjective emotional knowledge. Stakeholders might mention the general atmosphere, the use of innovative ideas and concepts, approachability of medical specialists, the atmosphere of the wards. All these and more contribute to the hospital's character.
Stakeholders may come up with suggestions to improve and reinforce the image. They may compare the hospital situation to experiences of another hospital or living environment. Being aware of the hospital image could facilitate the design process in terms of hospital identity. In a case in which a hospital organization considers giving a hospital building a new and improved futuristic transparent and open look, but stakeholders love the old building for its down to earth and old-fashioned approachable atmosphere, the gap between the present image and the new identity could cause unforeseen troubles. By being aware of stakeholder experiences and opinions about the present hospital image, the design team can take this into account.

<u>Suitable research methods to access experiences concerning the hospital image</u>
To experience the hospital image, observing the hospital from within would be very helpful for the researcher/designer's own experience. It would be a good starting point for the research that follows. The researcher/designer gets familiar with the research environment.
It is impossible to use observation to access stakeholders' hospital image experience. This experience and the information that emerges, has to be made explicit. Interviewing stakeholders about their perspective and their solutions for improvement the image would be a suitable approach for generating the desired information. Utilizing a generative tool could be a very helpful research method as well. Experiences or opinions that are hard to translate into words and would be left unspoken using a much more explicit approach like interviewing can be caught in a generative session.

Suitable research methods to experience the hospital image are:

- Observation
- Interviews
- Generative tool

4.2.2 Hospital day

The hospital day refers explicitly to the tasks, daily habits, routines, times and schedules. By accessing stakeholder experiences concerning the hospital day, the researcher/designer gains an impression of the daily occupations and tasks of the stakeholders and the tensions and frustrations these tasks bring with them. The information that emerges can be very normal to the stakeholder but give the researcher/designer tremendous insights into their habits. For instance, a designer can decide to put a beautiful shimmering floor in the hallway which people love the first time they see it. The floor is so shiny it makes it hard to estimate distance and gives the impression of being very slippery with the result that a nurse having to cross the floor twenty times a day, tends to avoid it. Being aware of the daily tasks, occupations and habits will facilitate the design team in taking decisions.

<u>Suitable research methods to access experiences concerning the hospital day</u>
The stakeholders' daily tasks and time schedules can easily be discovered, e.g. dinner and bedtime, time of arrival, shifts. Asking stakeholders explicitly about their working day and patients about their daily occupations provides the information needed. Besides interviewing a guided tour reveals additional information about the hospital day. It is optimal to combine both, so that no interesting information is left out. The researcher/designer could interview the stakeholder first and subsequently ask if a guided tour is possible or accompany the stakeholder during (a part of) the day and ask questions afterwards.

Some everyday activities are so normal to the stakeholders, and especially in the employee group, that they probably would overlook them as crucial knowledge for the researcher/designer and that they would be left unspoken. Therefore, a generative tool would be very useful and reveal these unspoken activities.
For instance, drinking coffee, at first sight, fulfils a primary need - thirst. During research a generative tool reveals that drinking coffee is more about taking a break and socializing with employees from different departments near the coffee machine. The coffee machine therefore fills a social need.

Suitable research methods to experience the hospital day are:
- Interviews
- Guided Tours
- Generative tool

4.2.3 Healing and working environment

By accessing stakeholder experiences concerning the healing and working environment, the researcher/designer will get insights in the building location and surroundings, the building itself, the people working and staying there, the spaces, the furniture and the equipment. Knowledge of what people use, do and are surrounded by, allows the design team to make assumptions. For example; the environment of a mother who has just given birth, does not only comprise her room and the delivery room but also the restaurant in which she eats her lunch with her husband, and the bathroom on the Child and Youth ward where she can bath together with her baby. Without accessing the mother's environment, the design team would not know about this special bath on the Child and Youth ward and they would not have expected it.

Suitable research methods to access experiences concerning the healing and working environment

This area deals with everything surrounding the stakeholders including space, people furniture and equipment. Therefore this area needs a thorough approach. All four research methods are applied to reveal stakeholder information.

How stakeholders behave in the healing and working environment is observable. For example, employees moving furniture and placing additional chairs in the waiting room during a very busy afternoon could indicate a lack of space and chairs for patients to sit on. Therefore observation would be a suitable research method to reveal stakeholder behaviour.

Interviewing stakeholders about their healing and working environment would reveal very explicit knowledge. Stakeholders talk about their experience but, for the empirical researcher/designer, a guided tour through the stakeholder's environment would be fruitful both to confirm and to gain even more information.

Stakeholders can encounter problems in expressing their wishes and experiences through interviews because some information is hard to express in words. Latent environmental wishes and insights, that have not yet occurred can only be revealed by utilizing a generative tool this would reach levels of needs missed using the more conventional design research methods (observation and interviews).

Therefore suitable research methods to experience the healing and working environment are:

- Observation
- Interviews
- Guided Tours
- Generative tool

4.2.4 Organizational vision, needs and demands

The organizational vision, needs & demands would *eventually* lead to building adjustments and improvements. Nevertheless, the organizational information sphere and the building information sphere are separate because a building adjustment generally does not originate *directly* from the organizational demands and needs. Example: a shift in providing information about diabetes from individually to collectively, could emerge because of a lack of time during consultation hours. Medical specialists do not have enough time to inform each patient about diabetes individually. Therefore, the medical specialists could decide to organize group meetings in the afternoon and this organizational need will lead to a wish for an information room within the hospital building. This wish eventually leads to a building adjustment.

Suitable research methods to access experiences concerning the organizational vision, needs and demands

Interviewing stakeholders about their organizational vision, needs and demands, which cannot be observed, needs an explicit approach. It is the assumption that tacit and latent knowledge concerning the organization is beyond the scope of this research project. Only organizational needs that will lead to building plans will be accessed. This hospital stakeholder participation method, is not about the organizational hierarchy, future legislation or other aspects that do not directly affect the design team. The generative tool that is to be developed, addressing the hospital image, the hospital working day and the healing and working environment, covers the same wishes and needs.

Returning to the example of collectively providing information about diabetes, a medical specialist could say explicitly that due to a lack of time the information will be shared collectively, an organizational need. However, during a generative session about the healing and working environment the medical specialist may say that there is no such

room available in which information afternoons can be organized and therefore an information room is desired. The need for such an information room emerges and a generative tool about the organizational needs is redundant. Therefore, the best way to ask stakeholders about building wishes and needs is to interview them.

A suitable research method to reveal organizational vision, needs and demands is:
- Interviews

4.2.5 Building wishes and needs

Asking stakeholders about their building wishes and needs, requires a very explicit approach. This information sphere is about the wishes and needs which they have at that moment; the urgent wishes, needs, and, the tensions and frustrations they cope with on a daily basis. It is about the stakeholders' current mindset; the issues that are just below the surface and do not need to be accessed by a generative technique. By asking stakeholders about their wishes and needs not only does the researcher/designer get a concrete and direct answer but it has a psychological effect. Stakeholders reveal their frustrations and complaints immediately and have the feeling that they are being heard. Current frustrations do not need a generative session to be revealed just a good set of ears!

Suitable research methods to access experiences concerning the building wishes and needs

Directly asking or interviewing the stakeholders would be the most suitable research method. To fortify these wishes and needs, the researcher/designer could have a guided tour in which the stakeholder would demonstrate the origin of their wishes. Needs, can be revealed by utilizing a generative tool, but this information sphere is about very concrete and urgent issues. Asking the stakeholders directly about their wishes, needs, frustrations and tensions would contribute to better researcher/designer involvement. Stakeholders understand that they are heard and listened to. The generative tool could include asking stakeholders about their wishes and needs but this is already is a part of the healing and working environment (4.2.3). A generative tool about the building wishes and needs would be redundant. This area explicitly asks for direct questioning.

Therefore suitable research methods to reveal building wishes and needs are:
- Interviews
- Guided tours

4.3 The correlation between the information spheres

The five information spheres all address different stakeholder experiences and knowledge (as explained in section 4.2). To obtain this knowledge and to access the stakeholders' experiences, research methods can be applied as illustrated in section 4.1.
How do the information spheres interact with each other? What is the correlation between these areas and the research methods?

4.3.1 A starting point

There are only two fixed facts. The researcher/designer starts research by entering the hospital building and observing the hospital image in order to get involved and to build up personal experience for use later in the process.
The generative tool can only be developed after all conventional research methods are complete and furthermore, all spheres and research methods interact.

A semi-structured interview can be the starting point in getting the first stakeholder information, but the researcher/designer can easily anticipate skipping from one information sphere to another. It is logical to start with a stakeholder's hospital day, an everyday activity, demonstrating interest. Subsequently the researcher/designer could ask questions about all spheres, separately or interdependently.

4.3.2 Subsequent research methods

The research methods will be applied to various information spheres as depicted in Figure 11. Some research methods may follow on logically.

During an in-depth interview, the researcher/designer can ask the stakeholder questions concerning all five information spheres. This can be done during the same interview. To enforce the knowledge obtained concerning the areas "hospital day", "healing and working environment" and "building wishes and needs", the researcher/designer could ask for a guided tour as a follow-up to the interview. Actually, a guided tour never stands alone and is always a result of, or the starting point for an interview. By observing the stakeholders in their "healing & working environment", the researcher/designer can come up with questions and ask these directly during an interview. For instance, the researcher/designer asks questions about the hospital image and the stakeholder, in this case a doctor's assistant, says that the daily stress of her job has a negative influence on the hospital image. Through continuous questioning the researcher/designer finds out that it originates from a lack of personal space. The researcher/designer can ask the assistant for a guided tour, to see the working environment for him/herself. After visiting the doctor's assistant's working environment, the researcher/designer can continue questioning about the healing and working environment area and ask her; If you had the opportunity to improve the situation, what would your building wishes and needs be? This simple example illustrates the correlation between the information spheres concerning the research methods that would reveal explicit knowledge.

The generative tool (developed using the information gained from observation, interviews and guided tours), can address all three areas in the same generative tool. This tool as described in section 4.1 (the different levels of knowledge into practice), is based on the insights and information gained during the earlier phase of research. The generative tool is not limited by sequence, one can mix and match.

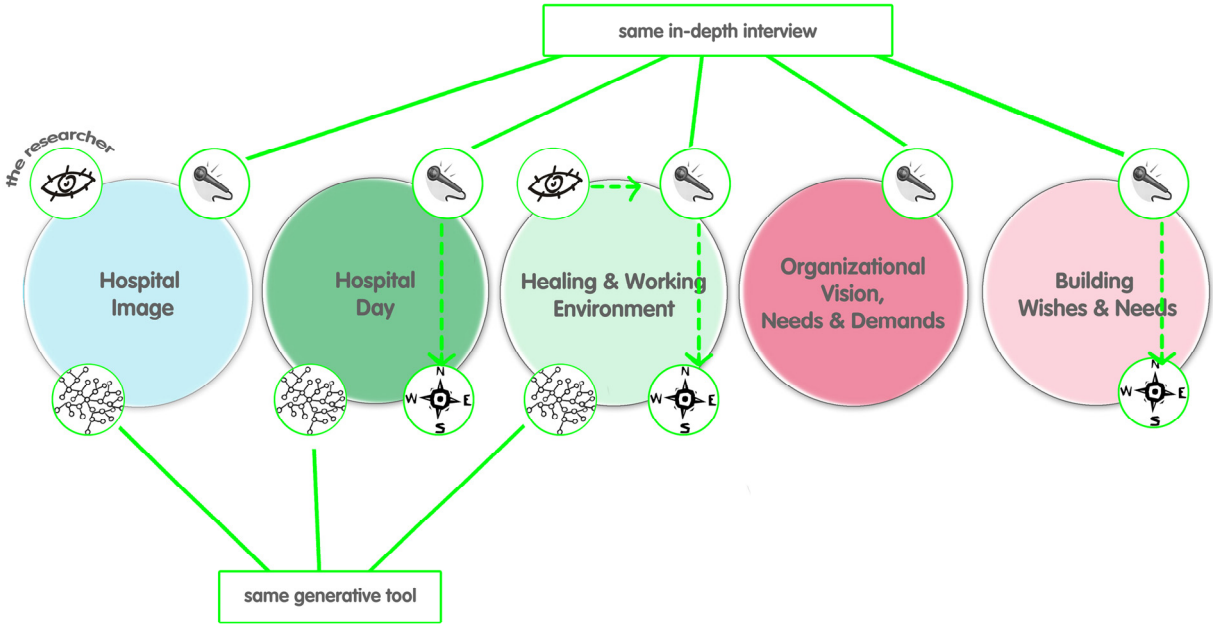

Figure 11. The correlations between the information spheres and the research methods

4.4 Conclusion

Conventional research methods like interviews and observation reveal explicit and observable knowledge. In order to obtain all information about the hospital and stakeholder experience, including all information that is hard to express in words and, future needs, new research methods need to be applied. These research methods cannot be developed without being aware of the explicit and observable stakeholder knowledge. Therefore, the conventional research methods need to be applied first and subsequently a generative tool is developed in order to reveal all stakeholder knowledge.

5 Finding a Hospital

In order to be able to conduct field research in a hospital environment, the cooperation of a hospital was clearly necessary. The researcher/designer had to be given approval to visit a hospital building and involve the hospital stakeholders during research. This chapter explains the process of obtaining permission and approval. Section 5.1 (An old and a new building) describes the reasons for approaching two hospitals, one housed in an old building and the other in a new building. Section 5.2 (The struggle for permission) depicts concisely the approach and additional struggle and in section 5.3 ("Het Westfriesgasthuis") the hospital that was willing to cooperate. The final section 5.4 concludes this chapter.

5.1 An old and a new building

The aim was to find one or more hospitals in which to conduct field research. The focus was on an old and a new situation, e.g. an old hospital building and a new, recently built or renovated one. The benefits of two such situations lay in the fact that comparisons could be made.
Stakeholders of an old hospital building have many memories based on their experiences in the past. Experiences are very personal and felt individually. Experiences felt in the past are memories. Experiences not yet felt but imagined are dreams. Figure 12 illustrates the complete set of experiences.

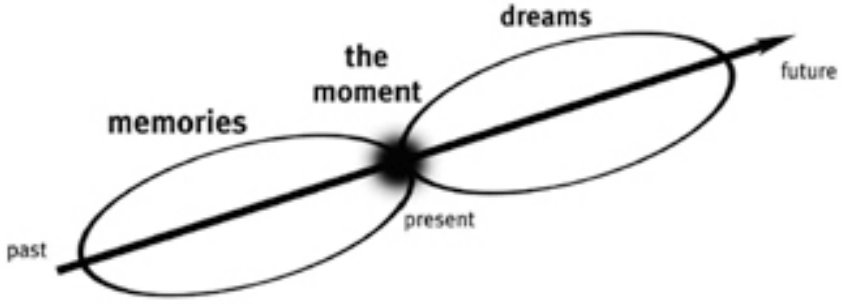

Figure 12. The complete set of experiences, memories, the (current) moment and dreams (Sanders, 2001)

The moment is where memories and dreams meet. Everything that happens in the hospital environment, will be interpreted with reference to the hospital stakeholder's past experience. A hospital stakeholder only having experiences in an old building will refer to memories in that particular building. However, hospital stakeholders having experiences in both new *and* old buildings, refer to both situations. This extra factor can influence the experience. Stakeholders in an old hospital building will have a different set of dreams when aware that a new building is planned. Their dreams are unlimited whereas hospital stakeholders in a new building think about little adjustments that can be made to improve their environment. It is the assumption that stakeholders in old and new hospital buildings have different memory banks, but more importantly have differing sets of dreams.

Besides comparing the stakeholders' set of dreams, researching two hospitals could benefit the researcher/designer at different levels; insights provided in one situation, could be used as input for another. The old and new situation could be located in one

hospital[12], two different hospitals or two different buildings forming one and the same hospital.

5.2 The struggle for permission

The hospitals that were approached and asked to cooperate in field research were selected on the basis of their current building(s) and former or future building plans. The initial request was to spend some hours in the hospital, observing a medical employee coping with patients so experiencing what it is like to be a hospital stakeholder.

Figure 13 schematically depicts the hospitals approached. It shows: the people first contacted, the communication methods[13], the formality of approach, the hospital response to the request, the reasoning and a conclusion. At the bottom of each column is an illustration of how the researcher/designer contacted the hospital. The Royal Haskoning logo stands for a Royal Haskoning lead. The logo depicting two people stands for personal contact through the social network of the researcher/designer. The shoes stand for a direct face to face approach to hospital stakeholders.

Initially two leads were provided by Royal Haskoning: the Rode Kruis Hospital at Beverwijk and the Spaarne Ziekenhuis at Hoofddorp. The former is housed in an old building completed in 1974 the latter has occupied a new building since 2004. Both hospitals were clients of Royal Haskoning and were approached very formally - the hospitals were telephoned, e-mail addresses were requested and a formal e-mail sent to the manager of Staff, Organization and Education and to the Executive Secretary of the Board of Directors respectively. During the first week the Spaarne hospital rejected the request. The reasoning being that they saw no benefits and could not prioritize cooperation. The Rode Kruis hospital never responded even after additional information about the graduation project was sent.

12 For the definition of hospital see chapter 10 Glossary.
13 The envelope stands for e-mail, the telephone stands for a telephone call and the mouth stands for a face to face conversation.

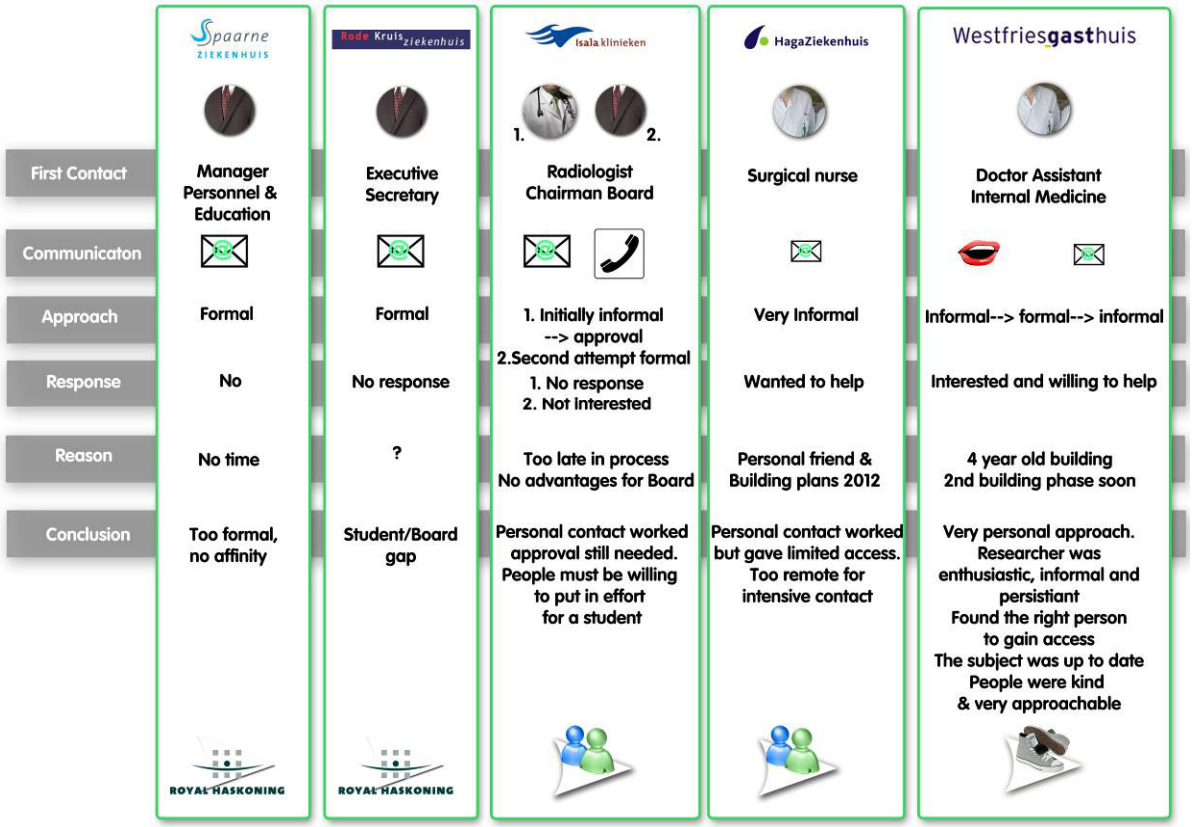

Figure 13. The hospitals approached showing the first contact, communication method, the formality of approach, the hospital response, the reasoning and finally, a conclusion.

Another two hospitals housed in old buildings were approached. First the Isala Klinieken at Zwolle, over two locations that are to be merged into one new hospital building to be completed in 2014. Secondly at the Leyenburg location for which a new building is to be constructed, hopefully in 2012, of the Haga Ziekenhuis at The Hague. The Isala klinieken at Zwolle were contacted through personal contacts with a medical specialist and a unit manager. The Haga Hospital was approached through a personal contact with a surgical nurse very informally. Access was granted and the nurse willing to participate but, because there was no contact with the management, no permission was given to conduct complete field research in the hospital. The willingness of the nurses to participate allowed Leyenburg to be used as a pilot see section 6.4 (Piloting).

Just as the Rode Kruis Hospital, the Isala Klinieken kept very quiet. After a second attempt directly addressing the Chair of the Board of Directors of the Isala Klinieken, the hospital rejected the request and refused cooperation, the reasoning being that they did not have time and it was too late in the process for them to benefit from the research.

Finally, "Het Westfriesgasthuis" (WFG) at Hoorn was asked for its cooperation. This hospital grew from the merging of two hospitals. The building consists of an old, relatively small building and a large new one, that was added on to the old building in 2004. The second phase of the building plans, in which the old building will be renovated or rebuilt, will start in 2008 and should be finished in 2013.
The WFG compared with the Spaarne hospital, Rode Kruis hospital and Isala klinieken, seemed very cooperative. After talking to doctor's assistants and people in the education department and eventually being redirected to the coordinating manager, access was

permitted. Eventually permission was given to take pictures, to interview stakeholders and talk to the board of directors.

Figure 14. The future Isala Building and the current Haga building (The Leyenburg location)

5.3 "Het Westfriesgasthuis" (WFG)

This section is a brief introduction to the WFG.

The WFG is a regional hospital located in Hoorn, a town forty kilometres north of Amsterdam and located directly on the Markermeer (see figure 15). In 1985 the WFG grew from the merging of two hospitals, the Streek Ziekenhuis West- Friesland and the St. Jans Gasthuis. In May 2004, the move into the new building took place (Building A in figure 15). Building B is part of the original building of the St. Jans Gasthuis. The old building has been adapted for new functions. At a later stage in the building plans, the old building will probably be replaced by a new building (Approximately 2013).

The WFG has capacity of 530 beds and a gross floor area of 56.295 m2. All specialisms with the exception of Neuro- and Cardiac surgery, are present. The staffing total is 1354 fte[14]. The number of first time outpatient visits in 2006 was estimated to be 90.834. The hospital has an educational function.

Both the new and old building contain one-, two- and four-bedded rooms. The hospital has ten operating theatres. A new specialism, Geriatrics, has recently been introduced.

In cooperation with local care suppliers, transmural care[15] has lately been developed. Besides different transmural activities and projects, care renewal projects within the

[14]FTE stands for fulltime-equivalent. A FTE is a way of measuring a worker's involvement in a project or a student's enrolment in an educational institution. An FTE of 1.0 means that the subject is a full-time worker, while an FTE of 0.5 indicates half-time.

[15] Trans mural care refers to care, geared to the needs of the patient, provided on the basis of cooperation and co-ordination between general and specialized providers of care, with shared responsibility and specifications of delegated responsibilities". This definition encompasses a wide variety of initiatives where home- and hospital-based providers, traditionally working separately, join together to improve quality and efficiency in care delivery. Transmural care projects utilize specialized nurses, guidelines, home care technology, discharge planning and other methods. Transmural care is often geared towards specific groups of patients, such as chronic patients with intermittent acute care needs – for example, patients with cancer, chronic obstructive pulmonary disease, diabetes or rheumatoid arthritis (A. den Exter: Healtcare systems in transition, 2004).

hospital have been carried out; an electronic medical filing system, multidisciplinary Oncology outpatient consulting hours, pre-dialysis route, a "Cataractstraat"[16] etc.
The WFG took part in a programme from the Ministry of Health, aiming for improvement in patient care and establish improvements and innovations in all hospitals in The Netherlands.

Figure 15. The location of "Het Westfriesgasthuis" (WFG) at Hoorn. The aerial view shows the buildings. Building A is the new building and building B the old one. The 3D picture represents the station side of building A. The hospital stakeholders (inpatients) have a lovely view over Hoorn and the Markermeer.

[16] Aiming for efficiency the procedures around cataract surgery have been changed. Patients can avoid regular office hours because special cataract consulting times are available. Leading to quicker treatment.

5.4 Conclusions

After a struggle to obtain permission eventually a case hospital was found that filled both the requirements for an old and a new building. From that struggle one can conclude that the research approach demands a certain degree of trust. The hospital representatives who decide about giving permission have to see a higher goal. They have to trust in the fact that they can benefit from the field research without expending too much time. These benefits have to be made very clear and explicit by the researcher/designer and the hospital has to believe that the researcher/designer can live up to expectations. These “permission givers” can better be addressed bottom-up instead of top-down. By involving hospital stakeholders first and directing the request through them, the request comes from inside the hospital instead of from a possible intrusive outsider.

6 Involving the Stakeholders

The WFG was approached personally by visiting the building and asking a couple of people encountered face to face, to whom the request should be aimed. The initial request observation of an outpatient clinic waiting room was low-threshold. After this request was approved, contacts were made and access was given, which eased making contact with the stakeholders. This chapter covers the sampling of the stakeholders (6.1), the reasons as to why certain stakeholders were excluded from this research and sketches the stakeholder approaching process (6.2). This approaching process is about making contact with the stakeholders. The actual involvement of the stakeholders, encouraging them to participate in the conventional research methods such as interviews, is described in section 6.3 (The stakeholders involved). Here the stakeholders are described as well as their location and tasks. Involving stakeholders resulted through and in a snowball effect, the key characters and factors of which are also described. Section 6.4 (Piloting) describes the pilots that were held. In addition section 6.5 concludes the chapter.

6.1 Sampling the stakeholders

The group of stakeholders about whom information is sought is very large and diverse and, because it is impossible to question every stakeholder, a sample is drawn. The more representative the sample, the more confidence we can have in the generalizability of the findings (Graziano, 2004).

For this research, an opportunity arose for stakeholder selection. The stakeholders approached were: nurses, doctor's assistants, unit managers, the communications department, medical specialists and patients. Visitors and the technical services were excluded. It was assumed that the stakeholders forming the hospital primary process (the actual caring community) were more representative for this research and, because of a time limitation, the employees of the supportive processes have been excluded. Visitors, supporting the patients, and the employees of the general and technical services are not part of the primary process but part of the supportive process.

To confirm this assumption of focussing on the primary process, one stakeholder of the supportive process was interviewed (see Appendix H2). During this interview, the stakeholder spontaneously stated that the supportive process is secondary and that the focus should be on the primary process.

Coping within a time limitation, meant that only a limited number and variety of stakeholders could be interviewed. The sample of stakeholders was strategically rather than randomly chosen. The hospital is divided into three clusters. The clusters are surgical, medical and intervestigation and care support specialisms. From each cluster a few specialisms were approached and from every specialism approached a few employees of the medical staff interviewed. From each cluster one patient was interviewed.

Figure 16 depicts the organization chart of the WFG. The hospital process was divided in three sections the management, the support and the primary process. The primary process consists of three clusters. By interviewing several stakeholders from different clusters, all clusters were explored in order to represent the hospital stakeholders and to generalize the results.

- Surgery, Ophthalmology and Orthopaedics from the Surgical cluster
- Internal medicine, Neonatology and Child and Youth from the medical cluster
- Trauma and Endoscopic investigation (day care treatment) from the intervention and care support cluster

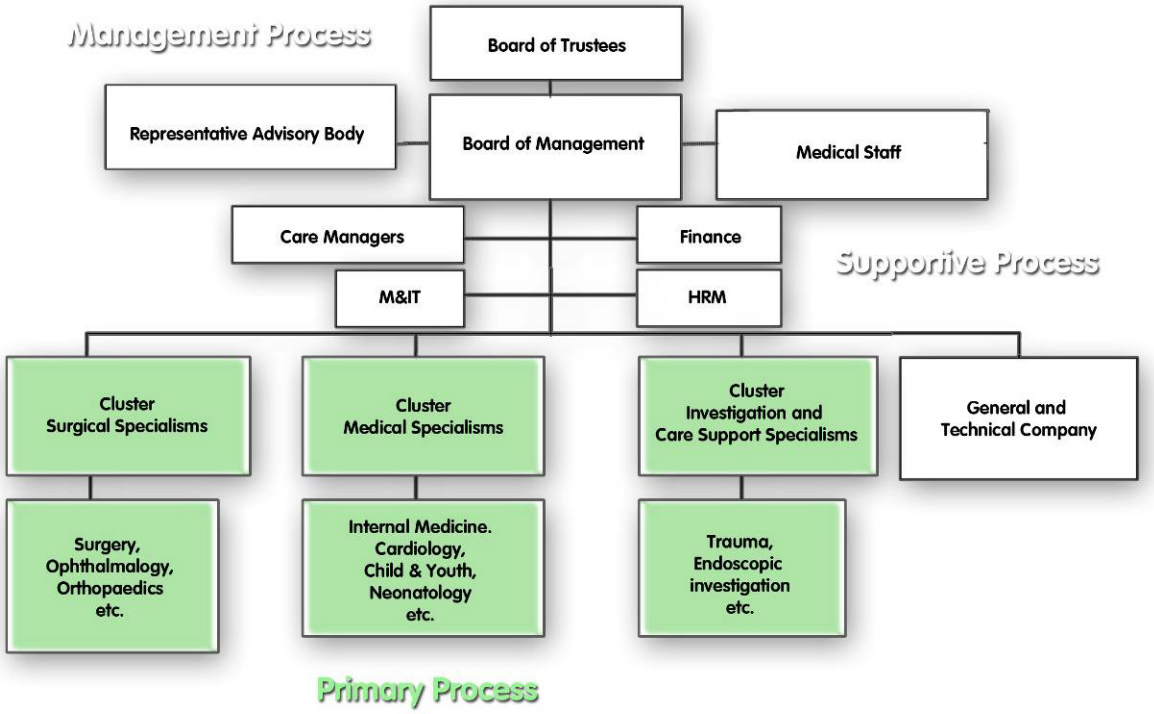

Figure 16. The WFG organization chart. The specialisms involved are highlighted green and form the primary process of the hospital. M&IT stands for Media and Information Technology. HRM stands for Human Resource Management.

6.2 Approaching the stakeholders

Approaching[17] stakeholders was unstructured because there was no particular person responsible for dealing with a request such as one to conduct field research in a hospital. The approach of stakeholders was a matter of trial and error. Once contacts were made and a network formed, involvement[18] of other possible participant stakeholders was a lot easier - a so-called snowball effect.

A "map" to illustrate the stakeholder approach process (Figure 17), shows the path taken by the researcher/designer through the WFG. The journey starts with the approach of the stakeholders (L). The shoes represent the way the researcher/designer accessed the WFG - literally by walking into the hospital building. The following symbols are used in the map:

- The eye stands for the researcher/designer observing the building from within
- The stakeholders are depicted by costume. A tie stands for a manager, a white shirt for medical staff and a sweater for other staff. The blue sweater stands for the patient
- The mouth stands for verbal communication inviting cooperation
- The envelope stands for initial contact with a stakeholder by e-mail
- The telephone stands for a telephone call in which an appointment for an interview was made
- The camera stands for permission granted to take pictures in the hospital environment

[17] Approaching is referred to as making contact with and talking to the stakeholders in order to involve them in the process.
[18] Involving is referred to as actual participation in the interviews. The stakeholder becomes an interviewee.

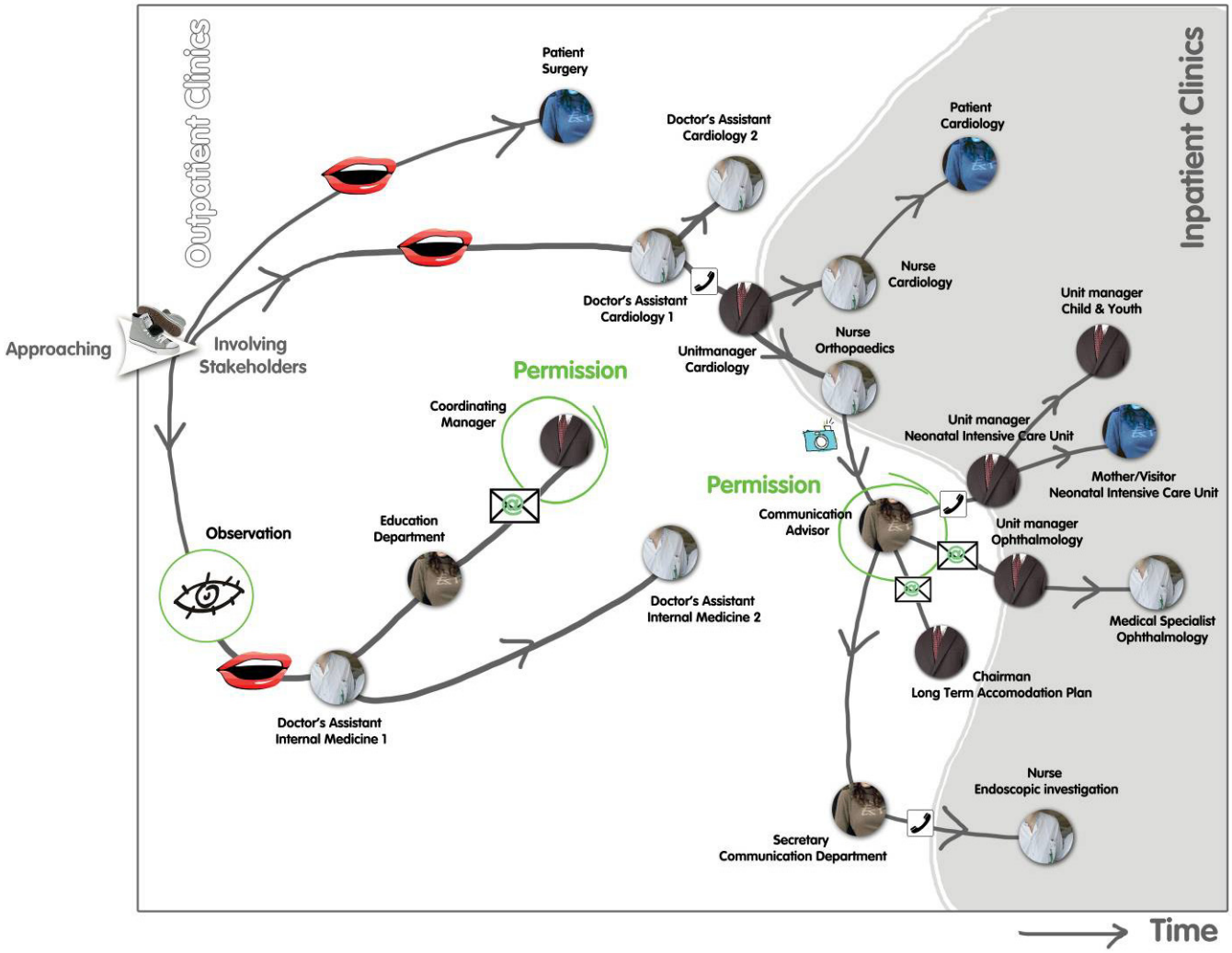

Figure 17. The stakeholder approaching process. The journey started (L) in the shoes in the outpatient departments, approaching hospital stakeholders on the way and eventually ended at the wards (R).

The hospital was observed from the restaurant (the eye in Figure 17), in order to get familiar with the hospital environment. (The findings can be found in Appendix A.3.) The observation in the restaurant took place during the lunch hour in the anticipation that there would be a lot of people traffic. As no official permission for being in the hospital had yet been given, observing in the restaurant was the most unobtrusive way to experience the hospital atmosphere. After some observation in the restaurant, the first stakeholder was approached and asked for cooperation as to where to get permission to conduct research in the hospital.

After being redirected several times an e-mail address of a coordinating manager was obtained which led to sending an e-mail and permission being given to observe stakeholders from within the hospital. After approaching the coordinating managers and getting permission, doors opened and many more stakeholders were approached and involved in the process.

6.3 The stakeholders involved

The stakeholders approached are shown in Figure 17. The stakeholders that were involved and interviewed will be discussed in detail. They are arranged by specialism and their main tasks, working hours and the areas and departments they visit on a daily basis are illustrated in order to give insights in their environment. Floor plans of the WFG can be found in Appendix C.

Surgery
Patient of the Accident and Emergency department (A&E) and outpatient (day) surgery(WFG)
He suffered an injury and went to A&E after which he was redirected to the day surgery unit. He had been in the hospital previously, both for treatment and as a visitor.

Nurse (Haga hospital The Hague)
She works different shifts. Dayshifts from 7:15 to 16:00, in between shifts from 9:15 to 16:00, late shifts from 15:00 to 23:30 and night shifts from 23:00 to 7:30. She had almost finished her training and eventually wants to be a paramedic. She works fulltime now.

Some nurses met briefly during the guided tour (Haga hospital The Hague)
They were met in the hall or in the team room. Besides general remarks and comments about their work and the building, they were not interviewed extensively.

Communications department
Communication advisor (WFG)
She works fulltime and her office is in the old hospital building. She works from 8:30 to 17:00 and is responsible for both internal and external communication. She ensures that everyone gets the right information at the right time, and because of this she has contact with all the employees and everyone knows who she is. She represents the WFG to newspapers, television, general practitioners and other professionals.

Ophthalmology outpatient department
Medical specialist (WFG)
He works fulltime. In general his daily task consists of morning consultations in the Ophthalmology outpatient department and an afternoon in the operating theatre or vice versa so moving back and forth. During consultations he only has five minutes for each patient.

Unit manager outpatient department (WFG)
She is the head of the outpatient department. She was a nurse in Neurology for the greater part of her working life and has also been the unit manager of Urology. She is part of the cluster Ophthalmology working unit called WDP[19]. For 27 hours a week spread over 3.5 days, her daily task is supervising the outpatient department in which she is based.

[19] WDP stands for "werkeenheid directe patiëntenzorg". A WDP consists of a specialist, a unit manager and a coordinating manager.

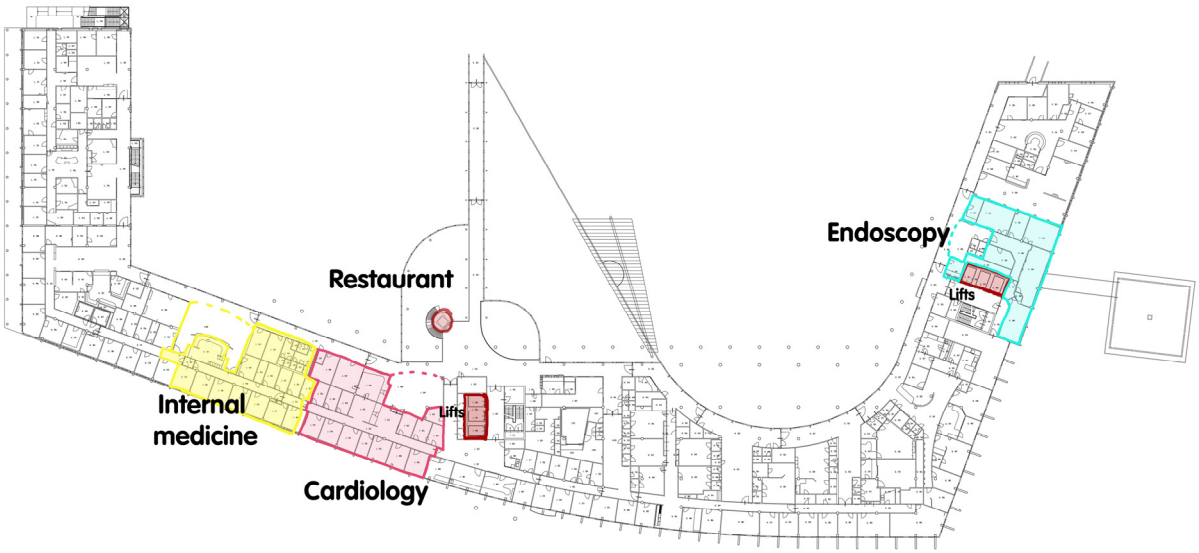

Figure 18. The location of the Cardiology outpatient department on the first floor, located very near to the restaurant and the hall on the floor below. The internal medicine outpatient department is located directly next to the cardiology outpatient department. Endoscopy is at the end of the hallway.

Internal medicine

Two doctor's assistants outpatient department (WFG)

They both work at desks in the outpatient department. Working shifts are from 8:15 to 16:30 or from 9:15 to 17:30. During the day, they make appointments, answer internal and external telephone calls and take care of the medical files. They work closely with the Endoscopic investigation department. These departments are remotely located (see Figure 18) entailing delivery of patient files twice a day. Their fte's are unknown.

Cardiology

Two doctor's assistants outpatient department (WFG)

The working day starts at 8:30 and ends at 17:00. Consultations are booked at ten minutes intervals. On Friday afternoon there are no consultations and the assistants have time for administrative tasks. Cardiology differs from Internal medicine in terms of contact with the patients as function tests form part of their tasks. One of the assistants works a four day week, the fte's of the other is unknown.

Endoscopic investigations

Nurse (WFG)

She has worked fulltime at the outpatient department for ten years. Endoscopic investigation is part of the Internal Medicine specialism. Her tasks only consist of treatments and the administrative tasks. She is to be found in the Endoscopic investigation during the day; patients are brought to her by the day surgery nurses or come directly from home.

Cardiology Ward

Nurse ward (WFG)

She works fulltime but her shifts are different - day shifts from 7:15 to 15:15, evening shifts from 15:00 to23:30 and night shifts from 23:00 to 7:30. Every shift starts with

reading the files and introducing herself to the patients. During the shifts her tasks are e.g.: bed making, taking care of people, taking care of the visitors, handing out medicines, washing and helping the patients.

Some nurses met briefly during the guided tour (WFG)
They were met in the hall or in the team room. Besides general remarks and comments about their work and the building, they were not interviewed extensively.

Unit manger inpatient department (for permission and redirection) (WFG)
His fulltime task was to supervise the cardiology inpatient department (ward). His office is located in the middle of the ward.

Patient inpatient department (ward) (WFG)
He is a chronic patient and every couple of months visits the cardiac outpatient department on the first floor of the building, depicted in Figure 18. At the time of interview he had been admitted to the ward. He is admitted for two or three weeks each year because of his disease.

Orthopaedics
Senior Nurse (WFG)
In this context senior means that she supervises nursing students. Her shifts are during the day from 7:15 to 15:45. She works 38 hours a week.

Neonatology
Mother/ visitor (AMC & WFG)
Her son was born prematurely and was now in his third week in the Neonatal Intensive Care Unit of the WFG. He was born in the AMC at Amsterdam and stayed there for nine and a halve weeks. His mother was an inpatient for and post delivery and than stayed at a Ronald McDonald house[20].

Unit manger Neonatal intensive care unit (WFG)
She fulltime supervises the Neonatal unit fourth floor of the old building and shares the supervision of Child and Youth outpatient department on the ground floor of the old building. She walks back and forth during the day. She has worked as a nurse in many hospitals all over the country and sometimes still works hands-on in the Neonatal Intensive Care Unit.

Some nurses met briefly during the guided tour (WFG)
They were met in the hall or in the team room. Besides general remarks and comments about their work and the building, they were not interviewed extensively.

Child and Youth
Unit manager inpatient department (ward) (WFG)
She fulltime supervises the Child and Youth inpatient department (ward) and part time the outpatient department Child and Youth, which she shares with her colleague who is also the unit manger of Neonatal Intensive Care Unit.

[20] A Ronald McDonald House® is a temporary home-away-from-home where the families of children being treated for serious illnesses or trauma reside while the child receives treatment at a nearby medical facility. It is also a place where children who are receiving outpatient treatment are able to spend time with their families in a warm and cheerful environment.

Key figures & factors

In Figure 17 key figures are identified who gave permission and precipitated network growth. The first key figure is the coordinating manager who gave permission, by e-mail, to observe the hospital. After gaining permission a second request was made: to be allowed to interview a few medical employees in the outpatient departments. The coordinating manager eventually gave permission for interviews and reference to his involvement facilitated convincing stakeholders to participate. Contact with the coordinating manager opened doors.

The second key figure was a doctor's assistant in the Cardiology outpatient department who was very committed and posted the subsequent request (to observe on wards) during an informal celebration drink. Soon the telephone number for the Cardiology unit manager of the inpatient department (ward) was obtained and it made her the link between the outpatient and the inpatient department (ward)s.

The unit manger of Cardiology was the third key figure. Through having a general and informative conversation with him in his office the first access to a ward was made. He suggested some inpatient department (ward)s to focus on, gave some general information about the involvement of the stakeholders during the last building design process and he immediately spoke to some nurses and arranged two interviews for the same day.

While visiting the inpatient departments some very interesting design errors where demonstrated. Later after the communication advisor had given approval these were photographed. The pictures had to be approved before use. Eventually permission was given because of a convincing explanation of the objectives of the research and besides giving permission, she herself showed willingness to be interviewed. During this interview, she gave some interesting leads of stakeholders who could be interviewed. She knew exactly what the current activities were and who might like to talk about their wishes, needs, frustrations and tensions. Through her interest and cooperation the snowball effect occurred. After approaching all the leads she offered they all agreed to interviews. The network was built and not only did these stakeholders facilitate the extension of the network they also led to patients who were willing to be interviewed. Speaking in terms of supply and demand, at a certain stage there was more supply than demand. It can be concluded that the communication advisor played a significant part and really had a pivotal position.

6.4 Piloting

To test the interview content, pilots can be held in order to prevent errors happening during the main research phase.

The pilot in another hospital

Preliminary to the interviews in the WFG an interview question list was set up and piloted in another hospital,the Leyenburg location of the Haga hospital in The Hague. The reason for piloting in another hospital was the fact that the contacts made in the WFG were still limited and too vital to be used only for a test. Personal contact at Leyenburg made it possible to pilot the structured interviewing method. Besides piloting, visiting another hospital was very worthwhile; new contacts were made, experience of a different and much older building and seeing different work patterns from those noticed in the WFG changed perspectives significantly. Besides the piloting interview several hours were spent in the hospital mainly in a team room talking to a few nurses. The nurse interviewed organized a guided tour through all departments she deals with on a daily basis.

The interview was audio taped and transcribed verbatim for analysis. Minor changes were made to the interview question list in order to improve focus and clarity. The final list of questions can be found in Appendix F.2.

The pilot about generative tools

In order to find out whether questions could be asked about generative tools in this early phase of the research, an interview particularly about generative tools was piloted in the outpatient department (WFG). Two doctor's assistants were interviewed simultaneously at the Cardiology outpatient department (see Appendix J.2).
This interview resulted in the conducting of general, in depth questions about generative tools. The subject was excessively abstract for the assistants interviewed and caused them to stray from the subject matter. However, the advantage was that this pilot led to more concrete questions about user participation that could be used in interviews.

6.5 Collecting stakeholder information

After observing the hospital in order to familiarise the researcher/designer with the hospital environment, stakeholders were approached, involved and as a result the actual stakeholder information gathering began. During the first stakeholder contacts at the outpatient departments, three concise structured interviews were held. The focus of these interviews was familiarisation with the hospital, the building, current activities and general information about stakeholder participation in an earlier building design process. This interviewing list can be found in Appendix F.1.
The interviews were drawn up in mindmaps and these are to be found in Appendix B. These interviews combined with the results of a pilot held about generative tools, formed the foundation of the final interviewing list. The list was piloted in another hospital prior to interviewing the WFG stakeholders.

The pilot held at the Haga hospital and the three concise interviews at the WFG led to the interviewing list shown in Appendix F.2.
In this second interviewing phase both medical employees from the inpatient and outpatient departments were interviewed. The interviews at the WFG started with a question about the employees' daily occupations and tasks: What does your working day consist of? This question was asked not only to get insights in the daily activities of the employee but also to lay a foundation for the rest of the interview. Using this approach as an ice breaker the researcher/designer showed empathy. Interviewees like to talk about their jobs (Salvedy, 2001) and when you show interest and involvement, they are willing to tell you all about it.

After asking about their working days, the stakeholders were asked about their involvement in earlier building design processes and their willingness to participate in the future.

Subsequently the stakeholders were asked about their opinions of the hospital building. They were asked to name three positive aspects and three negative things which they might like to change in each of the wards, outpatient departments, their offices and building as a whole. The questions and subjects were related to their own working environment, e.g. a nurse in the Cardiology ward was only asked about the ward and not about the related outpatients department. She was also asked about the building in general as were all stakeholders. The order of subjects discussed differed in order to keep the interview flowing naturally. For example, when a stakeholder spontaneously talked about the building entrance, the positive and negative aspects of the building in general were dealt with first before moving on to another subject.

All aspects came to the surface, lifts, play areas, privacy, isolation, daylight and the food in the restaurant etc. All interviews were audio taped and transcribed verbatim for analysis into transcripts.

To support the named wishes and needs and to access the employees' experiences, guided tours were requested. During guided tours, some questions popped up randomly and the stakeholder or occasionally a passing colleague gave some spontaneous comments.
The employees were also briefly asked about generative tools and their willingness to utilize such a tool. Sometimes they spontaneously mentioned similar techniques and or different ways to implement the method and ideas to utilize a generative tool. Some stakeholders thought it was a good opportunity for hospital employees to think "out of the box". In one of the last interviews this question led to a new subject identity, resulting in a new question that was added into the last two interviews conducted (Transcripts, see Appendix H).

After finishing the interviewing round in which the employees were asked to give their opinion and share their wishes, needs, frustrations and tensions, the patients were interviewed.

The interview question list for the patient was similar to those of the employees, the question about offices was left out. One interview was audio taped (see Appendix G.8) one partly (G.7) and one not at all (this story has been caught in a mindmap in Appendix B). The imcompletely taped interview was due to the presence of a fellow patient once he left the room the tape started. The untapped interview of the third patient was again due to preservation of the privacy of a third party.

6.6 Conclusions

The initial approach of the stakeholders happened in a very unstructured way not dissimilar to real life in which the first contact with another person rarely happens in a predetermined way. The stakeholders involved were all willing to participate and because of their network, a snowball effect occurred. This snowball effect at the end of the phase when interviews were conducted led to a situation where supply exceeded demand. This situation could not have been predicted at the start of the project, described in chapter 5, when achieving permission for field research in a hospital environment was nothing but struggle.

Maybe the reason stakeholders were willing to participate can be summed up: a good starting point is encountering the right person who has both the time and a enthusiasm for innovations and is in a position to give permission. A good social network between the stakeholders approached took the researcher/designer further. The character and attitude of the researcher/designer played a significant part . A researcher/designer who is enthusiastic, persistent and informal has a good chance of success. Accessing people's experiences is about getting involved, listening, and enabling the subject to tell their stories and reveal their frustrations. It is all about empathy. The researcher/designer has to be somebody they feel their story is safe with, who listens and takes their words seriously.

7 The Learning History

Conducting conventional research methods, interviews, observation and guided tours provided a mass of stakeholder information and insights. This information has been drawn up in the form of mindmaps and transcripts. In order to create clarity and structure the information has been translated into a structured jointly told tale. This approach is called the Learning History. This chapter introduces the theory behind Learning History (7.1), gives information about the additional Learning History Book in which the information has been structured (7.2) and shows the researcher's implicit interpretation of the stakeholder information (7.3).

7.1 Learning History introduction

The Learning History Method is an approach for helping an organization to learn from its own experiences. It is based on the belief that when things go wrong employees are able to say *exactly* what went wrong, but from these often different perspectives and opinions complete chaos and a puzzle of reasons and solutions emerge. Moulding all perspectives together is informative for the organization as to what and why things happened as they did.

It is the assumption that employees in organizations may act collectively, but only learn individually (Kleiner et al.,1997). This is the central frustration of organizational learning today. All the data assembled rarely makes it back to the employees of an organization in a form that they can use meaningfully. The reports are often aimed at managers and not at employees. A group of scientists, business managers and journalists at Massachusetts Institute of Technology (MIT) Centre for Organizational Learning developed the Learning History approach to involve the employees in learning collectively.

In fact, a Learning History is a narrative of an organization's recent set of innovations, changes or negative events seen from different perspectives. The document's content comes from interviews with employees in which each person is quoted directly and only identified by title. The quotes are woven into a story which thereby seems to be a jointly told tale.

In the jointly told tale a section has been reserved for analysis and commentary by the researcher/designer. The researcher/designer identifies recurrent themes and unspoken issues that hover just below the surface and these will be raised and translated into the implicit meaning of the stakeholders' quotes. Tacit knowledge will be brought to the surface.

The stakeholders can read the document individually or together. There are no rules for reading the document. It can be read partly or from beginning to end, from left to right or from right to left and the quotes and conclusions can be interpreted freely. Stakeholders can agree on or reject a quote and discuss this with fellow hospital stakeholders. The intention of the document is to lead to a group discussion. The learning history is as much a process as it is a product (Kleiner et al.,1997).

7.2 The Learning History Booklet

The Learning History theory has been implemented in "Het Westfriesgasthuis" on the research data but in comparison with former implementations of the theory this part of the learning process comprises more people than just the staff. Besides the employees (the stakeholders who use the building in their daily activities) the patients and visitors (the stakeholders who use the building as a part of a service provided in the building), are also part of the learning process and they all contribute to the organizational learning.

The interviews and mindmaps resulting from the conventional research methods have been merged and composed into a jointly told tale. The information has been divided into the five information spheres (Chapter 3, Stakeholder Information) and, within these information spheres the categories are identified which are the markers to structure the jointly told tale.

The complete Learning History can be found in the accompanying booklet: "Building on Experiences – a Jointly Told Tale in a Hospital Environment".

7.3 The implicit meaning of the hospital stakeholders' quotes

The quotes in the Learning History Booklet are the actual words the stakeholders spoke in the Dutch language, they are the hospital stakeholders' explicit knowledge. The quotes are organized and structured based on the content and the stakeholders' implicit meaning of the quotes. The implicit meaning in the left column on every page of the Learning History Booklet, shows the researcher/designer's implicit interpretation of the explicit stakeholder quotes and is covered in this section.
The list is divided into five themes (the five information spheres) and subdivided into categories which lead to a list of implicit interpretations.

Hospital image

Atmosphere

- Patients need to feel more connected to the world outside the hospital with less emphasis on the institutional setting.
- The main reception area of the hospital building triggers more than just the eyes of the stakeholders – patients, visitors and staff indicate a desire for music, smells and atmosphere.
- For chronic patients hospital visits are a part of everyday life. Life goes on, life is not institutional and they do not want be treated as "patients". A normal homely atmosphere facilitates acceptance of the incurable and reduces stress.

Identity

- Every specialism attracts a certain type of medical employee each having similar personal characteristics. Characteristics of nurses in general are independency, resoluteness and strong opinions.
- There is a need for an identity per specialism not only for the medical employees, but also for the patients. Providing every specialism with its own colour or logo would not only contribute to involvement but could also be used for signposting. According to some stakeholders it could be a positive contribution to the atmosphere of the hospital building.

Hospital day

Isolation

- Being isolated from co-workers can be a huge dilemma - people want to be able to see their colleagues via doors or windows in party walls.
- People need to see daylight. Even though some mainly execute their profession in darkened rooms, they still need to be able to let in daylight. Daylight is necessary for a healthy state of mind and it prevents a feeling of isolation.

Activities

- There is a need for activities for visitors and especially visiting (grand)children. Hospital visits must be enjoyable and satisfying for them as well. Visitors are very important to the patients; they are their connection with home.
- When patients have no visitors, they like to watch television, take a nap or read a book.
- Watching television is for many patients essential for whiling away the time rather than socializing with fellow patients.

Movements within the building

- The medical staff feel a need for separate lifts. Visitors should be separated from staff and patients on their way to medical procedures. A small lift for the use of medical staff only would seem a good idea.
- The movement of patients through hallways, passing visitors and other patients can be invasive of privacy. This is particularly evident when, due to lack of space or suitable recovery room, patients are parked after treatment in hallways. A one way system with a holding base is desirable in the absence of recovery rooms.

Healing and working environment

Wards (Inpatient department)

- Single rooms are preferred by everybody for privacy.
- In some specialisms (e.g. children's ward) multi-bedded rooms have advantages, such as company and social control.
- In multi-bedded rooms, some medical staff prefer both male and female patients together.

Decoration

- The need to personalize the patient's environment differs. Patients just do not want to stay long enough to be disturbed by other patients and their belongings.
- Although art is subjective it would be much appreciated, not only in the main hall and hallways, but also in the wards and outpatient departments. It does not matter what the art depicts, as long as it is appropriate, circulates and will not provoke the patient.
- A homely environment in consulting rooms would have a positive influence on both patients and medical staff but too many personal touches could create chaos and would look unprofessional.
- It seems that all stakeholders prefer relaxing, soothing and fresh colours in the rooms where treatment or care takes place, however in public rooms, such as the restaurant, main hall, conversation rooms and offices stakeholders would prefer more colour, less sterility, resulting in a joyful and less institutional feel.

Privacy

- There is a need to withdraw and to narrow one's world. Patients and visitors feel a need to separate themselves from the world around, the people and all influences of their surroundings - a need to fence off private space.
- Due to the hospital's open character, it is hard for the medical staff to guarantee the patient's privacy. They have to be very aware of what they are saying. Furthermore the hospital seems very thin-walled. Good sound insulation is very important for both the patient's rest and privacy.
- Visiting hours are very important to the patients but they are hectic and exhausting, especially during the weekend and in multi-bedded room. Patients need to be able to withdraw, alone or with their visitors in rooms such as are in the Neonatal Intensive Care Unit.

Interpersonal interaction

- Amongst the medical employees, there is as a group a strong need for routine and shared activities.
- There is a need for a place where medical employees can come together as a group, where they can socialize with direct colleagues and where they can relax such as a coffee room.
- Although communicating and socializing with colleagues from other specialisms would contribute to a feeling of solidarity and a sharing of knowledge, the need to socialize differs. Employees must have the possibility to get together with their co-workers without having to start smoking! A coffee room, shared by perhaps four outpatient departments, specialisms that are related such as Neonatology, Child and Youth and the Maternity department, larger than those for each individual outpatient department would be desirable. The coffee room should be close, otherwise staff tend to use their own department's coffee room and remain segregated.
- In the hospital there still is a hierarchy. Medical specialists are there to analyze and nurses are there to serve the patients. A personal approach is very important, especially with the current tendency to need to get things done as quickly as possible.
- There is a need for a place to withdraw to let bad news sink in - a place where a patient can be sad and has time to come to terms with the news. A bad news room close to the consultant's room or a separate corner of the restaurant could provide a solution.

Organizational vision, needs and demands

Willingness to participate in the building plans

- All medical staff would like to be involved especially when they have something to contribute about the requirements of their direct working environment.
- During former building planning, the medical staff was involved to a certain extent. At the outpatient departments there were building construction groups, consisting of a unit manager and some staff who attended meetings with the architect. At the inpatient end there was a four-bedded test room set up. Attending meetings does not suit every stakeholder, some are passive or shy and are easily overruled.
- The anticipation is that good ideas are often skipped over because of the expense.
- The ten year time span makes it difficult to estimate what is needed in the future. On the date of completion of building some things are already outdated. Latent needs will not be revealed by explicit knowledge.
- Needs and demands can easily be overlooked and because some things are so obvious stakeholders do not ask for them. By asking the stakeholders individually, and face to face and accessing their experience, tacit and latent needs, wishes and demands that otherwise would be left unspoken, would be revealed.
- Involving the different stakeholders needs different approaches. They would all like to fill in a workbook or diary, but this must be very short and to the point for the patients and visitors. The combination workbook and pc is perfect, as long as there is a response online. Medical specialists still need a face to face approach with the architect, but it could be a group's delegate. Patients would like to be able to make complaints at the moment of irritation.
- The stakeholders' willingness to co-operate depends on the motivation and the response. When aware that they will be heard and their wishes are feasible they are willing to give much more time and effort. Responses in the form of an internet site in which polls are kept up to date would be motivating.

Tendencies

- There is a shift from inpatient to outpatient treatment, less inpatient surgery, more day treatments.
- Waiting is boring and exhausting, especially when one does not know what one is waiting for. Transparency of information would limit the stress both for the patients, visitors and the medical employees. A better intake and better information about patients could minimise or even eliminate waiting time.
- A future expectation is that specialisms will be merged and departments joined with the focus on special patient groups and diseases resulting for instance from an ageing population. Integration and cooperation between specialisms and differentiation of tasks thus avoiding time wasting and keeping things as efficient and centralized as possible without leaving out the personal touch. The focus will be more patient orientated than before.
- There is an urgent need for a room for group instruction and information for patients, because the medical specialists do not have time for their information providing tasks. Some specialisms such as Ophthalmology already give group instruction, others such as Child and Youth will be starting soon. The instruction room could be shared by different specialisms and would facilitate logistics and the sharing of information. The room must be easily accessible for the elderly and some additional rooms would be desirable, such as a toilet and an examination room.

Centralization

- Locating co-operating specialisms very close together would improve communication.
- Some specialisms could be more easily placed at the outer ends of the hospital building e.g. the Woman-Child Centre, Ophthalmology, Dentistry, Dermatology and Ear, Nose and Throat, because they tend to function independently of other specialisms. Specialisms with more interaction can be located close together in order to improve logistics and communication.
- The primary process of the hospital has priority when it comes to centralisation. Supportive services and managers can be decentralized.
- In the inpatient department (wards) it is preferable to have storage, medicine, team rooms and the secretariat centrally. The team room must be central for easy visual and physical access to the whole ward.

Building wishes and needs

Annoyance caused by the building lay-out

- Many practical issues are very obvious to the building users. It is their belief, that by involving them earlier certain design errors could be avoided.
- There is a need for storage in order to get things organized and to keep an overview

Orientation

- Daylight and connection with the world outside the hospital, facilitate orientation.
- It is human nature to walk straight to the first desk seen when entering a new space and to ask for directions despite good signposting. A clear lay-out, recognizable landmarks and light from outside can facilitate orientation during subsequent visits.
- People tend to move towards the lifts, these are very important for movement. The lifts need to be easily identified.

7.4 Experience communication cards

The researcher has translated the mass of information obtained from the conventional research methods into a list of implicit meanings from the stakeholder quotes. These interpretations could be used as inspiration for the design team. In order to improve the functionality and ease of use, the list of implicit meanings has been translated into experience communication cards which represent the five information spheres. Each card contains one implicit interpretation from a subcategory of the information spheres and, below this, interpretation words are printed directly as taken from the transcripts. These explicit stakeholder words, combined with the researcher's implicit interpretation of the stakeholder's quotes, provide the design team with information and could lead to inspiration.

Figure 19. The experience communication cards (a Dutch language version). The category is printed on the left, the implicit interpretation in the circle and the stakeholder words below. The dots bottom left indicate the card number and the total number of cards in the category.

The cards have an inspirational function *and* are a framework on which to build conversation, and could therefore also be used by the hospital stakeholders in the group session. The implicit interpretation and the stakeholder words can be interpreted freely, the cards can be arranged and merged and, therefore, the hospital stakeholders can give their view on what they read and compare it with their own experiences. Hopefully these different interpretations, opinions and experiences will lead to discussion and be a rich source of knowledge for the design team.

7.5 Conclusions

The Learning History is a way of structuring the data obtained from the conventional research methods. It is both a process and a product. Besides the booklet in which the jointly told tale and the implicit interpretation of the hospital stakeholders' quotes are printed, the data could be translated into a card set which can be used to inform and inspire the design team. The information on the cards is accessible, functional, easy to use, can be interpreted freely, and could be used in the hospital stakeholder group sessions in order to lead the discussion.

8 Subsequent Steps

The goals have been set, the desired hospital stakeholder information has been defined and the conventional research methods have been conducted. These expose not only the observable and explicit knowledge but because of the researcher's implicit interpretation of the quotes in the Learning History, also revealed tacit knowledge. Figure 20 depicts the building blocks that can already be stacked and the building block of generative techniques that still remains to be addressed.

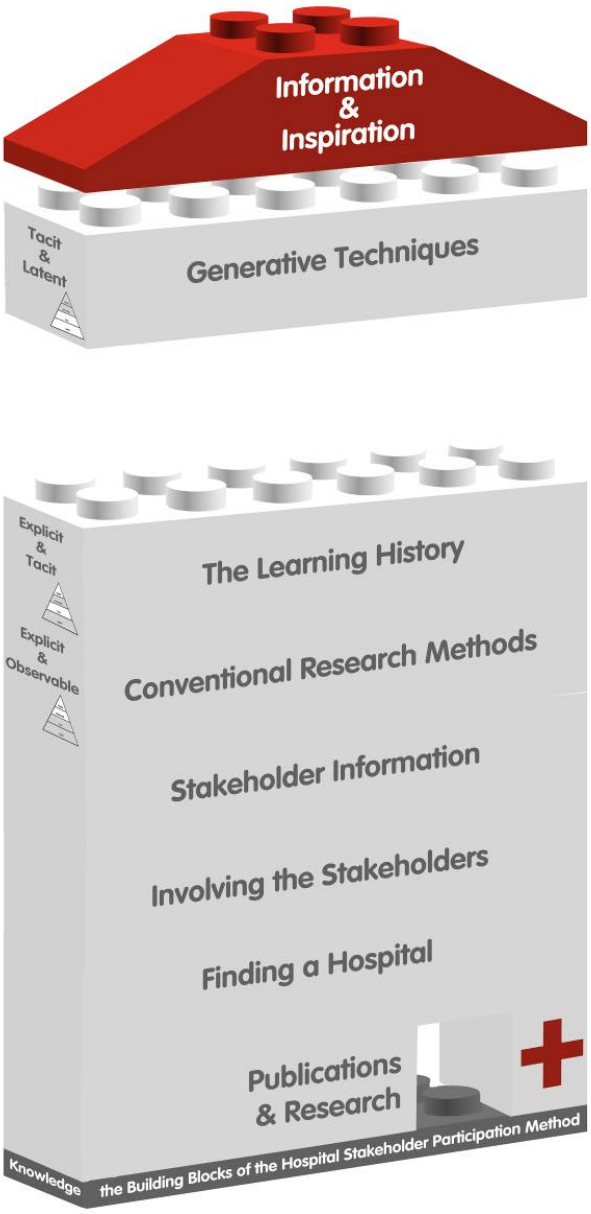

Figure 20. The building blocks that are stacked resemble the finished phases of the Hospital Stakeholder Participation Method.

The conventional research methods led to observable and explicit knowledge. The Learning History structured the explicit knowledge and the researcher translated the explicit knowledge into a tacit interpretation (section 7.3). To obtain a complete set of

experiences, tacit and latent hospital stakeholder knowledge should also be revealed by using a generative technique, such a technique will be described section 8.1.

The final phase of the generative technique would be the analysis and interpretation of the generated information. A participatory communication tool could help the design team to communicate hospital stakeholder experiences and become inspired as can be read in section 8.2.

8.1 Generative techniques

Generative techniques both facilitate communication between the design team and the hospital stakeholders verbally and visually. The term "generative" is used, because the design language is generative in the sense that through it, people can express an infinite number of ideas (e.g., dreams, insights, opportunities, etc.) with a limited set of stimulus items (Sanders, 2006).
There are several ways of utilizing these generative techniques, the most preferred procedure is Context mapping as described in section 2.2 (Participatory Design in product design).

Figure 21. The Context mapping procedure

The procedure consists of the preparation, sensitization, group sessions, analysis and communication. The phases implemented in the Hospital Stakeholder Participation Method will be described briefly.

Preparation: In the preparation phase the goals are set using the knowledge obtained from conventional research methods. This input, the awareness of wishes, needs, tensions and frustrations, allows the researcher/designer to develop a tailored sensitizing tool.
Sensitization: Sensitizing means preparing the hospital participants for the group sessions. It is preferable to give the hospital stakeholders a workbook in which they are asked to answer (write, draw or use stickers) open-ended questions such as: What things do you bring from home into the hospital? Participants receive these books some weeks in advance of the group session, giving them time to access their experiences and discuss these during the group sessions.
Group session: During a group session hospital stakeholders come together, do generative exercises, receive instructions and sets of expressive components and create artifacts to express their thoughts, dreams and wishes. These artifacts are often visual, such as collages, which are then presented to the rest of the group.
Analysis: The group session is videotaped and is transcribed verbatim and, combined with all visual artefacts and stories told, creates a mass of qualitative data. The data is used as input for the design team, to widen their scope and provides a rich source of information and hopefully inspiration.
Communication: The last step of the Context mapping procedure is represented by the roof of the Hospital Stakeholder Participation Method. The generated data must be structured by a tool in order to implement it in the design process. The following section describes such a tool.

8.2 Information and inspiration for the design team

It is a challenge to transform qualitative data from group sessions into knowledge that can be implemented in the design process (Sleeswijk Visser et al., 2005). The translation of data into a report is advised against because this does not provide inspiration and a lot of rich (visual) information can be lost. Active techniques such as workshops could better facilitate the design team's understanding of the hospital stakeholders' data. The usage of cards as a tool during such a workshop facilitates the translation of data and allows discussion whereby the design team become co-owners of the information. Preliminary research in user data analysis (Sleeswijk Visser et al., 2005) resulted in the view that by connecting the stakeholder experiences with the design team's own experiences, a vividness of user experiences is realised. Every member of the design team has his/her own set of experiences and this subjective interpretation could contribute to inspiration and a deeper understanding of the information.

A participatory communication tool

In order to facilitate the data interpretation a card set could be developed, each card representing a hospital stakeholder who had participated in the group session. The cards could be marked with a visual representation of the hospital stakeholder (picture and name) and include: anecdotes taken from raw data transcripts, associative visuals[21] to the anecdotes, quotes, diagrams[22] and plenty of blank space (see Figure 22). The cards could be laminated and the blanc space used for jotting down ideas, insights or conclusions on the cards with non-permanent markers. The member of the design team becomes a co-owner of the data by personalizing the hospital stakeholder's information and is able, by re-arranging and comparing the cards, to structure and analyse them.

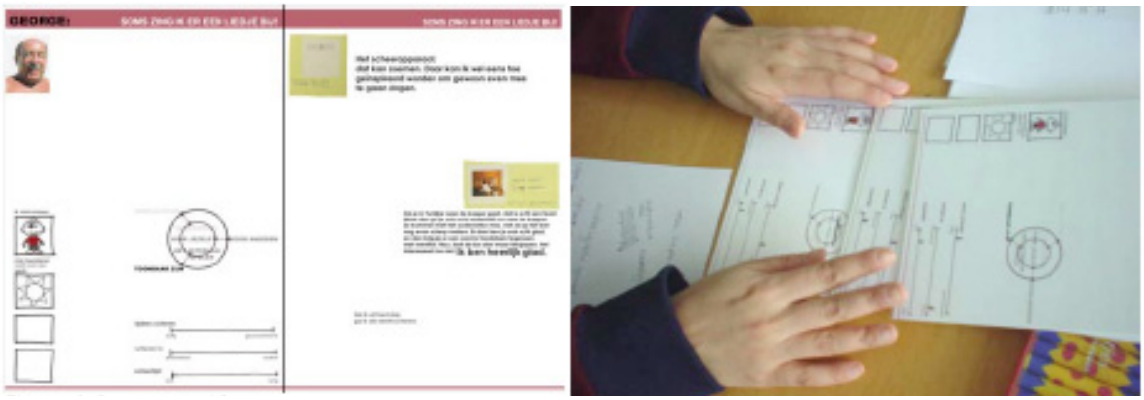

Figure 22. Example (L) of such a card set (Sleeswijk Visser et al., 2005). The left page is the front of the personal card with the participant's identity in the upper left corner and diagrams in the lower right corner. The right is the back of the card on which the anecdotes and associative visuals are printed. The cards can be re-arranged and compared (R).

8.3 Conclusion

In order to gain all possible information which might contribute to inspiration for the design team not only could a generative session be developed and organized (in which tacit and latent knowledge would be exposed) but also a participatory communication tool used to facilitate the communication of stakeholder information to the design team. Recommendations are made in Chapter 9.

[21] The small associative visuals, representing interpretations to the story, are added by the design team and help the designer locate anecdotes.
[22] The diagrams are used to illustrate explicit information such as a week schedule.

9 Recommendations

Getting permission

- Where permission is required, stakeholders could be approached face to face instead of by e-mail or telephone.
- Prior to asking for permission, some experience of the hospital environment is desirable in order to be able to demonstrate the researcher's interest, e.g. a preliminary hospital visit.
- Do not start the field research without permission. It is very important to demonstrate respect and integrity. Do not spoil a good opportunity through over-eagerness or impatience.
- A bottom-up approach is an efficient way to make contact with stakeholders but without permission of "decision-makers" the research project has no chance of success. Be sure that the stakeholders approached are able to direct you to a decision-maker.

Piloting

- A pilot prior to the interviewing phase(s) would help prevent errors during the actual interviews.
- A pilot prior to the group sessions could help in the choice and composition of participants and material and assists the flow of conversation.
- When the possibility arises for a pilot in another hospital prior to the actual research project interview or group session, it would be very fruitful in revealing different perspectives, widening the scope and avoiding abuse of good test contacts in the definitive stakeholder group.

Involving hospital stakeholders

- A bottom-up approach is preferable to top down. The assumption is that the top tends to reject the request out of hand because of concerns regarding money, time and effort. An approach from the bottom (in this research the employees such as the nurses), making them enthusiastic and creating a buzz in the research environment, gains the support of more people for the request. Once the stakeholders are willing to cooperate and start talking about the research with their colleagues, more become aware and volunteer to help thus creating a snow ball effect.
- Proximity to the research location facilitates the whole project. Field research is very intensive and being able to visit the hospital frequently and almost immediately when required, could have a positive influence on the project. It may happen that appointments are made on the spot for the same day because hospital employees have a busy schedules. If one is not restricted by the limitations of traffic, public transport and distance spontaneous reaction is possible.
- The involvement of hospital stakeholders is not only about presentation of the request and the research project but also about presentation of oneself. One has to be able to customize the conversation to fit the addressed; a doctor's assistant maybe approached differently to a unit manager. Empathy is the key to being successful.

- A clear and to the point presentation of the project and the benefits for the hospital stakeholder are essential in the involvement process. Some people are willing to help without any obvious personal advantage but research cannot be built on the presumption of generosity and hospitality.
- In order to be successful in the involvement of stakeholders the researcher has to have the following characteristics; assertiveness, informality, courage, enthusiasm and a smile.

Generative techniques

- During the group session in the context mapping process, the experience communication cards could be used as a framework on which to build a conversation.
- Stakeholder information obtained from conventional research methods could be a perfect starting point for choosing and developing sensitizing or generative tools.
- A multidisciplinary team, consisting of participants from different groups of hospital stakeholders (patients, visitors, medical staff) is preferable. The different experiences and point of views would lead to a very vivid and dynamic group discussion.
- There is a possibility that visitors and patients are harder to involve in a group session because their personal advantages from participation are minimal compared to those of the medical staff. However, their experiences can still be used in the group sessions by asking them to answer one open-ended question on a card and to put it into a suggestion box. The cards could allow conversation and discussion during the group session with the hospital stakeholders *and* the workshops of the design team after the group session.
- A group of four to six participants per session is desirable because it is large enough to create a group feeling and small enough to allow participation. A smaller group may also help avoiding shy people from being overruled.
- At least one delegate from every department should participate in one of the group sessions.
- All hospital employees seem willing to fill in a workbook. Patients and visitors are willing to fill in such a tool but prefer a card rather than a complete workbook because they, unlike the staff, are in the hospital for a short period of time.
- The cards for the patients could be put in the waiting rooms or handed out by the doctor’s assistants in the outpatient departments and by nurses on the wards.
- All hospital stakeholders appreciate feedback about their ideas, cards and workbooks. Also for stakeholders not participating in the group sessions an online response would be satisfying and motivating. The hospital could develop an internet site on which results from the group sessions, workbooks and cards are published and kept up to date.
- Hospital employees prefer to fill-in the sensitizing tool at work, together with their colleagues.
- Some hospital employees indicate a wish to be involved at a later evaluation stage of the design process.

10 Glossary

In order to avoid confusion various terms used in this research were defined as follows.

Research Environment

A hospital is an institution in which sick or injured persons are given medical or surgical treatment. In the hospital the object of all activities is the curing and healing process.

Hospital building is a place where people get treatment and are cared for through their sickness or injuries.

Patients are persons who are under medical care or treatment in wards (long-term inpatient stay or day care) or in the outpatient departments of the hospital building. Patients can be divided into three patient groups, elective, acute and chronic. Elective are those that do not need urgent care. Acute patients are those who need urgent care and chronic patients are patients who visit the hospital regularly because of a chronic affliction or disease.

An Outpatient department is a part of the hospital a patient visits who is not hospitalized overnight but visits a hospital, department, or associated facility for diagnosis or treatment. Treatment provided in this fashion is called ambulatory care.

An Inpatient department (ward) is a part of the hospital where the patient is "admitted" to the hospital and stays overnight or for an indeterminate period.

Hospital image refers to the feelings being or working in the hospital evokes for the hospital stakeholders. It refers to a distinctive and intangible quality of the hospital, the hospital's character.

Hospital day refers to the hospital stakeholders' tasks, the daily routines, times and schedules. The duration of the hospital day differs from stakeholder to stakeholder as does the beginning and end of the day; e.g. for an inpatient staying for multiple days at the inpatient department the end of the day is generally bedtime but for a nurse it is the end of the shift.

Visitors are people who visit or accompany a patient during the hospital stay or hospital visit.

Medical staff refer to all hospital staff supplying curative, preventive, palliative, medicinal, surgical and therapeutic care including doctors, co-assistants, nurses and doctor's assistants as well as unit managers, physical therapists etc.

A Unit manager is the outpatient and/or inpatient department contact person. These managers themselves have a medical or nursing background.

Hospital Stakeholders can be divided into two groups, decision-makers and the actual building users. The decision-makers are e.g. health providers, policy makers, architects who seldom use but are consulted about the hospital building. The other group of stakeholders uses the building on a frequent basis but rarely have any say about hospital buildings.

In this graduation project hospital stakeholders refers to the users who actually use the building in their everyday activities (medical staff and general and technical services) and the category of users who use the building as a part of a service provided in the building (patients & visitors).

Service employee is an assistant to nurses on the ward. Service employees take care of the patients' food and the patients can reach them by telephone.

General and technical services are the services that make sure a company can operate properly. The general and technical services are not part of the primary process (medical staff) but of the secondary process including catering, accommodation, reception desks, cleaning, security, archives etc.

Participatory Design

Participatory Design is an approach to design that attempts to involve actively the end users in the design process to help ensure that the product designed meets the needs and is functional.[23] In participatory experiences, the roles of the designer and the researcher blur and the user becomes a critical component of the process (Sanders, 2002).

User Centered Design is a design philosophy and a process in which the needs, wants, and limitations of the end user are given extensive attention at each stage of the design process. It is an approach to user involvement in which a social scientist has been involved to understand the user and translate that understanding into principles and prescriptions that the designers could understand and use (Sanders, 2002).

Method refers to a settled kind of procedure to reveal hospital stakeholder experiences and translate these into a structured list, which can be implemented in the list of requirements of the hospital building.

Generative methods are a language enabling all stakeholders to contribute directly to the development of products, goods and services. This new language relies on visual literacy and begins to bring it into balance with verbal literacy (Sanders, 2002).

In the design development process, generative methods such as collaging can be used, together with other methods, in a converging perspectives approach (Sanders, 2000) that draws simultaneously from three perspectives: marketing research *("what people say"),* applied anthropology *("what people do")* and Participatory Design *("what people make")*. When all three perspectives are explored simultaneously, we can understand the experience domains of the people we are serving through design. When we bring these people through guided discovery and give them the generative *make* tools, we have set the stage for them to express their own creative ideas (Stappers et al., 2003).

Generative Tool refers to the creation of a shared design language that designers/researchers and the stakeholders use to communicate visually and directly with each other. The design language is generative in the sense that with it, people can express an infinite number of ideas (e.g., dreams, insights, opportunities, etc.) through a limited set of stimulus items (Sanders, 2006).

[23] www.wikipedia.org

Sensitizing refers to the phase prior to a group session when participants have the opportunity to develop an understanding of the users and their experiences. If participants see the user data for the first time at the workshop, it is difficult to get to know the different users and their perspectives, which may result in the participants reverting to their own experience base. Sensitizing is a process where participants are triggered, encouraged and motivated to think, reflect, wonder and explore aspects of their personal context in their own time and environment (Sleeswijk Visser, 2005).

Context refers to all factors that influence the experience of product use (Sleeswijk Visser et al, 2005).

Knowledge

Knowledge is referred to as familiarity, awareness, or understanding gained through experience or study.

Explicit knowledge is the knowledge people can express in words (Sanders, 2000). It is knowledge that has been or can be articulated, codified, and stored in certain media. It can be readily transmitted to others.

Observable knowledge is the information obtained by watching what people do and seeing what they use (Sanders, 2002).

Tacit knowledge is knowledge carried in the mind and is therefore difficult to access. Often, people are not aware of the knowledge they possess or how it can be valuable to others. Tacit knowledge is considered more valuable because it provides contexts for people, places, ideas, and experiences. Effective transfer of tacit knowledge generally requires extensive personal contact and trust.

Latent knowledge is knowledge people are not yet aware of, it exists potentially but is realized in the future.

Experience is personal, individually felt and is made up of memories, the current moment and dreams.

Stakeholder insights refer to hospital stakeholder's perception of their environment in an intuitive manner. It derives from their point of view and their experience.

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