

Increasing nurse job satisfaction

Shaping future experiences in a post-merger neonatal intensive care department by using the Design Thinking methodology



Tibbe Titulaer

Master Thesis



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Design for Interaction

Faculty of Industrial Design Engineering
Delft University of Technology

Supervisory Team

Dr. Ir. Marijke Melles (chair)

Industrial Design/ Applied Ergonomics and Design

Dr. Ir. Arnold P.O.S. Vermeeren (mentor)

Industrial Design/ Human Information
Communication Design

In collaboration with

Drs. Ing. Emile Elsbeek (mentor)

Patient Experience Officer VKC

**This is not just any job. What we do
here is so much more than work.
We really care for these people
and do everything within our power
to help them.**

Quotation from an neonatal intensive care
nurse participating in this research





Photography by Tibbe Titulaer

EXECUTIVE SUMMARY

In 2018, both of Amsterdam's academic hospitals (VUmc & AMC) officially merged into the Amsterdam UMC. As part of this merger two neonatal Intensive care units (NICU) are merging as well. As of Q4 2020 all NICU employees from both hospitals will start working in a brand new NICU department at the AMC location. This project aims to increase the job satisfaction of NICU nurses in this post-merger department.

The NICU nurse

A neonatal intensive care unit nurse treats premature born infants as young as 24 weeks after the pregnancy. Besides nursing they guide parents through this emotional and unstable first phase of parenthood.

Larger problem

There is a global nurse shortage and this is also noticed at both NICU departments. Attending this issue is even more urgent now since mergers are often associated with higher job dissatisfaction and higher staff turnover rates (Martin, 2008).

Design problem

Job satisfaction is globally considered to have a pivotal role in nurse turnover and the quality of care for patients. It is identified with sickness absence, productivity, turnover intention and nurse-to-patient ratios (Lu, 2019). At this moment there is no active pursuit to increase nurse job satisfaction at the Amsterdam UMC. This leads to the following design problem:

How can design thinking be used to define and shape future employee experiences in order to improve job satisfaction in a post-merger NICU department?

The design thinking methodology consists of five phases: empathize, define, ideate, prototype and test. All five phases are necessary when working with this design problem.

Designing to increase job satisfaction

Based on a literature study three statements about designing to increase job satisfaction are made:

- If all work values are facilitated, the result is high job satisfaction
- Good culture cohesion positively impacts an individual's assessment of his/her work values.
- If organizational values match and fulfill individual values the results is high job satisfaction

Design research (empathize)

The above mentioned statements raise many research questions which are answered in this document to qualitative research mostly. Shadowing nurses during multiple shifts and conducting eight in-depth interviews allowed to map the current and future employee journey. Multiple generative workshops (Stappers, 2013) are done to establish a NICU nurse profile of ten work values. These values are then compared to the organizations core values. Furthermore the different work cultures of both NICU groups are explored.

Design goal (define)

The design research showed that the value 'rewards me' is fulfilled the least well while being perceived as relatively important by the nurses. The nurses don't feel appreciation and recognition for their work related efforts. This is a promising area for improving job satisfaction and therefore the design goal is:

Improving the NICU nursing staff's feeling of being rewarded for work

EXECUTIVE SUMMARY

related efforts in order to increase their overall job satisfaction.

Design opportunities

In order to achieve the design goal three design opportunities are defined based on the insights in the design research:

- Improving bond & communication
- Improving the nurses' their physical and mental wellbeing
- Celebrating progress to keep nurses enthusiastic

A future experience map (ideate)

To define and shape future NICU nurse experiences, a future employee experience map is made. Based on the design research, predictions about future experiences per theme (i.e. collaborating with doctors) are made. Promising solutions for each opportunity are placed in the employee experience map as well with an estimation of their beneficial effect.



Figure 1: Discussing the future employee experience map at the VUmc together with two team leaders.

Boost (prototype)

Three high potential design interventions in the future employee experience map are developed further into concepts. One concept is prototyped and tested. This concept is the 'Boost' concept which aims at improving employees wellbeing by facilitating a short

personal moment away from all stimuli during a workday. At the VUmc the concept is prototyped. Walls and ceilings are covered with blankets and a massage chair, exercise area and reading corner are created.

Promising results (test)

For three weeks the Boost concept is piloted in the VUmc. The results from this study show that the concept is very much appreciated by the nurses. The big question is if the concept also shows potential for increasing job satisfaction? A questionnaire with eight statements borrowed from the Amsterdam UMC's own job satisfaction research questionnaire is used for measurement. Compared to the zero measurement a small but positive increase is observed for six statements. But more importantly, the participants completely agree that the Boost concept positively contributes to all the statements in the measurement. This data combined with the positive reactions shows that the boost concept has the potential for increasing job satisfaction.

Recommendation

Although more measurements are needed the Boost concept shows the potential to increase job satisfaction. Many more ideas are mapped in the future experience map. This leads to the following final recommendation:

Combine the future employee experience map with a design thinking mindset (empathize, define, ideate, prototype, test) to realize many incremental gains in nurse job satisfaction in order to fight the nurse shortage issue.

Table of contents



INTRODUCTION

1. Introduction	12
1.1 Topic	13
1.2 Approach	16
1.3 Report Structure	18



ANALYSIS

2. Context	21
2.1 Background	22
2.2 Merger and Mission	22
2.3 A New Department	24
2.4 Stakeholders	27
3. Empathize	32
3.1 Job Satisfaction	33
3.2 Design Research	39
3.3 Employee Journey	41
3.4 NICU Nurse Values	46
3.5 Work Cultures	54
3.6 Organizational Identification	60
4. Define	62
4.1 Urgency	63
4.2 Design Goal	63
4.3 Design Opportunities	64
4.4 Criteria and Wishes	67



SYNTHESIS

5. Ideate	69
5.1 Ideation	70
5.2 Future Employee Experience Map	72
5.3 Conceptualization	76

6. Prototype

84	
6.1 Designing for Behavior	85
6.2 Prototyping the 'Boost' concept	88



EVALUATE

7. Test	91
7.1 Evaluation Study	92
8. Final Design	96
7.1 Final Design	97
7.2 User Story	100
9. Recommendations	102
Personal Reflection	106
Acknowledgments	108
References	109

Abbreviations

AMC

(NL: Academisch Medisch Centrum) Academic Medical Center; a collaboration between the University Medical Center Amsterdam and the University of Amsterdam.

EPIC

The company providing the electronic (or digital) patient record system. Both the AMC and VUmc are using EPIC for their electronic patient records, or EPD (NL: Elektronisch Patiëntendossier).

NICU

Neonatal Intensive Care Unit; a unit that provides tertiary care to premature born infants as young as 24 weeks.

PNC

(NL: Perinatologisch Cetrum) Paediatric Center; a collaboration between the neonatal intensive care department and the department of Obstetrics.

SBU

Single Bed Unit; a room with place for one incubator to treat a severely ill premature born child. The SBU is an alternative to the open bay area in which multiple incubators are located in the same unit.

UMC

(NL: Universitair Medisch Centrum) University Medical Center; a hospital carrying out top-referral patient care. This is associated with special and often expensive and complex, diagnostic, procedures and treatment. Within the top-referral domain, each UMC has its own specialties, which usually reflect core areas in medical research.

VKC

(NL: Vrouw-Kind Centrum) Woman-Child Center; the collaboration between the women and child care Division C/E of AMC, and Division III of VUmc.

VUmc

VUmc (NL: Vrije Universiteit Medisch Centrum) A collaboration between the UMC and the 'Vrije Universiteit' in Amsterdam.

01



INTRODUCTION

Topic, Approach & Report Structure

1.1 Topic

The aim of this Master thesis is to improve the job satisfaction of neonatal intensive care nurses in a post-merger department by using design thinking to shape future experiences. This chapter starts by answering two important questions: what is a neonatal intensive care department and why is it important to design for increased nurse job satisfaction in the upcoming post-merger situation? Subsequently, the approach for solving this design problem by following the design thinking methodology is described.

1.1.1 Context Introduction

This graduation project takes place in the Amsterdam UMC (NL: Amsterdam Universitaire medische centra), one of the eight Dutch university medical centers (UMC's). More specifically in the Neonatal Intensive Care Unit (NICU), which is part of the Woman-Child Division (NL: Vrouw-Kind Centrum or VKC). The NICU staff treats premature born babies (prematures) as young as 24 weeks and guides parents through this first unstable phase of life.

At the moment of this writing (Q2, 2019) there are still two NICU departments located in Amsterdam. One in each of the Amsterdam UMC's locations; location AMC (NL: Amsterdam Medisch Cetrum) and location VUmc (NL: VU Medisch Centrum). End 2021, these NICU departments are planned to operate in one new and larger department at the AMC location. The build of this department will start in Q4 of 2019. This is part of the ongoing merger between Amsterdam's academic hospitals (VUmc & AMC) into the Amsterdam UMC which is the new official name since 2018. Therefore, both current neonatal intensive care departments

are part of this research that aims to shape the future experiences in a post-merger department.

1.1.2 Stakeholders Introduction

As mentioned, the NICU staff treats premature born babies (prematures) as young as 24 weeks and guides parents through this first unstable phase of life. This staff consists mostly of doctors, nurses and care supporters. There are other staff members who help to operate the department without directly doing patient care. The main stakeholders of this project are the NICU nursing staff, which is the largest group of NICU employees (plus minus 65%). During the day, evening and at night, the nursing staff is present on the unit. They carry out the patient's treatment plans and help the parents when needed. Each nurse takes care of one to three prematures depending on the patient's care needs. Working at an intensive care means responding to acute situations, dealing with ethical dilemmas and making end-of-life decisions on a frequent basis. It is a job of high highs and low lows. This can lead to high levels of stress related problems like burnouts. For example, severe Burn-Out Syndrome (BOS) has been observed in one third of the Intensive Care Unit nurses in France (Poncet et al., 2007). For both nurse groups (AMC & VUmc), the upcoming merger of their departments will have an impact on their work experiences. During this project, you as a reader are invited to experience the current and future neonatal intensive care through the eyes of the NICU nurses.

INTRODUCTION

1.1.3 Problem description

Before discussing the specific design problem of this graduation project it is important to recognize it as part of the solution to a larger problem. This section discusses the larger problem and the current solutions.

Nursing staff capacity

One of the main challenges the Amsterdam UMC has to deal with during this neonatal intensive care department merger, but also with the other merging departments in the future, is managing the nursing staff capacity. At the moment, the nurse-to-patient ratio at the NICU and at many other departments is already lower than desired. This has been a problem which the UMC's have almost come to accept as 'part of the deal'. They even made up a Dutch word to describe the low nurse-to-patient ratio, namely 'overbedden'. 'Overbedden' means there are so many patients in the beds (NL: bedden) that after the patients are divided there are still some beds left unassigned (NL: over). A low nurse-to-patient ratio is a problem since it is linked to higher mortality rates (Watson et al., 2016) and higher staff turnover, absence and job dissatisfaction (Lu, 2019).

Mergers and nursing staff capacity

Attending this issue is even more urgent now, since mergers are often associated with higher job dissatisfaction and higher staff turnover rates (Martin, 2008). A bad person-work environment fit is increasingly being held responsible for merger and acquisition failure (Cartwright & Cooper, 2012). The future NICU nurse work experience should therefore be considered far before the actual merger has taken place. This statement by a Amsterdam UMC hospital manager is both illustrative and worrisome:

In 2017 the paediatric Intensive Care merged as the first VKC department and still has the highest absence percentage rates of the Amsterdam UMC.

Just as with the paediatric intensive care unit, the future NICU department will be different from the current departments. To prevent high absence rates as with the paediatric intensive care or high turnover rates due to a bad person-work environment fit, this process should be actively guided. There are at least two large changes which will directly influence the nurse's working day experience:

- The shift from units with 8 incubators to single bed units with one incubator.
- The mix of two groups of NICU nursing staff members from two different locations with different work cultures.

A new approach is needed

Both the NICU departments are well aware of the already existing staff problems. They are also aware of this problem's urgency during this department merger. Especially the middle management responsible for the nursing teams works hard to ensure that the future department will have enough nursing staff. This is done mostly by increased recruitment efforts and educating students. This was the strategy for the last 30 years. So far this has not solved the problem in the current situation. At the VUmc, one of three units that holds eight incubators is completely unoccupied due to a nurse shortage. This raises the question if the current strategies alone are enough to provide the post-merger department with the desired amount of nurses.

INTRODUCTION

The current solutions alone aren't sufficient

As mentioned the two main strategies for increasing the total number of NICU nurses at each department are recruitment and education. These are discussed briefly in order to identify areas in which a human centered design (HCD) approach can make a difference. Through increased recruitment efforts the departments intend to attract valuable experienced NICU nurses. This proves to be hard since most experienced NICU nurses in the region already work at either of the departments. Those who don't work at one of the NICU's often made the deliberate choice to work at a regional lower care hospital after working multiple years at either of the academic hospitals. Although the work in the region is described as less challenging, it does earn more money and is generally less stressful. This is therefore the most common NICU nurse career path and those who walk the other way are not numerous. Efforts for retaining experienced nurses might have a higher impact than recruitment.

The second strategy applied to employ more nurses is by recruiting and training more students. During a management meeting it was mentioned that if all goes well there should be batch of new NICU nurses in four to eight years. However by that time the department merger and the possible staff consequences have already taken place. It might also prove hard to retain these young nurses after having the already understaffed nurses training them for multiple years. In 2018, the National Health Care Retention & RN Staffing Report which reviewed 3000 American hospitals concluded that newly licensed nurses and those who have been in practice for two-to-four years are at highest risk for leaving the department to work somewhere else.

For the recruitment and educational efforts to be effective nurse retention is essential. What is currently being done to keep everyone happy and healthy? In an academic hospital a nurse can deliver the best and most complex care while enjoying superior academic possibilities. Although this attracts and binds many in the first place, it is not enough for everyone to prevent developing an intent to leave over the years. On the overall work experience level not much is being done to retain staff or keeping them healthy besides yearly evaluations with a team leader. Here is a gap in strategy where this Design for Interaction thesis can truly deliver added value.

Proposal: Actively increase job satisfaction

Train people well enough so they can leave, treat them well enough so they don't want to.

-Richard Branson

What if the nurse's job satisfaction is increased to a point where it lowers staff turnover rates, decreases burnouts/absence, increases work productivity and improves patient care? And what if happy employees seem to attract even more employees? Job satisfaction is globally considered to have a pivotal role in nurse turnover and the quality of care for patients. It is identified with sickness absence, productivity, turnover intention and nurse-to-patient ratios (Lu, 2019). It seems therefore that strong efforts should be made to actively and continuously improve nurse job satisfaction.

1.1.4 Design problem

In the previous part the academic hospital's staff capacity problems and the urgency for

INTRODUCTION

this problem with the upcoming merger are described. Furthermore a lack of active efforts in order to increase job satisfaction as part of the solution is identified. It is recognized that the future situation will be different from the current and this will influence the nurse's experiences. This leads to the following design problem which is the focus of this Design for Interaction Master thesis from here on:

How can design thinking be used to define and shape the future employee experience in order to improve job satisfaction in a post-merger NICU department?

Wider project Importance

For the nursing staff of all merging departments, these department mergers will lead to large changes in their working life. It is a problem if, during these mergers, hundreds of millions will be spent on building new departments without properly considering the experiences of the employees. This project aims at improving the job satisfaction of the NICU nursing staff by defining and shaping their future experiences. Achieving success at the neonatal intensive care might open opportunities for more design work in other merging departments at the Amsterdam UMC.

1.2 Approach

1.2.1 Deliverables

In the book Service Design for Business (2016), an excellent customer experience is described as 90% brilliant basics and 10% magic moments. "Businesses that successfully address irritations take an incremental gains philosophy that sees each irritation as perhaps 1 percent of the problem

so that 20 resolved irritation can be seen as a significant 20% improvement." For this project, an excellent working day experience is seen as a service the hospital can choose to provide to its employees. The incremental gains philosophy is accepted and therefore the approach to shape future experiences in such that this will improve overall job satisfaction is not aimed at finding just that one magic moment. Rather, the aim is to identify many areas for improvement and organize these such that they can be dealt with one by one until significant positive changes in job satisfaction occur. In order to do this a future employee experience map is made (deliverable 1).

Furthermore, as can be read in chapter 1.1.3 the hospital's managers are not used to approaching a problem like this as a designer. To show them the benefits it is important to make the entire process visible. From identifying small problems to implementing and improving solutions. In order to do this three promising concepts are further developed based on the future experience map. One of these concepts is then also prototyped and tested (deliverable 2). By doing so the entire design thinking process is made visible in their own context.

1.2.2 Important variables

Research variables

To create a realistic overview of the future employee experiences a lot is researched about the current departments, both nursing groups, job satisfaction and the future department. A mind map is made to identify relevant research variables when it comes to creating a future employee experience map for the post-merger department in order to increase the overall NICU nurse job satisfaction (figure 2). Each variable is explored and documented.

INTRODUCTION

Constant feedback from stakeholders

To implement changes in a complex organization the process is important. It is desirable to create a movement in which everyone feels involved in the project and the results. Therefore, the goal is to make the research results visible for the relevant stakeholders whenever possible and to offer constant opportunities for input and feedback so people feel ownership for the results

Bottom up

The Amsterdam UMC is proud at being an evidence based organization, and changes are always based on literature. However when it comes to solving small irritations to improve experiences it is not always necessary to go through the slow process of scientific research as long as the change can be tested and observed. A secondary goal of this project is therefore to show policy makers at the hospital that organizational improvements can also be achieved by studying the people and inner workings of their own departments.

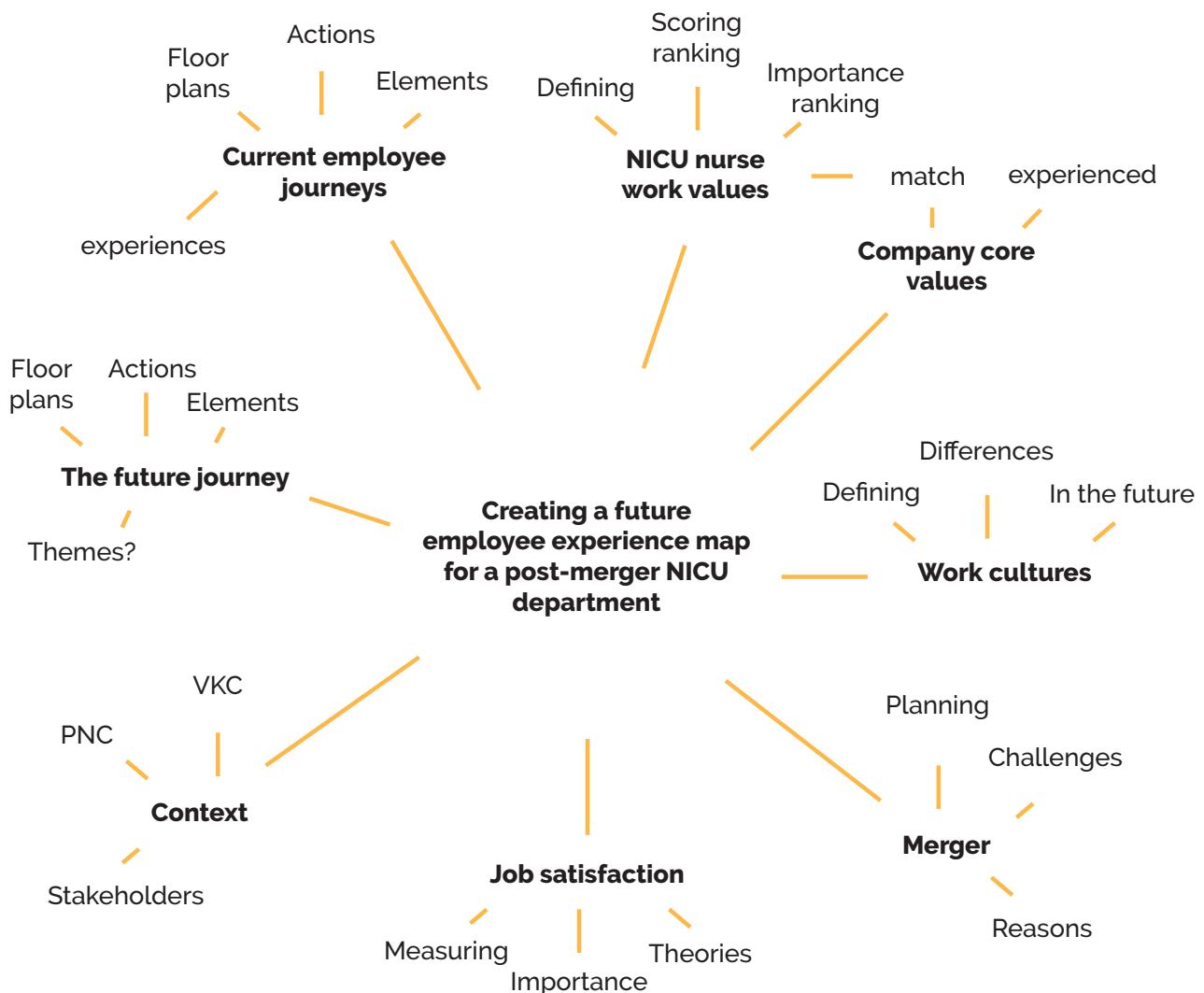


Figure 2 Research variables which are studied in order to create a future employee experience map

1.2.3 Design Thinking

Design Thinking is a framework for innovation. The approach, once used primarily in product design, is now infusing corporate culture as well (Jon Kolko, 2015). It roughly follows five main phases which are empathize, define, ideate, prototype and test. The process is often visualized as an infinity loop to emphasize the iterative character of the process. The phases are not linear, sometimes testing a very quick prototype helps to define the context. The process is very human centered and direct contact with the relevant stakeholders is necessary in all five phases. This flexible and human centered approach is suitable for achieving success while working with large numbers of stakeholders and complex contexts. This project slowly follows each of the five phases of the Design Thinking framework while completing many complete framework cycles during each phase (figure 3).

1.3 Report structure

Besides the Introduction, this report is divided in three main sections: analysis, synthesis and evaluation. To keep the report structured and easy to read the titles of chapters 3-7 are the same as the five design phases described in figure 3. The three main colors used in figure 3 (green, blue and red) are linked to the three main sections in the document which are analysis, synthesis and evaluation. Now follows a brief explanation of the three main sections in this document:

1.3.1 Analysis

The analysis aims at empathizing with the human context through qualitative and literature research. Empathizing with

the main stakeholders creates a thorough understanding of their desires and needs. Many activities which are summed up in figure 3 are done to find answers for all the relevant research variables. Subsequently a design goal is formulated which helps to focus on solving a specific part of the larger design problem. This concludes the empathize and define phase as well as the analysis section.

1.3.2 Synthesis

Synthesis means combining all the pieces of knowledge together into ideas, concepts and prototypes. In this case all the knowledge gathered about the research variables during the empathize and define phase (figure 3) is used to construct a detailed future employee experience map. Ideas to solve the earlier formulated design goal are generated and mapped into the future experience map to identify promising candidates for further development. Three concepts are then further developed and one concept is prototyped to set an example for the organization.

1.3.3 Evaluation

One prototype is made after empathizing with the human context to solve the design problem, defining a design goal to solve a specific part of the larger problem, generating ideas and creating three concepts. This prototype is used to test and further improve the concept. At the same time evidence is gathered that suggests the capability of one design intervention to increase the job satisfaction of nursing staff in a future context. This section then concludes with a final design proposal and recommendations.

INTRODUCTION

Empathize (3)

What is the problem?

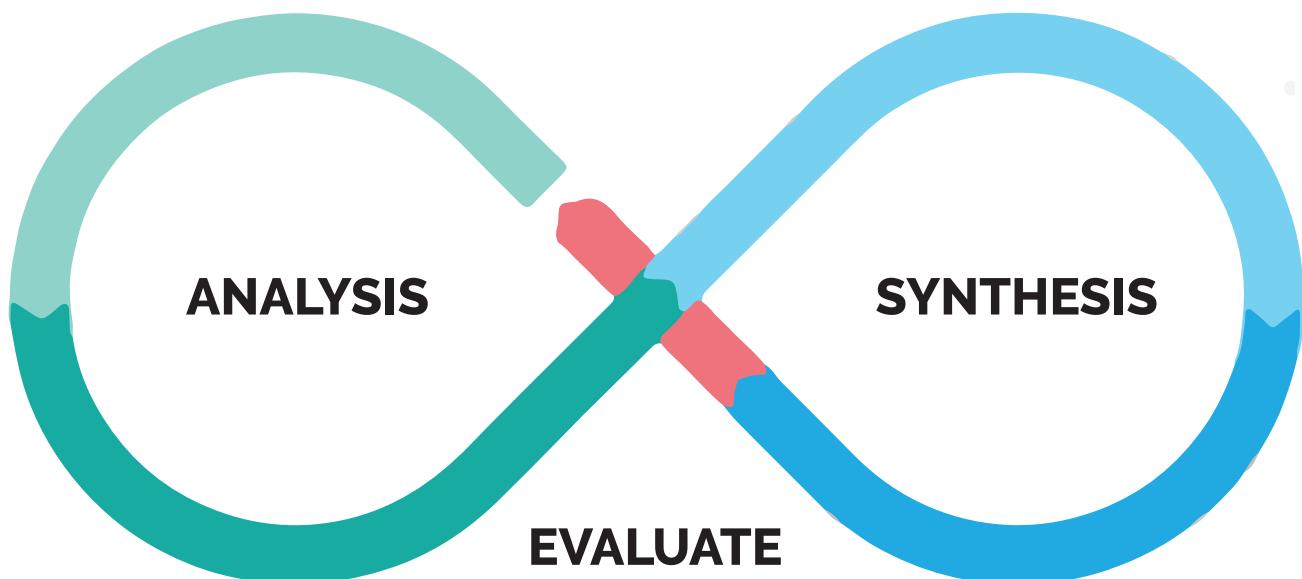
Observations
Interviews
Shadowing
Guerrilla interviews
Literature
Brown paper study
Generative workshops
Case studies

Ideate (5)

How do we solve it?

Co-Creation
Brainstorming
How To's
C-box
Hits and Dots
Visual Thinking

DESIGN THINKING



Define (4)

Why is it important?

Literature
Employee journeys
Value maps
Personas

Test (7)

Does it work?

Observations
Interviews
Show, don't tell
Design for research

Prototype (6)

How do we create it?

Low-fi mock ups
Future journeys
Service blueprints
high-fi mock ups
User stories

Figure 3: Visualization of The Design Thinking Methodology



ANALYSIS

02



CONTEXT

Departments, Vision statements and Stakeholders

The previous chapter introduced the main design problem: shaping future employee experiences by design thinking in order to increase their job satisfaction. In this chapter the context and stakeholders are discussed.

2.1 Background

Before discussing any insights it is important to understand the general context of this project. This project takes place inside a small fraction of a large organization. This small fraction is the Neonatal Intensive Care or NICU. The large organization is the Amsterdam UMC and the NICU is part of a division called Woman-Child (VKC).

Amsterdam University Medical Centre is a University Medical Centre. This means they provide care for more complex medical conditions. Other core businesses next to patient treatment are education and research.

2.1.2 Woman Child Center

The Woman Child Center contains all departments of the Amsterdam UMC dealing with women and child healthcare (figure 4). Both the AMC and the VUmc have their own VKC called Division C/E and Division III respectively. The merger of these two divisions is the VKC (Woman-Child Center). Although the merger is already official as of 2018 the merging of departments will happen in phases over the coming decades.

2.1.3 Neonatal Intensive Care

The Neonatal Intensive Care (NICU) is one of the long-term child healthcare departments that is part of the VKC. The department takes care of severely ill or premature newborn infants. These 'prematures' are treated from as early as 24 weeks after pregnancy. They are

then five months old and four months early. Depending on their condition prematures can stay at the NICU for the full four months and sometimes even longer. Through incubators their environment is controlled.

2.1.4 Perinatal Center

The NICU and the department of obstetrics often work closely together during the period of birth as complicated childbirths often lead to premature born infants and vice versa. To say it frankly, obstetrics functions as an important production house for the NICU. To improve this collaboration and the patient (mother, child) experience both departments will become part of one newly build perinatological center. More on this subject can be read in chapter 2.3: Building a new PNC department.

2.2 Merger and mission

To realistically shape future experiences it is interesting to understand why this merger is taking place and what the main goals of the higher management are.

In September 2017 the alliance between the AMC and VUmc has been approved. The separate locations will stay the same but similar departments will be brought under the same roof. Departments of the VKC are among the first departments merging. In 2018 the new Child Intensive Care has opened at the AMC location. Both the old VUmc and the old AMC employees now work as one team.

2.2.1 Amsterdam UMC - Reasons to merge

The three reasons for this merger as described by the board of Directors (VKC, 2018) are:

1. Creating a 'Centre of Excellence' per division for research and care;
2. Increasing the quality, accessibility, and functionality of the 'high complexity/low volume'-care;
3. Intensifying coordination and direction of the acute care.

2.2.2 Woman-Child Division

The Woman-Child Divisions of both university medical centers (AMC & VUmc) are merging as well. They have redefined a goal and three values to live by which counts for every department. The parts of these statements which are most relevant for the NICU nursing staff are highlighted. In chapter 3.6 it is reflected how these VKC values are experienced by the NICU nurses and to what extent they match their own values.

Goal

"Patients with all conceivable complex and specific disorders can contact us. We provide high-quality care and provide advice based on the best possible evidence, with attention for

the development and social environment of the patient and his / her care environment. We are working towards a situation where we can guarantee that 99% of patients with a highly complex care need that fits our expertise are treated. Within Europe we belong to the best five centers for woman-child care. We excel in care, but also in research. We excel in a number of areas worldwide. 'Sensitive', 'innovative' and 'open' are the three values of the Woman Child Centre (VKC, 2018). These values can guide the employees in such that they can deliver the best care, education and research."

Value 1: Open

"We are accessible and approachable for patients, their relatives, referrers, colleagues and others. We are open and transparent in our communication. An open atmosphere is the basis of safely giving and receiving feedback. In such an environment we can achieve the best results in patient care, research and education."

Value 2: Sensitive

"Attention to patients and their quality of life is central. Because of these principles our patients

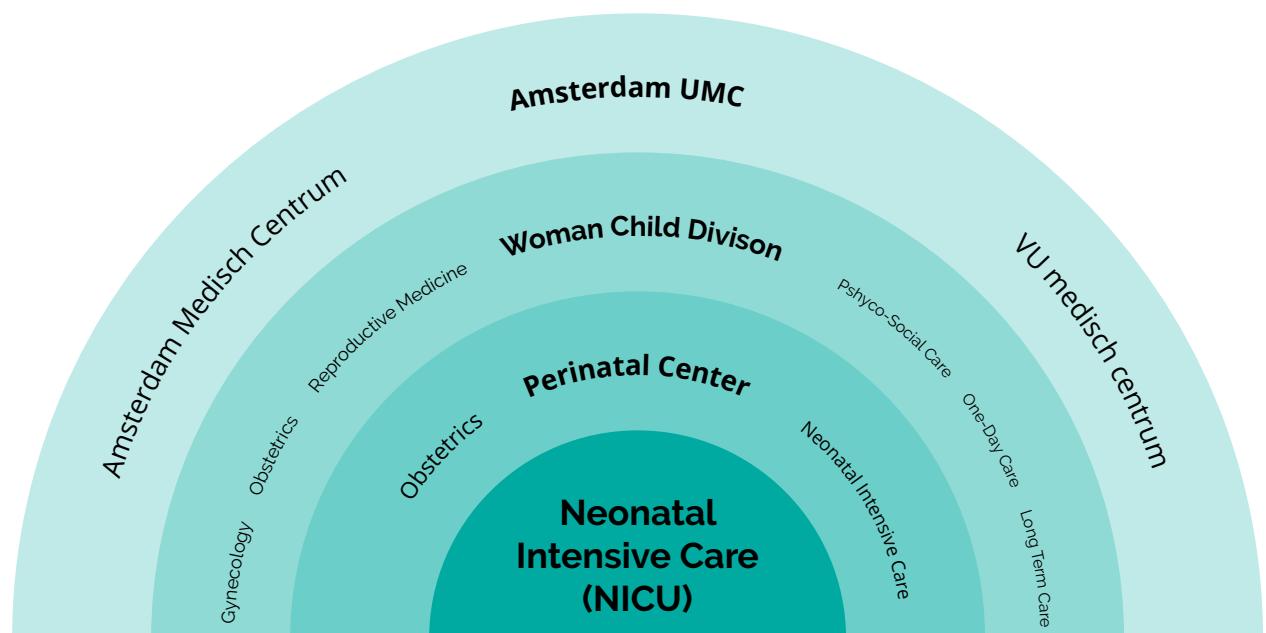


Figure 4: Hierarchy from hospital to department

feel seen, heard, welcome important and safe. We have an eye for developments in society and changes in care needs and questions. We are also caring and loyal to our colleagues and we respect others' views. We highlight the individual qualities of employees and we deploy them."

"Everyone who works within the VKC matters and notices that too!"

Value 3: Innovative

"We want to continuously and demonstrably improve our care. Scientific research and the implementation of research results in clinical care are of paramount importance. We develop and evaluate new ideas and techniques. Improvement is done on the basis of care evaluation: studies that evaluate the care provided. Multidisciplinary we improve the diagnostics, treatments, care and techniques. We do this with the help of scientific research."

2.2.3 Perinatal Centre Vision statements

Within the larger VKC, the PNC has their own ambition document as well. It is interesting to see which themes might influence the employees working experience. These are highlighted here:

1. Far-reaching integration of perinatology and neonatology
2. Integration of PNC with VKC care departments and facilities
3. Family Integrated Care. Well-being of the family is central to the PNC
4. ***Safety for patients, parents and health care workers at the PNC***
5. Healing environment
6. Patient is in charge of activities on a day-to-day basis
7. Visitors are welcome but should contribute positively

8. Activating (preparing for home situation)
9. ***Efficient work processes in the PNC***
10. Flexibility of spaces
11. Sustainability
12. ***Vitality of employees***
13. ***Workplaces employees***

Reflecting on these ambitions

After the insights gathered during this research are discussed in chapter 3.1 – 3.5, chapter 3.6 is dedicated to a reflection on the ambitions of both the VKC and the PNC. It is tried to determine to what extent the larger ambitions align with those of the nurses and to what extent the efforts and effects of these ambitions are experienced.

2.3 A new department

To design for future NICU nurse experiences is it important to understand what the new department will look like and what the biggest work related changes will be. In the grand scheme of things, the new NICU and the new PNC are actually one of the first major steps in the migration plan of the VKC. At the end of 2019 the building of the new department will start its first phase by demolishing part of the old one at the AMC location. At this point about half of the NICU staff will temporarily move to the VUmc where the number of treated patients will be increased. This is possible since due to staff capacity problems an entire functional unit is deserted at the moment (figure 7). Start of the 4th quarter of 2020 the new NICU department should open its doors.

2.3.1 One Perinatal Center

At the new PNC the departments of Obstetrics and Neonatology will physically be closer to each other. This makes it possible to treat

mothers and prematures who both need medical attention together in one room. This is a major innovation which fits the third theme in the previous chapter, Family Integrated Care (FIC).

Family Integrated Care

Family integrated care (FIC) means that families are integrated as partners in the NICU care team. In a 2018 study by O'Brien et al. it was concluded that "FIC improved infant weight gain, decreased parent stress and anxiety, and increased high-frequency exclusive breastmilk feeding at discharge, which together suggest that FIC is an important advancement in neonatal care. Further research is required to examine if these results translate into better long-term outcomes for families." The PNC aims to achieve Family Integrated Care through the following five points:

- Couplet Care Rooms (parent & child are treated together)
- Single Bed Units (child has private room)
- A place to sleep for one of the parents in the Single Bed Unit
- Day-care facilities for other children in the family
- A skills lab to teach parents important nursing activities.

2.3.2 The new NICU

At least two major changes which will have significant impact on the NICU nursing staff's way of working. One is the mixture of two company cultures because of the AMC – VUmc merger. The other is treating patients in Single Bed Units as opposed to Units with up to eight incubators.

Single Bed Units

With the new department comes the transition from multiple incubator units to single Bed Units (SBU). Patients will have their own private room to be nursed in (Figure 5). This can increase the duration of nurse-parent interaction (Toivonen, 2017). The main idea is that the parents and the new born can be together more in a private room which fits the Family Integrated care Vision. Important benefits are:

- Better hygiene and lower infection pressure (Van Veenendaal et al., 2019)
- Higher production of mothers milk (Domanico et al., 2011)
- Less stress for parents (Carter, Carter & Bennett, 2008)

However, separation of the premature in private rooms can also be detrimental to child developments if the parents are not present (Toivonen, 2017). In neonatal intensive care units that made the shift from units to single bed units nurses reported declines in teamwork and safety (Swanson, Peters & Lee, 2013).

Future floor plans

When studying the floor plans for the new NICU department it is clear that the department will be much larger (APPENDIX 3). There are four quadrants which each hold a nursing station manned by one fourth of the team. Combine this with the fact that the nurses work individually in SBU's and it can be predicted that there will be less nurse-nurse interactions in the future employee journey.



Figure 5: Single Bed Unit mock up



Figure 6: Premature born child at the NICU



Figure 7: Current 'out of use' unit due to a nurse shortage at the VUmc

2.4 Stakeholders

This chapter introduces the people in the NICU/PNC context and discusses their relations with the NICU nurse.

2.4.1 Stakeholders

Parents

Becoming a parent months before expected and directly spending lots of time at an Intensive Care is very shocking and often traumatizing. During their stay at the NICU this group is very vulnerable and the staff goes to great lengths to improve their experience. It is good for parents and child to be close to each other in order to increase the parent-child bond. However, parents also need to rest and recover themselves. After the NICU the baby goes home and family-life really starts.

Prematures

A premature can be treated at the NICU as young as 24 weeks of pregnancy. The infant then weighs a couple of hundred grams while a normal '40 week' newborn weighs 7 pounds on average. During this research the nurses mention that for a premature sleeping is growing. Besides sleep they need constant nutrition and energy to grow which they receive through feedings tubes (figure 6). While growing it is important for the nurses to keep the patient stable since stress through illness or discomfort is associated with decreased brain development (Smith, 2015). Skin to skin contact with another human has positive health benefits for the premature, especially with the mother. This is called kangaroo mother care (KMC). When doing KMC the prematures copy the heart rate of the mother and start breathing more constant. KMC decreases the risk of several health risks and increases exclusive breastfeeding

(Boundy et al., 2016). This is an Intensive Care environment and unfortunately not all babies survive.

The medical staff

The treatment plans for all present prematures are made by the medical staff, which consists of neonatologists, specialists and fellows (doctors in training). They make plans for 24 hours or, if necessary, for shorter time periods.

Nursing staff (target group)

The nursing staff is always present at the unit. They feed, clean, treat and nurse the prematures. Furthermore a nurse takes care of the parents, who are coached and supported during their stay. Based on their observations while being near the prematures they offer extra insights to the medical staff who make the treatment plans. Nurses work closely together and watch each other's patients when going for a break. They always need to be able to respond to acute situations when necessary. Together with the parents they are nearest to the child. A detailed description of all daily activities is given at page 42-43.

Facilitating staff

Important non-medical actions like preparing baby milk, cleaning the medical devices, scheduling appointments, restocking disposables and being a host to visitors are taken care off by the facilitating staff.

Team leaders

Team leaders are important stakeholder for this project. Together with the doctors they collaborate most often with the nurses. Each team leader is responsible for their part of the nursing team. They have one on one year evaluations, absence conversations and other personal conversations with the nurses within their team. Their daily role is to

facilitate the nurses in doing their job. Team leaders oversee patient logistics and make the nurse schedules. They also hire and fire team members. Furthermore, they guide the nurses who are chairs of a work group. Besides leading a part of the nursing team most team leaders have other functions within the organization as well. For example, two team leaders who contributed significantly to this project were also part of the PNC build project group.

PNC build project group

This group is responsible for realizing the new Perinatal Centre. They are important for this project since they are decision makers and possible design interventions to increase job satisfaction are evaluated by them. They oversee the building of the new PNC and are responsible for all important decisions like the shift to a SBU department. The people in this group are managers of both Obstetrics and the NICU.

Obstetrics

The department of obstetrics contains similar stakeholder groups as the Neonatal Intensive Care does. For this project it is important to understand that the obstetrics staff treats women of whom the pregnancy has become complicated. This often results in new prematures for the NICU. It is preferred to physically move children and parents after birth as little as possible. Therefore, if there is no room for the prematures there is no room for the mother who has to be refused and transported somewhere else.

2.4.2 Stakeholder relations

At the NICU everything revolves around the treatment of the prematures. There are always lots of people involved or present. Closest to the patient are the parents and the nurses. Together with the patients themselves these stakeholder groups occupy the units.

One of the main goals of the new PNC is to create far going collaborations between the NICU and obstetrics.

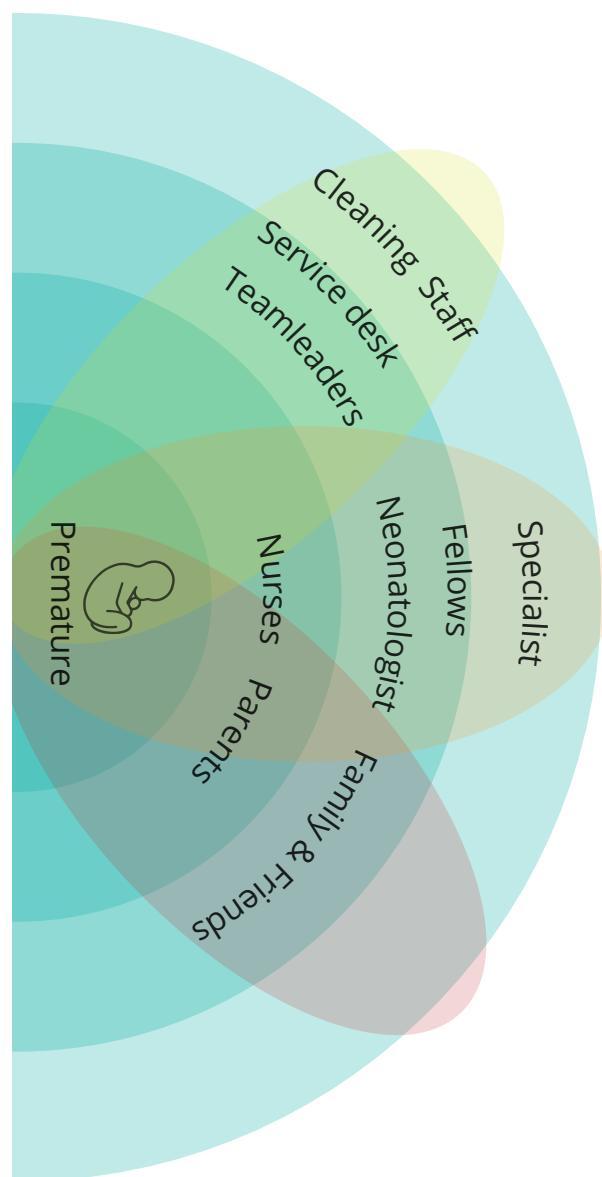


Figure 8: Stakeholder relations



CONTEXT



CONTEXT



03



EMPATHIZE

Literature, qualitative research, results, conclusions

In the previous chapter the (future) context and her stakeholders are introduced to create a better understanding of the design problem which is trying to understand how to shape the NICU nurse's future work experiences in order to increase their job satisfaction. In this chapter first the topic of job satisfaction is discussed first and thereafter a new theory for designing for increased job satisfaction is proposed. By then empathizing with the current situations it is discovered what the NICU nurses' values, cultures and organizational identities are and how these might affect job satisfaction.

3.1. Job satisfaction

This graduation project aims at improving job satisfaction of NICU nurses' in an upcoming post-merger situation by following the design thinking methodology. But what is job satisfaction? Why is it important? And how can it be measured in the most suitable manner for design work?

3.1.1 Job satisfaction

Defining job satisfaction

The two most commonly used definitions describe job satisfaction as: "the pleasurable emotional state resulting from the appraisal of one's job as achieving or facilitating the achievement of one's job values" (Locke, 1976), and "the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs" (Spector, 1997). The first definition is used for this graduation project because it mentions job values as multiple facets of job satisfaction. Using multiple facets can help to narrow down areas (or values) which are more in need of improvement

then others. This gives a design focus which is desirable since the goal is to improve, not just identify, the overall job satisfaction. The second definition, which uses a single score measurement, namely the extent to which people like or dislike their jobs, therefore seems less suitable.

“The pleasurable emotional state resulting from the appraisal of one’s job as achieving or facilitating the achievement of one’s job values”

Theories about job satisfaction

Theories about job satisfaction usually overlap theories about general human motivation. Abraham Maslow proposed the pyramid of human needs in his 1943 paper: "A Theory of Human Motivation". This theory describes five layers of individual needs (figure 9). At the bottom is the most basic

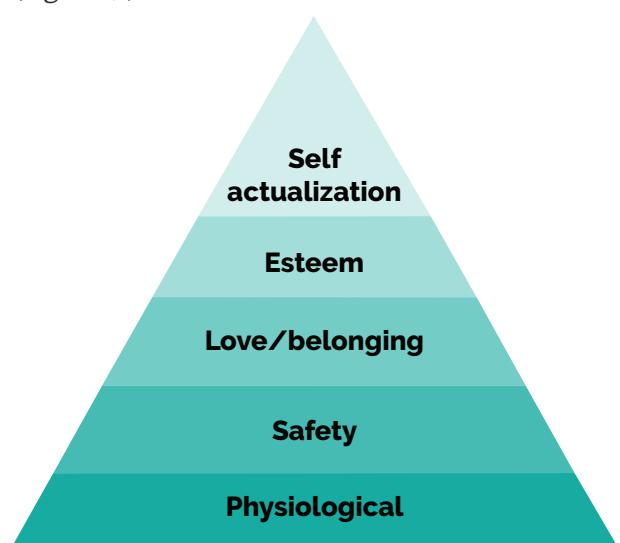


Figure 9: Maslow's original hierarchy of needs

EMPATHIZE

'physiological' need, which can be fulfilled by factors like food and sleep. The top layer is self-actualization which is fulfilled by factors such as achieving high creativity or morality. Basically, this model proposes that basic needs like safety and security need to be at least partially fulfilled before fulfilling more complex needs like esteem. Following Maslow, in a work environment factors like basic salary, working hours and job security need to be fulfilled before friendships, high status job titles and advancement opportunities. Empirical evidence for Maslow has never been found but the intuitive

understanding of the model still contributes to its popularity. More evidence based theories for assessing job satisfaction focus on a combination of internal and external factors. The Two-Factor theory (Herzberg, 1964) distinguishes between intrinsic motivators (recognition for work, challenges in activities etc.) and extrinsic hygiene factors (job security, vacations etc.). Herzberg states that both can be influenced separately from each other and that hygiene factors can cause job dissatisfaction and motivators cause job satisfaction. The two factor theory has been tested empirically with mixed results. In a 2016 empirical verification study of the Two-Factor theory performed by Sanjeev et al. the findings confirm the existence of a two factor structure, but also conclude that hygiene and motivator factors are not purely extrinsic and intrinsic in nature and do not influence satisfaction independent of each other. Then there is also the dispositional approach first introduced by Staw, Bell and Clausen in 1986 which, just like the Two-Factor theory, distinguishes intrinsic from extrinsic factors.

The dispositional approach to job attitudes has played an important role in refocusing attention in organizational behavior on person factors, in addition to situational factors, as determinants of job attitudes (Gerhart, 2005). The intrinsic factors in the dispositional approach are employee personality traits. This theory postulates that people, based on their personality, naturally deal with different situations and

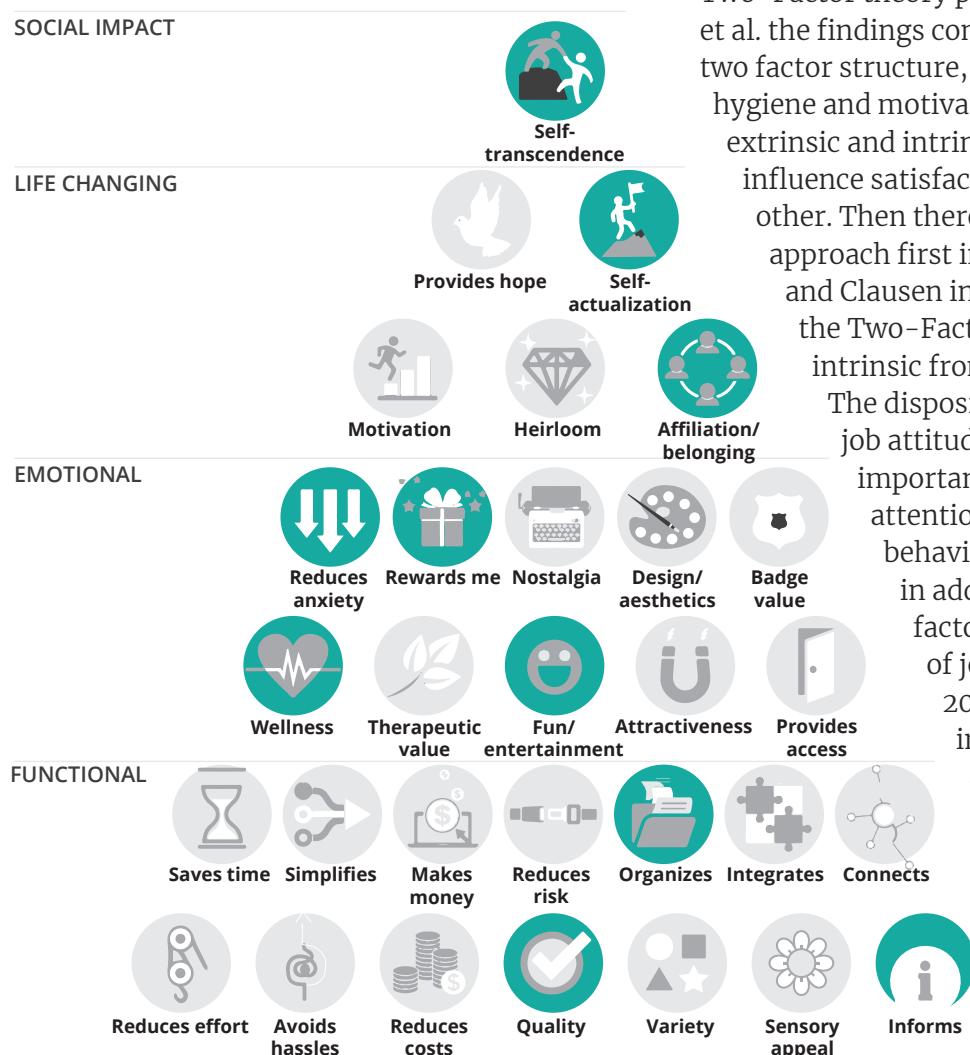


Figure 10: The value pyramid of Bain & Company

interact with their environment in different ways. Famous are the big five personality traits described by McCrae and Costa in 1997 which are openness, conscientiousness, neuroticism, agreeableness and extraversion. Following a dispositional approach job satisfaction is the result of the person and the situation.

Proposing a new theory to design for increased job satisfaction

Since the aim is to improve job satisfaction of large nursing groups through design interventions a more general approach which assumes the whole group to have the same 'intrinsic factors' or 'personality' is suitable. By doing this the design interventions which are influences of the 'extrinsic factors' or 'situation' are the only variables when estimating their effects on the employees' future experiences. To determine the important intrinsic factors for the NICU nursing group a new theory in the field of designing for increased job satisfaction is proposed: the pyramid of values of Bain & Company (2016) (figure 10). This pyramid gives the five human needs of Maslow, a new life in the form of 30 human values. The Bain & Company model builds on the intuitive understanding of the five basic human needs while adding complexity and accuracy. By selecting a maximum of 10 values that apply most to the nurse's work context a general NICU nursing group 'personality' is determined. Design interventions which influence the NICU nurses 'situation' can then be specified to focus on the most promising NICU nurse values. The use of these values as a tool to identify a group personality in order to identify promising areas for improving job satisfaction is evaluated in chapter 9.

Measuring job satisfaction for design work

Intrinsic and external factors related to job satisfaction are measured through either a single question questionnaire or elaborate questionnaires which are submitted by large numbers of employees. The results can then be expressed globally (one number) or in facets (multiple numbers). In design research, the facet measurement seems superior over a global and single question measurement as it allows the opportunity to identify low scoring facets which can be improved first.

Since this graduation project follows the design thinking methodology, there are reasons to prefer less accurate qualitative research methods over questionnaires. Starting with the qualitative approach is less time consuming since only a small group of employees is needed for each round. It is also more suitable for the iterative nature of design work since it allows the researcher to receive user feedback after each iteration. Since the goal is to improve job satisfaction the results of the measurements do not have to be very precise but only accurate enough to identify promising areas for improvement since this helps prioritizing efforts. Furthermore, a qualitative approach has the benefit that the research itself can be considered an intervention. By organizing group sessions the organization shows that it cares for the nurses' opinion. This has a more human and caring feeling as opposed to measuring satisfaction levels through questionnaires. And to conclude, measuring job satisfaction through questionnaires gives insight in the 'what' but not in the 'why'. In order to improve the 'what' the 'why' has to be explored as well.

By doing an analysis of the qualitative research, the values which suit the NICU nurse profile best are selected in collaboration with the NICU nurses. This selection describes the intrinsic values of the group as a whole. Using many facets has high potential for identifying areas (or values) for improvement and which values need improvement can partly be identified by the nurses themselves since the model is intuitive. Combining the Bain & Company model with the earlier given definition for job satisfaction leads to the following assumption:

If all work values are facilitated, high job satisfaction is the result

3.1.2 Importance of nurse Job satisfaction

Low job satisfaction, less nurses

Globally there are mounting concerns about nurses' job satisfaction because of its pivotal role in nurse turnover and the quality of care of patients. Job satisfaction is identified with sickness absence, turnover intention and nurse-to-patient ratios (Lu, 2019). In critical care hospitals with low nurse-to-patient ratios, patient mortality rates are higher and nurses are more likely to experience burnout and job dissatisfaction (American Medical Association, 2002).

Low job satisfaction, lower performance

Not only does lower job satisfaction lead to higher nurse turnover and sickness, there is also a close relationship between performance

and job satisfaction in the nursing sector and in other professional sectors (Aiken et al., 2002).

Higher retention rates, more money

In 2018, the National Health Care Retention & RN Staffing Report which reviewed 3000 American hospitals concluded the average American hospital will lose \$300.000 annually for each increased percent in turnover on average. Besides, the costs for finding a new nurse were estimated at \$78.000. In Mexico this number was \$48.000. What the exact numbers are in the Netherlands at the VUmc and AMC is not known to the public. However, it can be concluded that low nurse retention rates have large negative influences on the hospital's budget.

More nurses, Lower patient mortality rates

In a 2016 study by Watson et al., 43 tertiary-level neonatal units in England were observed monthly over the period of January 2008 to December 2012. The effects of a one-to-one nurse-to-patient ratio on the mortality rate in neonatal intensive care were measured. Results showed that introducing a "one nurse per patient strategy" decreased the mortality rate from 9,1% to 5,9%.

Less nurses, lower job satisfaction

A low nurse-to-patient ratio is linked to decreased job satisfaction. Organization features like employee shortages of a hospital can greatly influence the job satisfaction for nurses (Adams & Bond, 2000). (Liu, Zhang, Ye, et.al., 2012).

Increasing job Satisfaction is vital

Considering the above mentioned factors, it can be seen that it is vital to increase nurses' job satisfaction because this could potentially improve patient care quality, increase yearly revenue, ensure an adequate nursing workforce and increase overall job satisfaction.

3.1.3 Mergers, low job satisfaction and high turnover rates

Protecting or improving job satisfaction among the NICU nurses at the VUmc and AMC might now be more important than ever before. Not only do both hospitals suffer from a nurse shortage which is expected to grow over the next few years with the rise in patient numbers due to the general population growth. They are also merging into one department at one physical location within the next two years. Mergers usually do not have the best short term staff benefits. This can even be observed in the context of this Amsterdam UMC merger, the Child ICU which merged in Q1 of 2018 and has the highest absence rates due to sickness of all hospital departments.

In their book which was published in 2012: 'Merger & acquisitions: the human factor', Sue Cartwright and Cary L. Cooper describe the importance of a good person-work environment fit (PE-fit). "An individual has to fit in with the other employees, organizational climate and style of work. A poor PE-fit has been shown to result in low job satisfaction and stress, which affect individual outcomes, i.e. physical, psychological and mental well-being as well as organizational outcomes. When

two firms come together, and their cultures are incompatible to the extent that many employees no longer 'fit' into the environment, the resultant effect are likely to have a large scale impact." In the context of this project this conclusion will be framed more positively and in relation to job satisfaction as the assessment of one's work values.

Good culture cohesion positively impacts an individual's assessment of his/her work values.

3.1.4 Organizational identification and job satisfaction

Besides the PE-fit and its effect on the assessment of ones most important work values, the extent to which an individual will identify with the new post-merger company can also influence job satisfaction as well as turnover rates.

Organizational identification (OID) is a key concept in organizational psychology and refers to the degree to which employees define themselves as a member of the organization and to what extent they experience a sense of oneness with it, it's values, brand, methods etc. (Ashforth & Mael, 1989)(Haslam, 2004)(Schuh et al., 2016). For example, the VKC has three core values which are sensitive, open and innovative (chapter 2.2.2). But as discussed at the beginning of this chapter, the NICU nursing group has an own set of values as well. If the VKC wants their employees to be

innovative but the nurses don't care about innovating and feel that it hurts care quality which they think is an important value. In this example case the values of the team don't match the values of the organization which results in a low OID. This is undesired since OID is significantly associated with key attitudes in organizations such as job satisfaction (Lee, Park & Koo, 2013). Recent research shows that when employees identify themselves with their organization they tend to have higher levels of work performance, are more likely to engage in organizational citizenship behaviors such as voicing constructive suggestions or helping coworkers, they tend to be more satisfied with their job, and are less likely to quit (Blader and Tyler, 2013) (Schuh et al, 2016). In the context of this design project this leads to the following statement regarding organizational identification:

If organizational values match and fulfill individual values the result is high job satisfaction

If all work values are facilitated, the result is high job satisfaction

VALUES

Good culture cohesion positively impacts an individual's assessment of his/her work values.

CULTURE

If organizational values match and fulfill individual values the result is high job satisfaction

IDENTITY

3.2 Design research

So far it is proposed that designing for increased job satisfaction can play an important role in improving the nurse shortage situation during this merger. Three design statements about increasing job satisfaction are made:

- If all work values are facilitated, the result is high job satisfaction
- Good culture cohesion positively impacts an individual's assessment of his/her work values.
- If organizational values match and fulfill individual values the results is high job satisfaction

3.2.1 Research questions & goal

For each individual statement multiple **research questions** need to be answered:

- What are the work values of the NICU nursing group? To what extent are they fulfilled in their current contexts? Which values are more important than others? What future changes will likely impact the fulfillment of these values? How?
- What are the work cultures of the AMC & VUmc NICU nursing groups? Are they similar enough so that culture cohesion can be expected? How are they different? What future changes will most likely impact the culture cohesion most? How?
- To what extent do the work values of the NICU nurse groups match the organizational values? Do the organizational values influence the assessment of the individual values? How?

The goal of this research is to answer these research questions and by doing so identifying most promising areas for

improving job satisfaction through design interventions in the post-merger department.

3.2.2 Methods

In this paragraph is explained which research methods are used to answer specific research questions and who participated in the research. The detailed test set-up for each workshop and all the raw research results are documented in Appendix chapters 1 – 13. Chapter 3.3 – 3.6 of this document communicate and discuss the research results. The conclusion of all research is made in chapter 4, which based on the research in this chapter defines a design goal and three opportunities to fulfill this goal.

3.2.3 Participants

Many people with different responsibilities at the NICU contributed to this research. During this analysis alone, over 20 nurses actively participated by contributing one to two hours of their time for either a workshop or an interview. These nurses located at both the AMC & VUmc were of all ages ranging 22-64. Three nurses participated who recently made the switch from the VUmc to the AMC. Another 15+ nurses contributed through small conversations while an unknown number of nurses greatly contributed by writing down answers to research questions which were sometimes placed in the coffee rooms. Here follows a short participant summary per activity:

- 8 nurses (in-depth interviews)
- 12 nurses (workshop 2,3,4)
- 4 team leaders (multiple in dept interview, workshop 1 & feedback sessions)
- 2 head doctors (in-depth interview & workshop 5 & feedback session)

- 2 head nurses (multiple in-depth interviews & workshop)
- 1 ex head nurse (in-depth interview)
- 15+ nurses (short conversations during shift or during lunch breaks)
- The PNC build group (workshop)

3.2.4 Research methods

Stappers, Elizabeth and Sanders describe in their book, *The Convivial Toolbox* (2013) four layers of an individual's knowledge: explicit, observational, tacit and latent (figure 11). Research methods to explore all levels of individual knowledge are proposed. These methods are 'Interviews', 'Observation' and the lesser known 'Generative Sessions' or 'Make sessions'. Variations on all three research methods are used throughout this project. Furthermore two additions are made to the model for this project. Brown paper studies are used as another useful method to gain explicit knowledge within this context. And, a constant feedback loop is introduced. An overview of all research activities is visualized at page 44-45.

User feedback loop

Stappers notes about his own 'Statement Card Method', in which people translate quotes to paraphrases, that people mostly interpret quotes differently (2012). He also emphasizes that this is ok since the main goal of user research is to empathize with the target group. Since this is an individual project most interpretations are made by the same researcher. By discussing these interpretations with the target audiences their situation is even better understood. Subsequently, by introducing a feedback loop the evolution of the project is made visible by giving short presentations separately or at the beginning of each workshop. This keeps important stakeholders involved.

Brown paper study

At the beginning of this research and later again during the ideation phase the employees are given the chance to participate by writing answers to questions on a large piece of brown paper placed inside the coffee rooms (Appendix ..). This creates high visibility for the project while putting almost no extra demands on the nurses their job. From here interesting topics to investigate further are derived.

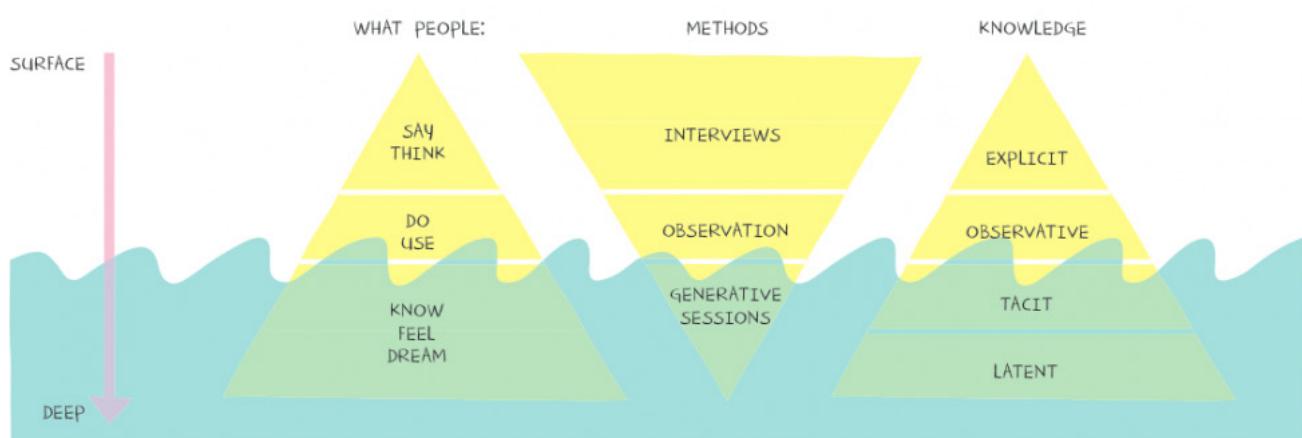


Figure 11: Methods to derive different layers of individual knowledge from the Convivial Toolbox (2013)

Interviews

Eight in-depth interviews of 90 to 120 minutes are done with nurses from both hospitals, young and old. The specific questions asked are documented in Appendix 2. These questions are based on some exploratory conversations, observations during two days of nursing internship and the answers given during the brown paper studies. Results from the interviews are transcribed, clustered and placed on the pyramid of Bain & Company to conduct a first version of the NICU nursing staff intrinsic work values (Appendix 2).

Observations

By lunching in the coffee rooms from time to time the group dynamics of the nursing teams are be observed. At both hospitals the nurses are also shadowed for one complete shift, night and day. This way the work itself is better understood as well as the collaboration between nurses and the coaching of parents. During the first shift a premature passed away which was incredibly sad but also an opportunity to observe the nurse's behavior and emotional response. The most interesting learnings are always documented digitally right away.

Generative sessions

The user group's feelings and dreams (latent and tacit knowledge) are interesting for innovation. These can be derived by letting the subjects create something first before organizing a group discussion in which they explain their creations to each other. This method was used in multiple workshops (Appendix 1,2,3,4 & 8)

Creating a safe environment

In their book the Corporate Tribe written by Daniëlle Braun and Jitske Kramer (2015), the authors emphasize the importance of a safe environment while empathizing with the context. To ensure a context in which the nurses feel safe to say everything three things

are done: 1. They are told that this graduation project is initiated to do something good especially for them. 2. During recruitment for workshops with nurse groups it is ensured that no 'higher level' staff is present except when this is desired. 3. They are told that the final conclusions will not communicate or link any names directly to specific pieces of information. These factors help to create an open and safe atmosphere in which people actually dare to talk about the issues within the department.

Results and conclusions

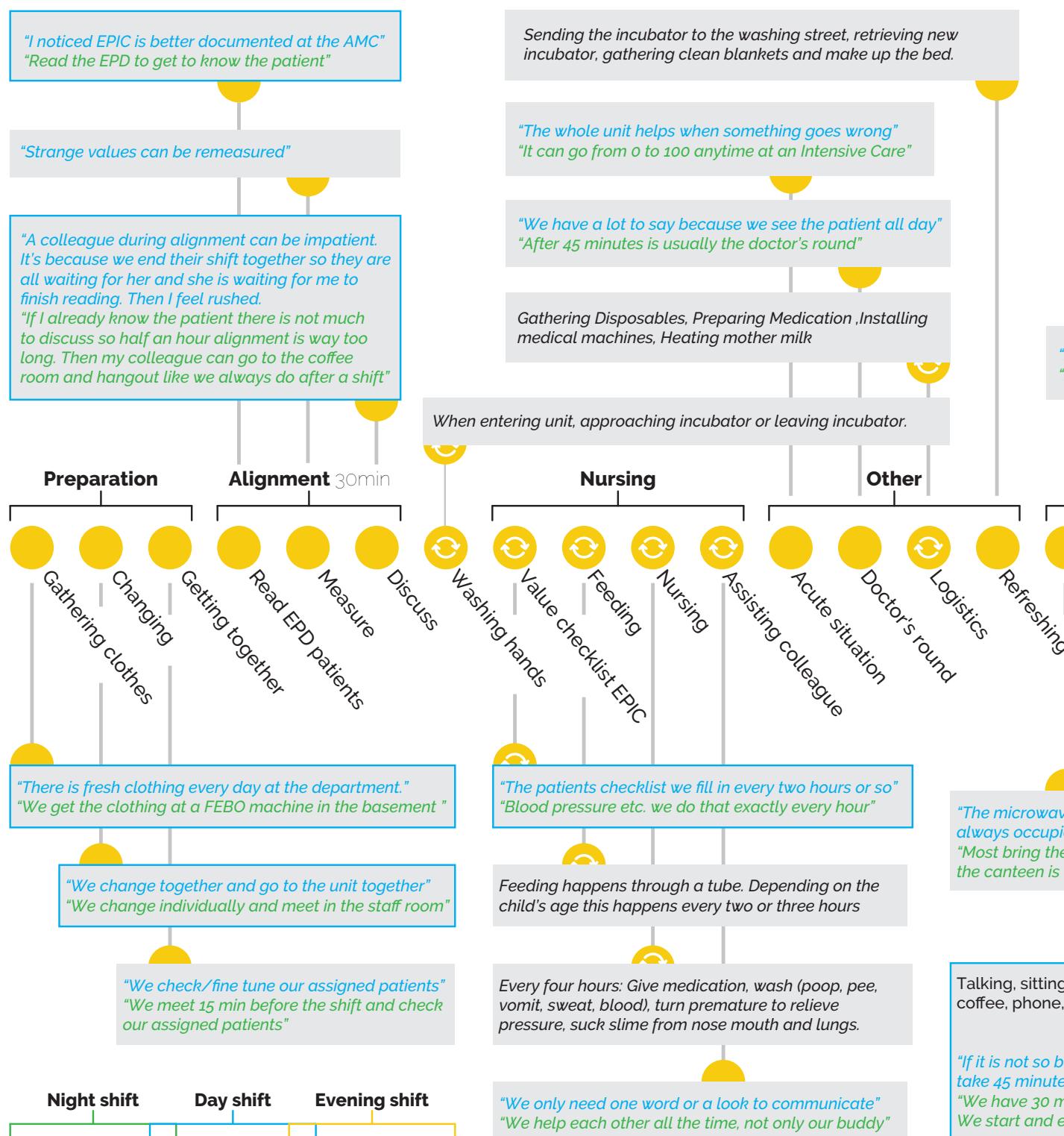
Chapter 3.3-3.6 show and discuss the results of these research activities

3.3 Employee journey

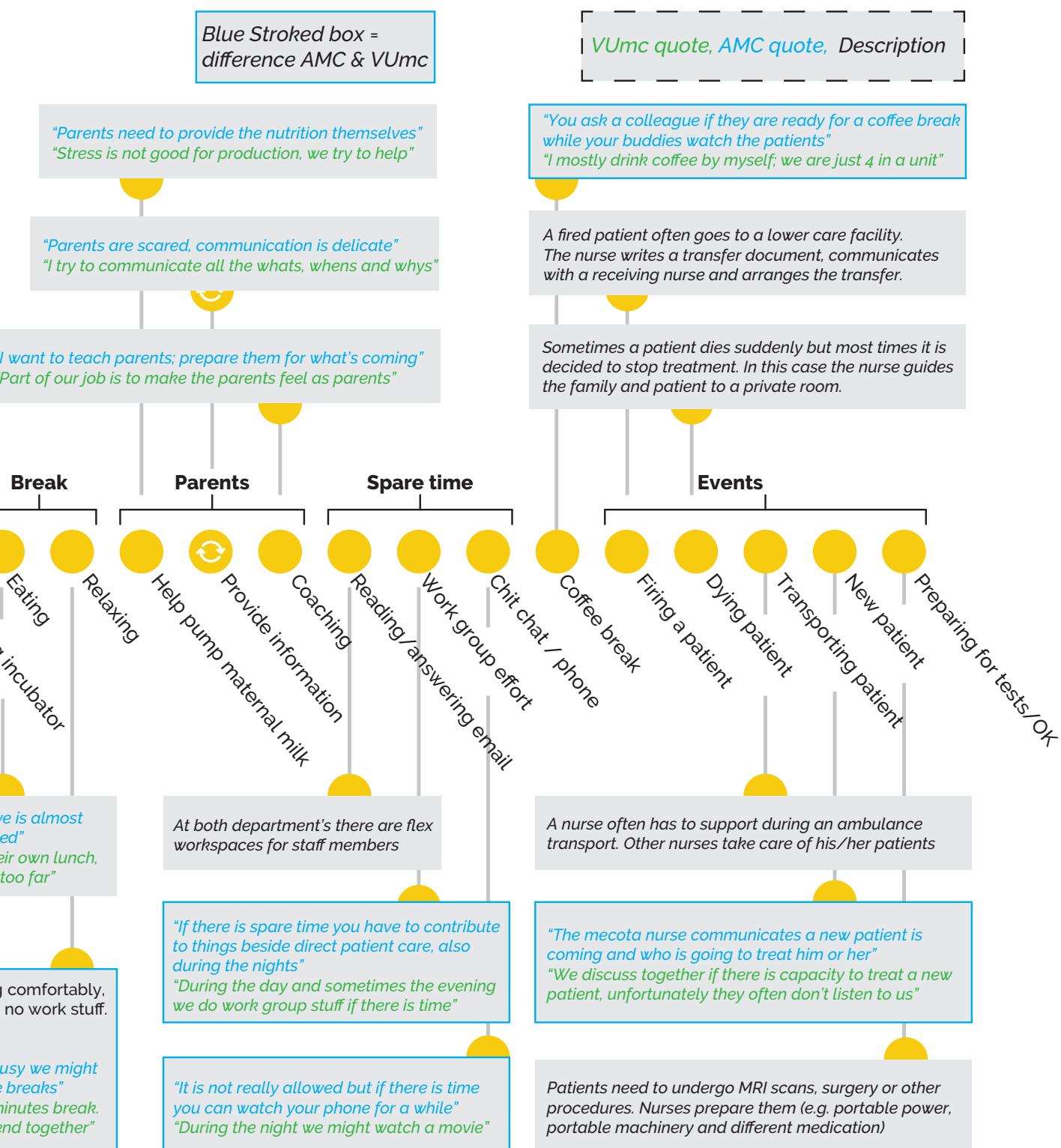
Before understanding the values, culture and experiences of nurses at both departments, it is essential to understand the activities a nurse does during a shift. It is also interesting to understand how the activities and departments are different for each location. By doing so it is easier to understand how these different 'situations' influence the values for each nursing group. It is also valuable to understand how the current situations are different from the future situation and how this might influence the assessment of the individual values. At the next page the current employee journey is displayed with all activities and a description. In case the activities are somehow different quotes for each location to illustrate this are added.

Most notably are the strict rules in the AMC compared to the VUmc. For example: they lunch for exactly half an hour and only walk to the changing rooms if the entire team is done with the alignment.

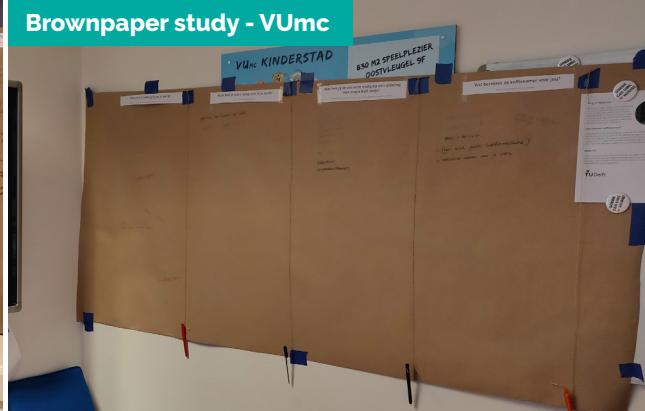
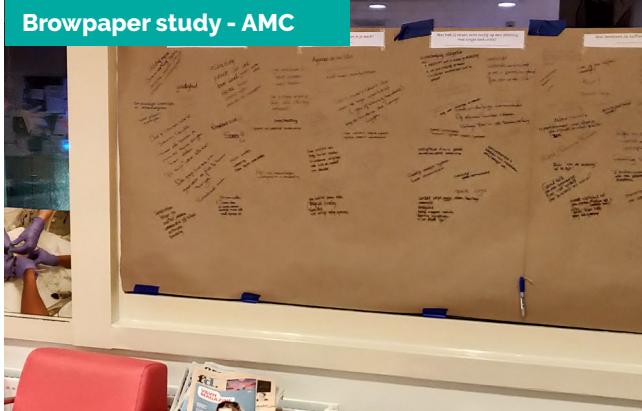
3.3 Employee journey



EMPATHIZE



EMPATHIZE



EXPLORING
&
SHARING

EMPATHIZE

Lego workshop with management



Discussing future work scenarios



Workshop AMC



Workshop VUmc



New NICU VR experience



In depth interviews



EMPATHIZING
&
WORKSHOPS

VUmc & AMC - workshop



Interviewing each other VUmc & AMC



3.4 NICU nurse values



As proposed in Chapter 3.1 an important step in improving the job satisfaction of an entire nurse group through design interventions is by identifying the intrinsic factors of the entire group. Since both the person and the situation can have important influences on job (dis)satisfaction (Gerhart 2004). In this case a group-situation approach is adopted which is more suitable for design work since most interventions will influence the group as a whole. To do this the value pyramid of Bain&Company (2016) which is built upon the Maslow's famous pyramid of human (1948) needs is used. By establishing which values are most important for the nursing groups in the NICU context their 'personality' is established.

3.4.1 The value pyramid

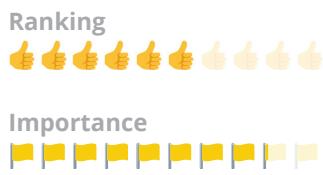
The statement is made that if all work values are facilitated, the result is high job satisfaction. Aiming at actually improving the job satisfaction of the nurses this raises some questions:

What are the work values of the NICU nursing group? To what extent are they fulfilled in their current contexts? What are the differences for each location? Which values are more important than others? What future changes will likely impact the fulfillment of these values? How?

In order to answer these questions, first the work values are established. After eight in-depth interviews all transcribed quotes are grouped into themes (Appendix 2). These themes are then placed into the pyramid by the researcher. Together with the nursing teams of both the AMC and VUmc separately, these values are discussed, ranked, improved, and verified (Appendix 4 & 5). The results are the ten yellow values in the pyramid central in this page.

3.4.2 Value cards

The following chapter displays the ten values most important for a NICU nursing staff member while at work. Besides explaining these values it can be seen how well each value performs and why this is so. The nurses were asked to rate the values from most to least important and from best to worst experienced. The importance and ranking rates are the mean positions from this assignment (Appendix 4 & 5). They are meant to give a general idea about which values deserve specific attention as is discussed in 3.4.4. The colors indicate how well a certain value performs. Red is bad, yellow is alright and green is good. Each value card contains three to six insights. Insights indicated with a red minus are bad for the experience of the value. Insights indicated with a green plus are positive. The blue hash tag is neutral. A blue exclamation mark indicates a notable difference between the AMC & VUmc.



Quality

Social impact

Receiving high quality facilities (goods and services) from the department to be able to provide the best care possible.

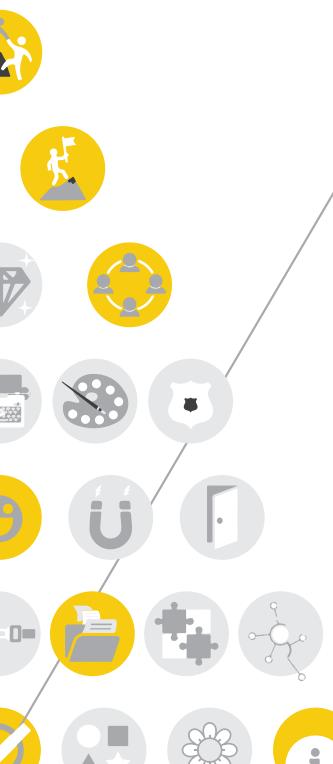
"Sometimes we have to change our way of working before it has been tested. So then we notice all these problems"



Insights

- # Nurses value the quality of the facilities highly since this helps them to provide the best care possible.
 - They mention there now still is a lot of old and insufficient equipment
 - Sometimes they have to improvise DIY solutions while there are actual products out there solving the same problem.
- # People look forward to having a lot of new equipment at the new department.

"Look around you, there is a lot of old junk at the moment"



Informs

Emotional

The opportunity to share/receive trusted and reliable information

"Sometimes they just change something and then I think were the old ways so wrong? Who says so?"

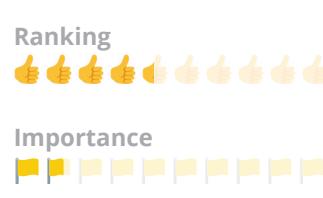
"At least explain why the premature has to be treated here"



Insights

- + In general, nurses feel they are being sufficiently informed
- ? Nurses mention there is too much information available to stay up to date. In other words, they do not crave for more information per se.
 - Information in the mailbox isn't always noticed or gets lost
 - Nurses complain about not hearing the rationales behind change
 - Nurses feel the culture is not open and safe enough to give each other proper constructive feedback.

"We are good at judging silently but not good at giving feedback"



Being Rewarded

Having the feeling that your hard work is noticed and recognized.

"It is not 'just a job', this is so much more. You give your everything for the well-being of the patient and parents"

Insights

- No appreciation for extra effort. Filling shifts gives a cold feeling.
- People have the feeling they are being judged and never do it right.
- No appreciation for loyalty from (higher) management
- Bad CAO and even worse Christmas package
- Mutually there is no appreciation for each other's work besides direct patient care. Actions from working groups can count on criticism.
- No personal thank you from management at the working units

"If you're in work group, it is normal. If you don't, you suck. If you introduce change, everyone complains"

Social impact

Ranking



Importance



Wellness

Improving people's physical or mental state

*"A fanatic of the Collegian Support Team has to notice that you have experienced something heavy, otherwise there is no support"
"It is never the right time or place to support each other"*

Emotional

Insights

- + The efforts of the COT (Collegiaal Opvang Team) are highly appreciated.
- You have to protect your own boundaries and ask for help yourself. But when nurses do this it is usually too late.
- There is no stimulus-free environment in the department
- The extra burden from ethical questions and end of life decisions is not countered with extra attention for the welfare of the staff.
- People literally almost fall asleep during night shifts.
- People develop back problems from continuous standing and crouching.

"Perhaps it is not yet realized by the management how great the need for personal attention is"

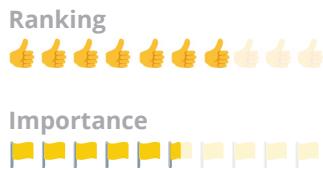


Ranking



Importance





Fun and entertainment

Life changing

Experiencing fun, laughter, jokes or entertainment during a shift.

"Fun! If everyone acts blue, I will too"

"Black humor is so important. Just to let go of all seriousness"

Insights

- + Fun is described as crucial for relativating all the seriousness of the job.
- # Both departments experience a lot of fun during their shift
- ! At the VUmc they make more fun, they describe it as a way of life.
- Ex VUmc staff experiences the AMC as very reserved and misses fun. People experience less room for fun nowadays because some colleagues are complaining a lot about the amount of patients.

"You can make me get loose with you, but I personally can not make myself or someone else get loose and make fun."

Organizes

Life changing

There is a clear organization of activities, roles and responsibilities

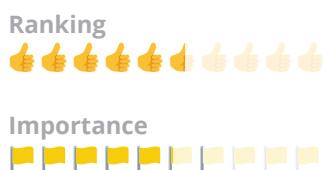
"Everybody wants their say about the new patients (VUmc)"

"At the AMC I directly learned the responsibilities of each team leader. During 15 years at the VUmc I have never known this."

Insights

- + Especially acute situations need to be organized well. Nurses from both departments think this is well organized.
- ! The AMC is generally described as more professional than the VUmc
- ! The AMC scores better at being organized as opposed to the VUmc
- ! The roles and responsibilities are more clearly defined in the AMC than in the VUmc. Specifically the meota and the team leaders.
- ! The team leader room at the AMC has glass doors and is located next to the staff room. At the VUmc the room is not transparent

"Do they actually work? I don't know, they are not at the units"



Self-transcendence

Altruistically helping parents and children.

"Everyone has a passion for the profession. You want the best for the patient and parents"

Social impact

Ranking



Importance



Insights

- + There is great passion and intrinsic motivation for the profession.
- + Everyone has affinity with the patient category.
- + Individually, people feel they are really helping and doing good work.
- # People wonder if they can still provide good care alone in a SBU
 - There is doubt about the age border of the 24 weeks. People are worried they are treating a child who will end up being severely handicapped.

"When you see the 50/50 child walks, runs and plays. Then you know that it was so good for something in the end"



Anxiety reduction

Reducing work related anxiety and stress.

"I fear for insufficient safety for myself and the patient because of too much work pressure and lack of staff"

"Stress is inherent to the job we always say"

Emotional

Insights

- + People generally feel safe and protected by each other.
- + Acute situation stress is not experienced as negative but as thrilling.
- # People wonder if there will be enough visibility at a SBU. Can they still rely on help directly if necessary?
 - A low nurse to patient ratio gives an unsafe feeling. People are frightened they cannot respond to acute situations without harming the care for other patient.

"Can you still hear each other, can you see each other, can you support each other?"

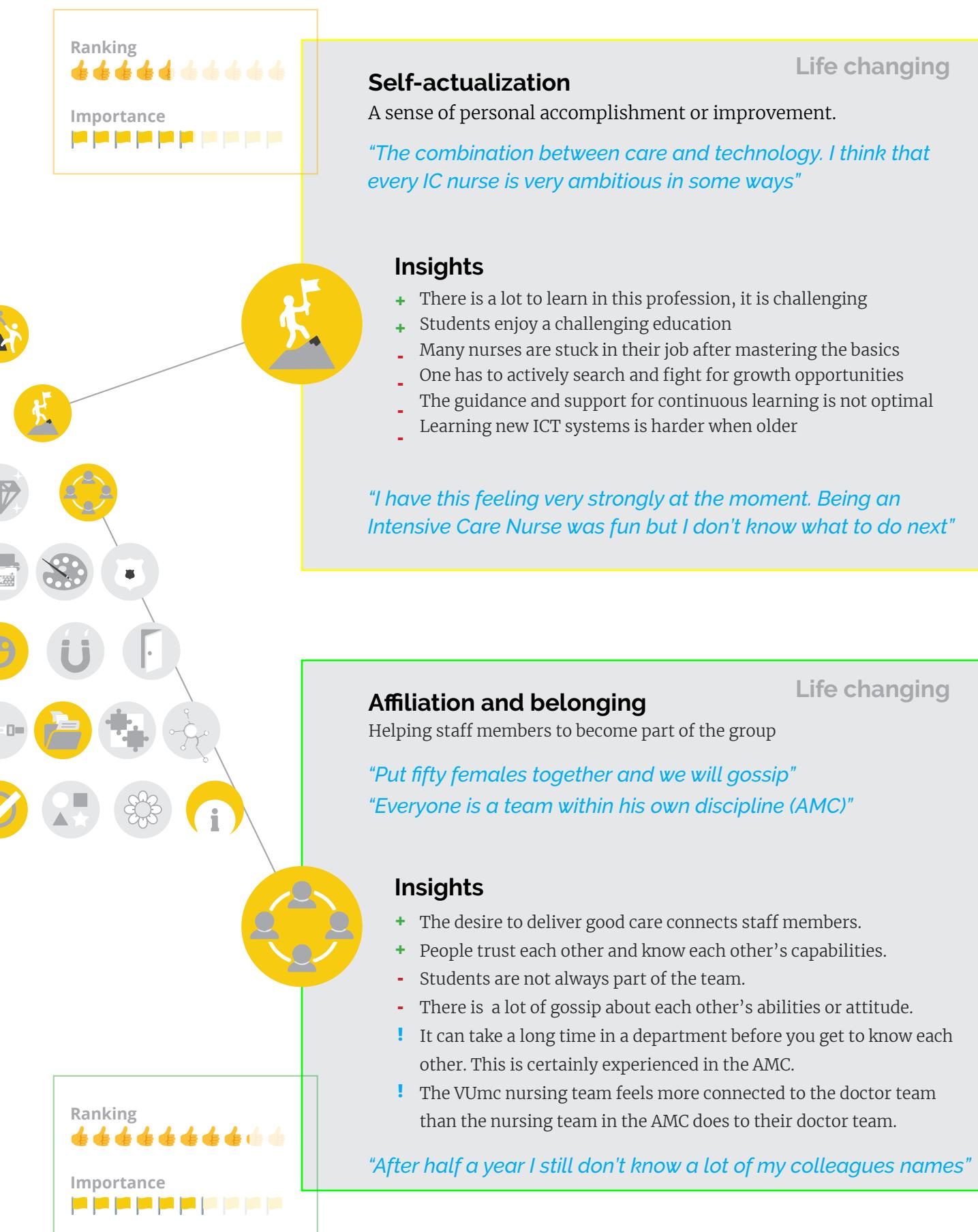


Ranking



Importance





3.4.4 Discussing the values

The value cards communicate a story about the experiences of NICU nurse groups. In this paragraph the results are discussed further. Which values are promising areas for improvement? As can be seen in the results not every value is as important as the other and not all values score as high as the other. By plotting the values for the measured importance and ranking, promising areas for improving job satisfaction become visible (figure 12). Values which are situated in the red areas are most promising for improvement since they generally are important but do not score well. Values in the yellow area can easily be improved but are not always that important while important values near the 'red border' might have higher impact. Values in the green are performing really well, such as the value self-transcendence.

Rewarding

Increasing the feeling of recognition and appreciation for efforts has the highest potential for improving job satisfaction. 8/8 nurses ranked this value the lowest while the average importance is relatively high.

Wellbeing

Actively facilitating the nurses' wellbeing might prove very fruitful. This is considered as one of the most important values which is perceived as poorly facilitated besides the collegian support team.

Quality

Quality of the facilities lacks in some cases following the nurses. Especially the department at the AMC location is old (page 47). This quality value will most likely enjoy a positive boost when the new department opens which will also have lots of new equipment.

Self-actualization

Self-actualization is a real issue among older nurses and one of the reasons that nurses mention to switch jobs. At some point the job activities are well-known and there are no more career steps waiting at the horizon. However, younger nurses do not experience these issues yet and see the intensive care as a challenging environment with lots of learning opportunities. Therefore, increasing the facilitation of the self-actualization value will probably have a higher impact on the job satisfaction of more experienced nurses.

Stress and anxiety reduction

Stress and anxiety reduction should be improved as well if we aim for the highest job satisfaction possible. It scores low but is also considered as part of the job.

My department:

Ranking

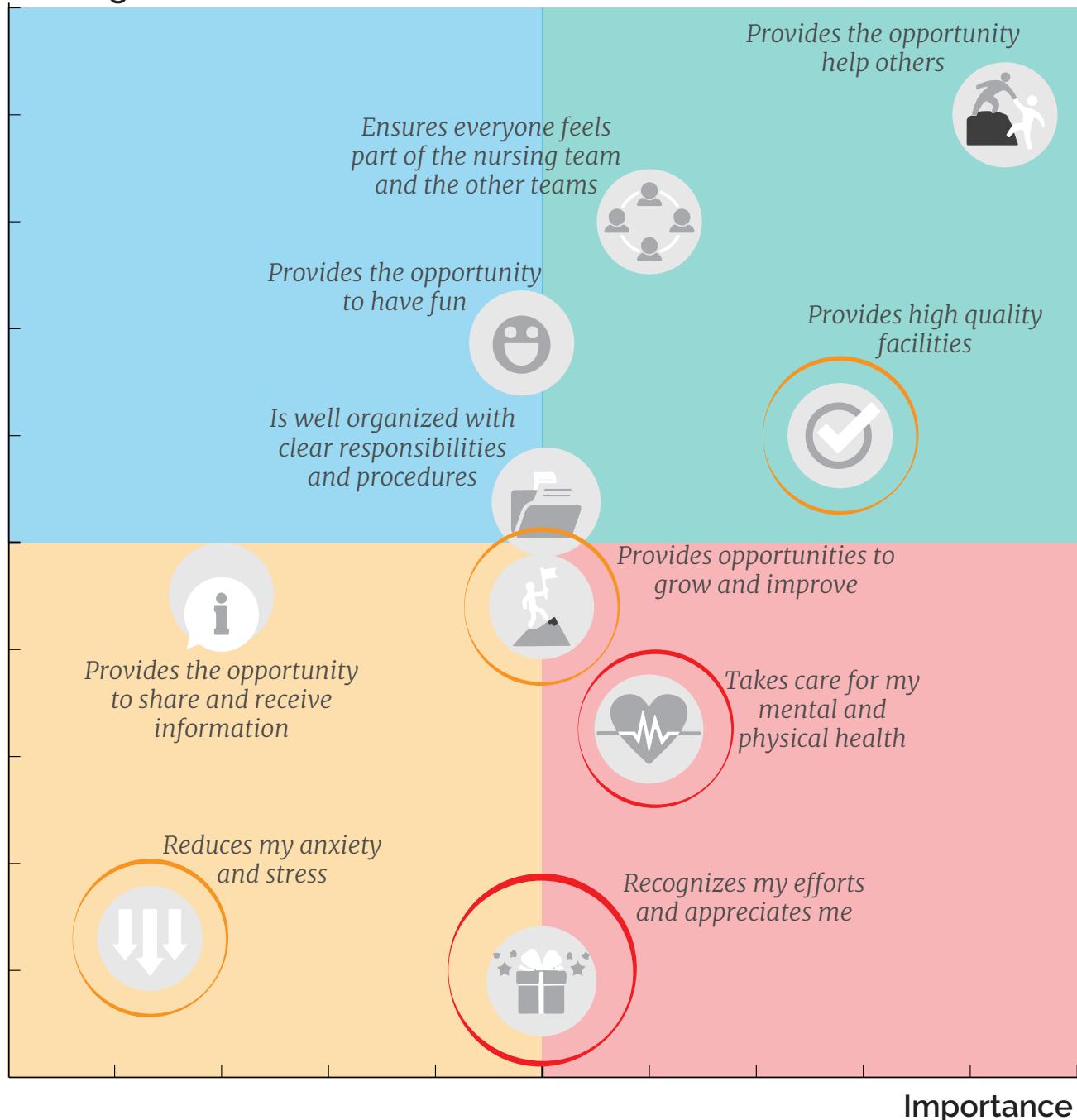


Figure 12: Plotting the values for importance versus how well they perform. Data based on workshop 2 and 3

3.5 Work cultures



In chapter 3.1 the statement is made that good culture cohesion positively impacts an individual's assessment of his/her work values. So what are the work cultures of the AMC & VUmc NICU nursing groups? Are they similar enough that culture cohesion can be expected? How are they different? What future changes will most likely impact the culture cohesion most? How?

3.5.1 Measuring cultures.

This chapter describes the results derived from culture related research activities aimed at answering these questions. These activities are described in more detail in chapter 3.2

and appendixes 2,3 and 4. Hofstede's six dimensions of culture (2001) are used to give some idea of the general differences between both hospitals. The dimensions are plotted on a seven point scale ranging from -3 to 3. Normally a 127 question questionnaire is used to determine dimension's value. This does not suit the purpose of this research, which is to quickly identify cultural similarities, differences, possible explanations for the cultures and connections to the individual values. After one pilot run it appeared that nurses felt very differently about their own culture as opposed to the work culture of the management and doctors. These groups are therefore separated. During a third culture workshop nurses from both hospitals are asked to explain their cultures to each other based on the first results.

3.5.2 Culture cards

There is no good or bad culture but there are differences. To provide a brief yet complete overview of all culture related research results, a card for each cultural dimension is made. These culture cards explain the dimensions and show the average values as given by the nurses for themselves (open) and for the doctors and management (closed). The AMC, just as in the journey, is colored blue. The VUmc is colored yellow.

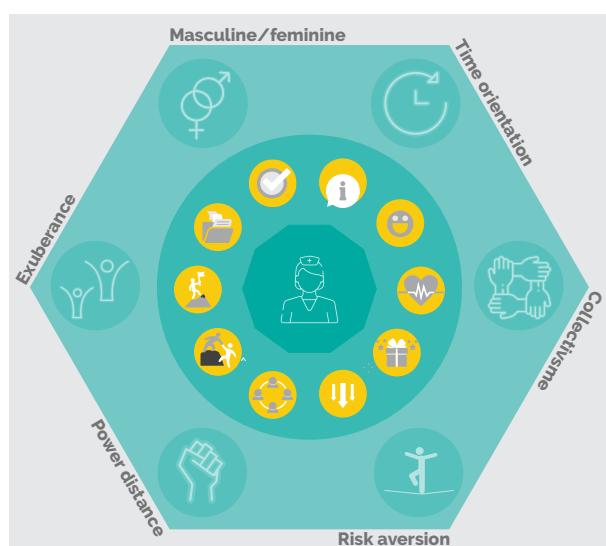
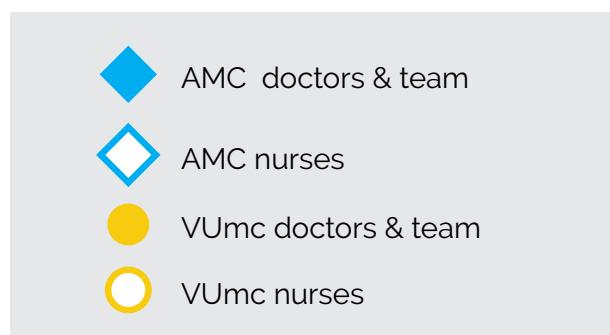


figure 13: Good culture cohesion positively impacts a nurse's assessment of values



High Power Distance

Acceptance of a hierarchical order in which everybody has a place and which needs no further justification.



Low Power Distance

People strive to equalize the distribution of power and demand justification for inequalities of power.

Less power distance in the VUmc.

- Doctors and nurses work in the same area.
- There are no mecotias, no higher status researching nurses and no IC-A nurses.
- Not being listened to is perceived as power distance

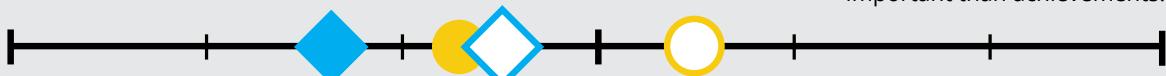
Possible connection to individual values:

- The AMC is described as more professional and better organized
- In the VUmc the relation with the doctors is described as better as opposed to the AMC.
- It takes long to meet each other at the AMC.

- *"Some of the doctors here are really authoritarian, that is different from the VU."*
- *"I don't even consider her as a nurse actually."*
- *"We all shout about being equal all the time but the doctor is the doctor and the nurse is the nurse. They are responsible."*
- *"Most take us seriously. Neonatalogists are ok but some doctor assistants don't know our culture yet. So we have to teach them."*
- *"There is power distance towards the student"*
- *"We are not always listened to while making policy but we are closest to the child. This I do perceive as power distance."*

Individualism

Individualism as a preference for a loosely knit social framework. Achievements determine status.



Collectivism

Collectivism as a preference for a tightly knit social framework. Relations are more important than achievements.

More individualism at the AMC

- (Male) AMC Doctor's at the AMC are described as focused on personal research and less involved with the nursing team.
- Nurses mention the AMC management is just renewed and is therefore hard to judge.
- At the VUmc the nursing team is generally more involved and informed. An effort is made to decide together.

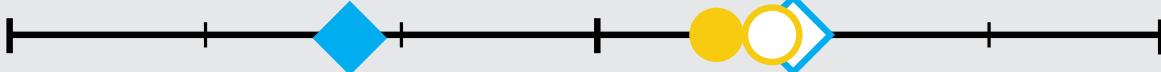
Possible connection to individual values:

- Individualism might hurt the feeling of belonging to the same group.

- *"This is pretty individualistic work but we also work in teams."*
- *"Some really try to stand out. The mecotias for example, they carry the status that comes with a beeper."*
- *"We can really judge each other instead of giving feedback."*
- *"There is never a good time we can give feedback. I think we actually try to dodge conflict which I think is individualistic behavior."*

Masculine

Preference for achievement, heroism, assertiveness and material rewards for success.



(AMC) management is masculine

- AMC management wants to protect certain badge values like: JCI, NIDCAP and of course IC status.
- At the VUmc they only defend the IC status
- Nurses have a preference for cooperation.

Possible connection to individual values:

- The relation between doctors and nurses at the AMC is described as more distant. This cultural difference could be a factor.
- The drive to achieve certain badges which the nurses care less about might add stress.

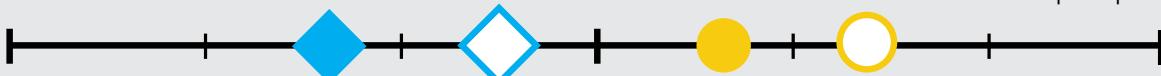
Feminine

Preference for cooperation, modesty, caring for the weak and quality of life.

- *We are aiming for achievement if it concerns the patient. If it is about something else we are more about collaboration.*
- *Within the team we take care for the less strong among us.*
- *We have a preference to work together.*
- *Doctors are more concerned about achieved status*
- *Management: We want to keep our JCI and IC status so we have to deliver even more than last year.*
- *There are some nurses who are in 20.000 workgroups and brag about it*

High uncertainty avoidance

Maintaining rigid codes of belief and behavior. Intolerant of unorthodox behavior and ideas.



AMC: More uncertainty avoidance

- There are much more rules at the AMC
- The rules are not guidelines but laws
- In the VUmc you are free to bend some rules based on practice and experience

Possible connection to individual values:

- Rules might negatively influence self-actualization since there is less room to evolve a nursing expertise.
- Rules offer the AMC nurses some safety.
- VUmc nurses at the AMC are unhappy because rules restricts their freedom.

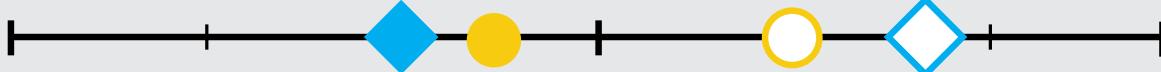
Low uncertainty avoidance

Maintaining a more relaxed attitude in which practice counts more than principles.

- *I wonder if the things we stick to are the official protocols or unwritten rules.*
- *15 years of experience, I know how to nurse a child OK? What does it matter through which hole I put the elastic band?*
- *You don't get positive constructive feedback but they just look at you judging.*
- *If I see the patient has trouble eating than I can use hand pressure instead of gravity. In the AMC that is not allowed.*
- *The danger of all these rules is that you stop thinking for yourself.*

Long term orientation

Focus on the future. Quick successes and instant gratification are sacrificed to prepare for a better future.



Management is more long term oriented as opposed to nurses

- Management must determine strategy for the success of the company
- The Woman Child Division strives to be innovative.
- Nurses are just trying to survive this week. Past negative experiences have thought the nurses to be sceptic about change.

Possible connection to individual values:

- Quality of work suffers on short term from change which is implemented too fast.

Short term orientation

Preference to maintain time-honored traditions and norms while viewing change with suspicion.

- *"There is a mismatch between our goals and the management's goals"*
- *"If we only hear the word 'change' we kick the breaks because we remember the last times."*
- *"The AMC is always first and then they tell us: 'the AMC already does it like this now'."*
- *"They are thinking about the new department and Single Bed Units but they don't see the units now. We just want to survive today and tomorrow."*
- *"Management: Change is really hard with this group. Everyone always has an opinion."*

Indulgence

Allowing relatively free gratification of basic and natural human drives related to enjoying life and having fun.



Restraint

Suppressing gratification of impulses and regulating it by means of strict social norms.

The AMC is more Restraint

- The AMC team is bigger and you see each other less during a shift than at the VUmc
- The VUmc team is a bit smaller and the two units are connected.
- The AMC follows stricter rules, after strict half an hour break work continues.

Possible connection to individual values:

- At the VUmc, people regard joy during work as more important.
- Two ex VUmc nurses who work at the AMC describe it as 'not fun' and 'too serious'.

- *"We do not necessarily make fun at our work, but we do have fun in our work."*
- *"It is also a more professional attitude. How joyful are you prepared to be around parents?"*
- *"I always tell parents that I like to make jokes but if it is too much they should say so."*
- *"We used to make Snapchat instruction video's on how to make medication. Hilarious!"*
- *"If I have fun I can do my job well and take care of the patients. If everyone else is blue I will feel blue as well."*
- *"Humor is so important because everything else is so serious."*

3.5.3. Identifying areas that might influence job satisfaction

Cartwright and Cooper (2012) mention three important determinants for a successful company merger:

1. The culture compatibility of the combining organizations, and the resultant cultural dynamics.
2. A fast culture cohesion.
3. The way in which the merger integration process is managed

Culture compatibility

If we look at individualism, masculinity and long term orientation the cultures of the AMC and VUmc are very compatible. The most extreme difference, half the scale, is noticed in the power distance dimension. This is very notable and should be managed but, looking at this data, the cultures should be compatible.

Fast culture cohesion

A fast cohesion between cultures into one new culture is important for a successful merger. Looking at the culture cards in earlier in this chapter, there are some strong differences between the VUmc and AMC which cannot be denied. Some AMC nurses expect the VUmc nurses to fully adjust to their ways. They see it more as having guests over in their new home as opposed to both being newcomers who bought a new home together.

“Luckily for us they move in with us”

Management should aim to try and understand these cultural differences in order to guide the employees towards a new desired culture. These four challenges are most

important:

1. The power distance in the VUmc nursing group differs strongly from the AMC nursing group and even more strongly from the AMC doctors.

VUmc nurses might feel unappreciated by doctors and fellow nurses when the overall power distance suddenly increases. This will probably not contribute to a fast culture cohesion.

“Some doctors are extremely heavy to deal with here when compared to the VUmc”

2. The VUmc nursing group and department as a whole is more indulgent and both the VUmc nurses as the AMC nurses could feel uncomfortable in each other's cultures.

At the VUmc there is more laughter in the coffee rooms as well as in the units. This can easily be observed but is also reported over and over again by nurses. Multiple nurses who switched locations mention to experience strong difficulties with this aspect of their new culture.

“Come on we really need humor, everything is so serious already”

3. The VUmc nurses are used to provide care based on their experience while the AMC has protocols for everything.

At the AMC there are more rules for nursing as well as social rules for behavior. For example, how to behave among parents, when to go to the changing room and how to feed a premature. In the VUmc they have rules

as guidelines which might or might not be used.

“I have been doing this for 15 years, I know how to nurse by looking at their responses”

Proper merger management

This data cannot judge the management of this merger but it can note a difference in management & nurse culture. Management thinks more long term, as with this merger, while nurses try to survive today and care

less about one year from now. This difference in goals and work culture generally results in misunderstandings from both sides and should be considered when managing this merger.

A lot

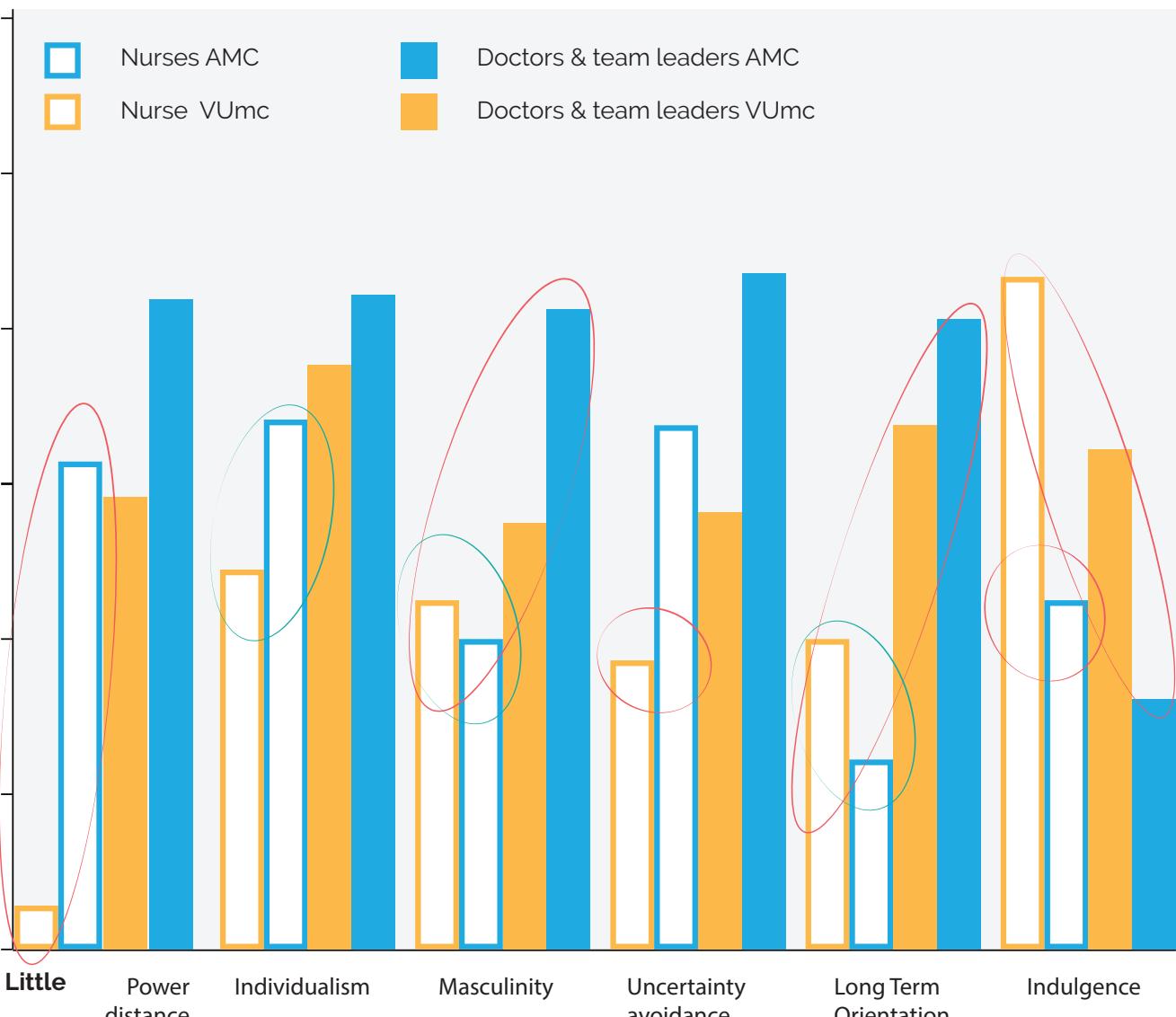


Figure 13: Methods to derive different layers of individual knowledge from the Convivial Toolbox (2013)

3.6 Organizational identification



In chapter 3.1 the statement is made that: If organizational values match and fulfill individual values the result is high job satisfaction. This leads to the following set of questions: Do the nurses also value being **open, sensitive** and **innovative**? And do they experience being treated this way?

3.6.1 Do the individual values match the organizational values?

In chapter 3.4 the most important values of the NICU nursing groups are discussed in the form of value cards and a value plot (figure 12). To evaluate if the values of the VKC (open, sensitive, innovative) match the ten individual values of the nurses a new value plot is made (figure 14). The organizational values are successfully attempted to match the original nurse values. This immediately gives insight in which organizational value is most important for the nurses which is 'sensitive'. Sensitive matches best with 6/10 nurse values. Open and innovative both match best with 2/10 nurse values

3.6.2 Are the organization's values also experienced by the nurses?

Based on the insights presented in both the value cards (3.4) and the culture cards (chapter 3.5) and the employee related parts of the vision statements (chapter 2.2) a short evaluation of the experience of the three values is attempted. This evaluation is solely focused at the experience of the hospital-employee relation which can be improved.

Open

"An open atmosphere is the basis of safely giving and receiving feedback." – VKC

This open atmosphere is not always experienced by the nurses in both hospitals. Among each other the culture is described as a gossiping culture and people especially do not feel safe to give feedback to their superiors. One of the most common mentioned complaints is displayed here below.

"They (team leaders and doctors) just don't know what is happening here at the units and our complaints are not taken seriously." – Nurse

Sensitive

"We are also caring and loyal to our colleagues and we respect others' views. We highlight the individual qualities of employees and we deploy them. Everyone who works within the VKC matters and notices that too!" – VKC

The plot shows that the two most promising areas for improvement ('rewards me' and wellbeing) are both sensitive. NICU nurses do not feel enough appreciation for their efforts and do not feel like they are being cared for mentally and physically. They might matter, but they do not notice it enough at the moment.

Employees first, customers second

• - Vineet Nayar of HCL technologies

Innovative

Multidisciplinary we improve our diagnostics, treatments, care and techniques. We do this with the help of scientific research.” – VKC

Nurses at the NICU believe in scientific research and try to innovate if this proves to be better for the patient. They also feel that

innovations are implemented too quickly and top down which leads to a lower care quality. Developments in the field continuously leave fewer space for personal patient care. This is an example of the fourth cultural difference which describes nurses as short term oriented as opposed to long term oriented management. Doubts about innovation influence the important quality value.

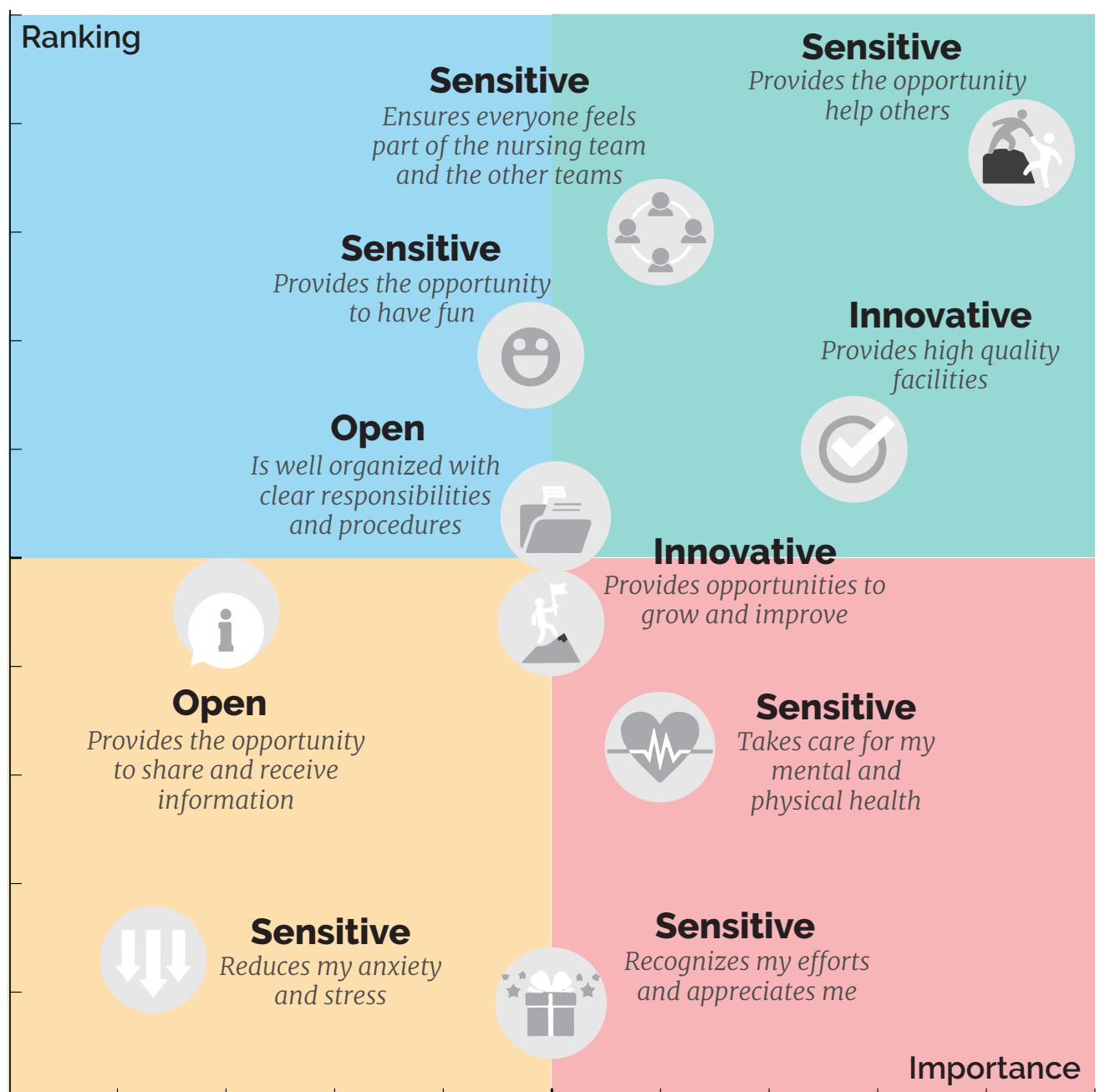


Figure 14: Assigning each value, if possible, a matching core value of the VKC (open, sensitive, innovative)

04



DEFINE

Design Goal, opportunities, criteria & wishes

The previous chapter described the empathizing phase in which the individual work values, the nursing work cultures, and the level of organizational identification. Furthermore the differences and similarities of the workday activities in both hospitals are documented in an combined employee journey. In this chapter all the gathered information is converged into a design goal and three actionable opportunities to fulfill this goal most effectively.

4.1 Urgency

In the introduction of this document the larger problem of nurse shortages is discussed. It is proposed that actively increasing job satisfaction is part of the solution. Before continuing further to the design goal it is interesting to use the newly gathered knowledge to reflect briefly on these initial statements. In literature, job dissatisfaction is closely linked to high turnover rates, sickness/absence and low job performance (Lu, 2019). This creates a lower nurse-to-patient ratio which in turn can also lower job satisfaction (Liu, Zhang, Ye, et.al., 2012). The results of the qualitative research described in chapter 3.2-3.5 also show this relation. This is described in detail in Appendix 7. These results once more emphasize the urgency of this project and the potential value of designing for increased job satisfaction.

4.2 Design Goal

The design problem for this project is how to use design thinking to increase NICU nurse job satisfaction by defining and shaping future employee experiences in a post-merger department. Many insights are

gathered about the two NICU nurse groups their workdays, values, cultures and relation to their organization's core values. These have all contributed to defining the future experiences. In order to do communicate this clearly and visually a future experiences map is made and presented in the next chapter. However, the aim is not only to define but also to shape future experiences in order to increase job satisfaction at the post-merger department. Within the scope of this project not every insight can be turned into a design solution to shape future experiences. To focus design efforts, an area of improvement which shows the possibility of highest impact on job satisfaction is chosen. In chapter 3.1 the following three statements about job satisfaction at the post-merger department are made:

- If all work values are facilitated, the result is high job satisfaction
- Good culture cohesion positively impacts an individual's assessment of his/her work values.
- If organizational values match and fulfill individual values the result is high job satisfaction

If we look at these three earlier defined statements it becomes clear that the most promising area for improving job satisfaction is an individual value. This is so since it is assumed that the assessment of the individual values leads to job satisfaction (goal) and this assessment is influenced by culture cohesion/ fit and organizational identity (means). Therefore the question is: What is the most promising individual value for improvement?

Rewards me: **Having the feeling of recognition and appreciation for efforts.**

This value ranked the lowest of all values while being relatively important (Chapter 3.4). If any true improvements can be made to improve the feeling among nurses of being recognized and appreciated this will probably have a relatively large positive effect on overall job satisfaction. The design goal for this project therefore is:

Improving the NICU nursing staff's feeling of being rewarded for work related efforts in order to increase their overall job satisfaction.

4.3 Design opportunities for the new department

In order to achieve the design goal three design opportunities are defined based on the employee insights regarding the relations between the individual values (figure 15), cultural differences (chapter 3.5) and the relations between organizational identity (chapter 3.6) and individual values (chapter 3.4). These three design opportunities are:

1. Improving bond & communication
2. Improving the nurses' physical and mental wellbeing
3. Celebrating success to keep nurses enthusiastic

These design opportunities are based on the goal of being rewarded. If the goal shifts some opportunities do as well. In this paragraph each of the three opportunities is discussed and explained individually.

Generally each design opportunity contains multiple smaller opportunities to keep everything actionable. The opportunities are

all based on the value cards (chapter 3.4), the culture cards (chapter 3.5), and the reflection on the VKC values (chapter 3.6). To make it easy to find more detailed information about each opportunity the relevant cards/values per opportunity are mentioned as well.

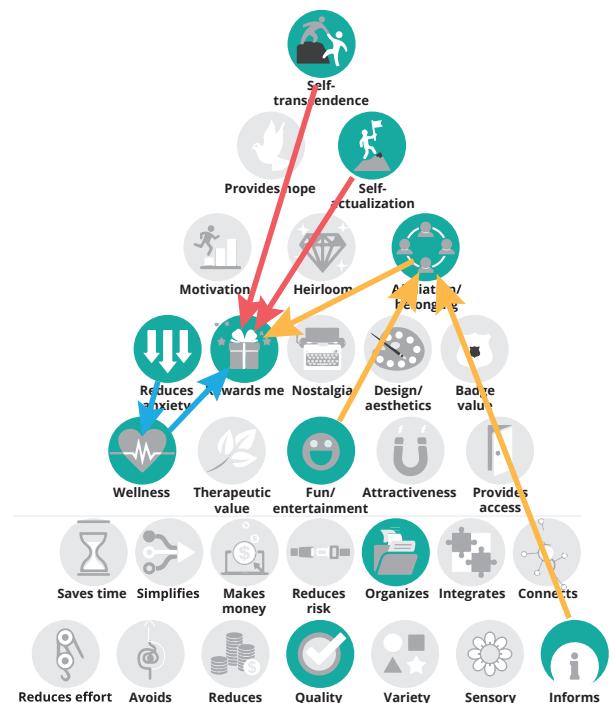


Figure 15: Relations of other values to the value of 'rewards me' show potential opportunities for solutions

1. Improving (multi-disciplinary) bond & communication

The orange arrows in figure 15 show the relation between multi disciplinary team bond and the feeling of recognition and appreciation. Knowing and trusting each other is a basis for showing appreciation. In order to achieve this open communication it is important to know each other by name. Informal contact and having fun can help.

a. Ensuring that everyone at the unit feels seen and heard

Value card: Informs me

Culture card: Feminine, Collectivism

VKC value: Open, Sensitive

There is a feeling that management and doctors don't see and understand what is happening at the units. At a Single Bed Unit department management cannot walk in the unit to check up with everyone at once.

b. Increasing the team bond between doctors and nurses

Value card: Affiliation/belonging, fun

Culture card: Power distance, Indulgence

VKC value: Sensitive

The nurses do not want to feel like an executive organ of the doctors, they want to feel like they are part of a multi disciplinary team. At the VUmc nurses experience lower power distance and a better collaboration between the two disciplines. The cultural differences might predict a negative experience for 'equal' VUmc nurses who have to collaborate with 'hierarchical' AMC doctors as described in the power distance culture card (chapter 3.5).

c. Stimulate positive communication and feedback between team leaders and nurses

Value card: Informs me

Culture card: Short term oriented, feminine

VKC value: Open, Sensitivity

Nurses want to feel empathy from their leaders, they want to feel it is safe to give feedback when necessary and they want to see that they are being listened to when doing so. Working at a larger department can make the

relation with some of the team leaders less personal

d. Facilitate (appropriate) fun at the department

Value card: Affiliation and belonging, fun

Culture card: Indulgence

VKC value: Open, Sensitivity

Having fun together is described as a strategy to cope with all the seriousness of the work itself. At the new departments a nurse is often alone in a SBU unit without the chance to bond and chit chat with others. This might harm having fun at the new department especially since there are also so many unfamiliar people. Having fun could therefore be stimulated a little bit extra in the beginning. Thoughts on what can be done now are described in Appendix 9.

2 Improving the nurse's mental & physical wellbeing

The blue arrows in figure 15 show the second opportunity to increase the feeling among nurses of being appreciated. Relieving possible anxiety, stress, physical pains and emotional lows really shows the nurses they are valuable and appreciated by recognizing their experiences.

a. Stimulating social support from colleagues and managers

Value card: Wellbeing

Culture card: Feminine, Collectivism

VKC value: Sensitive

NICU nurses deal with end-of-life decisions and ethical dilemmas on a weekly basis. Families are terrified and everyone looks at them for soothing answers. Nurses, doctors

and managers should support nurses just as pro-actively as they support the patients and parents. It is already difficult to notice how someone feels while being constantly in the same unit. This will most likely become even harder when working in Single Bed Units.

b. Improving the staff's physical wellbeing

Value card: Wellbeing

Culture card: Feminine

VKC value: Sensitive

Standing all day long without any breaks or nice chairs to sit on during the break takes its toll. So do low placed sockets, small spaces with large equipment and consecutive night shifts or shift working in general. The many sugary snacks in the staff rooms and the absence of fruits do not positively contribute either. Since most nurses are also mothers or caregivers they are always helping others. It cannot be expected that everyone starts sleeping well, eat healthy and exercise outside of the job. However, this is important if employees want to stay free of physical illnesses on the job while become older. There is an opportunity for the new department to play a vital role in improving the physical wellbeing of their employees.

c. Appreciate rest moments in and outside a work shift

Value card: Anxiety reduction, wellbeing

Culture card: Feminine

VKC value: Sensitive

Nurses complain about never having any moment for themselves. They experience an overload of stimuli which they cannot turn off ever. Even at the coffee room most of the conversations are work related. It is not for nothing that this was one of the most written

topics on the brown paper study in both the AMC & VUmc (Appendix 1). Some nurses also reported difficulties leaving their work mentally when at home. Actively offering rest moments might greatly benefit the nurses wellbeing.

d. Ensure every nurse feels safe at the Single Bed Unit

Value card: Anxiety reduction, wellness

Culture card: Feminine

VKC value: Innovative, sensitive

Nurses want to feel safe from parent violence and know they will receive help during acute patient situations. Some nurses are unsure if the new single bed environment offers enough visibility.

3. Celebrate progress to keep nurses enthusiastic

The last opportunity is to actively celebrate progress in order to keep nurses enthusiastic about their profession as is displayed with the red arrows in figure 15.

a. Keep the NICU nurse profession surprising

Value card: Fun, self-actualization

Culture card: Indulgence

VKC value: Innovative

Multiple nurses report the feeling of being stuck in their profession. There are some opportunities for further development but not everyone is enthusiastic about these chances or willing/able to make the necessary sacrifices. The challenge here is to think outside the box to find ways to keep the profession surprising besides offering new career paths.

b. Show positive feedback from patients and parents to the teams

Value card: Fun, Self-transcendence

Culture card: Feminine

VKC value: Innovative, sensitive

Nurses contribute all their energies for the wellbeing of patients and their parents. They become personally attached to the new families and truly hope that they will live a happy and healthy life together. Unfortunately this feeling often stays in the stage of hope and uncertainty. Nurses have to be lucky to see the positive results of their work. Stimulating this positive feedback can provide a continuous flow of positivity and confirmation of doing the right thing.

C. Make work groups more rewarding

Value card: Informs me

Culture card: Feminine, uncertainty avoidance

VKC value: Innovative

Most nurses enjoy contributing to the quality of care through work groups. However, they do not enjoy the current environment for doing this. There is never time, it is hard to collaborate and the results never receive good feedback from other nurses and team leaders. The new department gives the opportunity to rethink this process.

4.4 Most important selection criteria:

This almost concludes the analysis section and the empathize and define phase. The next phase is ideation. During this phase lots of Ideas are generated based on the three opportunities described in this chapter. Some ideas might be more valuable or realistic as

opposed to others. In collaboration with two team leaders the following small and general list of criteria and wishes is defined. These are used to review the many ideas.

Criteria:

- The solution can be executed now or when the new department opens
- The interventions fit within the nurses' busy schedules
- The solutions benefit or do not harm patient and parent care

Wishes:

- Nurses not only profit indirectly (increased job satisfaction over longer periods of time) but also directly (pleasure) from the interventions.
- The change can be realized from inside out by contributions from the nurses and team leaders mostly. In other words, the changes can be made at the department without the help of higher management.
- The ideas should be likable by large groups of employees without much explaining so the employees can feel rewarded even before an actual intervention is implemented.



SYNTHESIS



This project started by introducing the design problem: How can design thinking be used to define and shape the future employee experience in order to improve job satisfaction in an post-merger NICU department? To define future experiences a future employee experience map is made and presented in this chapter. All the knowledge necessary to create this map is documented in the previous section of this report called Analysis. The analysis concluded with the design goal: Improving the NICU nursing staff's feeling of being rewarded for work related efforts in order to increase their overall job satisfaction. The last pages describe three design opportunities to achieve this goal and some criteria and wishes to evaluate solutions. In this section called Synthesis, the defined design opportunities are used to create solutions to fulfill the design goal. In this chapter, promising solutions are added to the future employee experience map as a first step to shape future employee experiences. For each opportunity one promising idea is further developed into a concept.

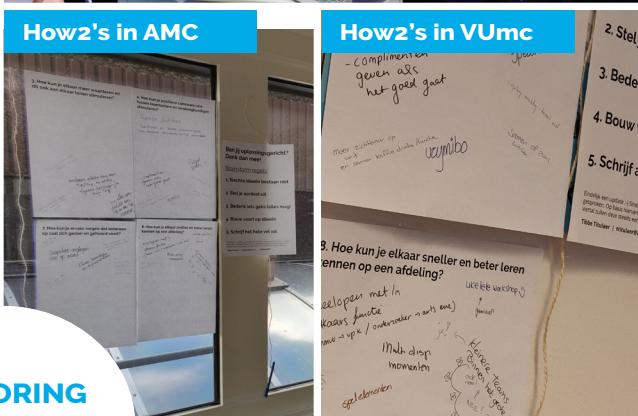
nursing staff could provide input in the coffee room as well (Appendix 10). Half of the opportunities were placed in the coffee room of each department before switching the pieces of papers. This way both locations could see each others input and the opportunities themselves. An external facilitator and a group of students brainstormed on the topic as well. They first defined the problem using the 5W's technique (what, why, who, when, where) before brainstorming on solutions (Appendix 11). All ideas are transcribed and clustered digitally. Together with an AMC head doctor some promising ideas are selected (Appendix 12). Building on the most promising ideas in the clusters a visual brainstorm is done. The results are a set of ideas per opportunity. The most promising ideas are placed in the future employee experience map and color labeled per opportunity.

5.1 Ideation

In order to shape future experiences ideas are generated for each sub opportunity. This is done by using a positive formulated challenge for each opportunity. To give an example opportunity 1a is 'Ensuring that everyone at the unit feels seen and heard'. We can also formulate this as: How to ensure that everyone at the unit feels seen and heard? This is done for each opportunity and used to gain many ideas from most of the important stakeholders and also students.

Brainstorming ideas

Workshops with management and nurses separately provided many valuable ideas. During a period of two weeks the entire



EXPLORING
&
SHARING

5.2 Future employee experience map

The next two pages show the grand result of all research and ideation combined into one large experience map. An experience journey map concentrates on all experiences for each step in which a user interacts with a service (Diani, Pacenti & Tassi, 2012). It is a representation of the estimated group's average and can be used to identify which brilliant basics of the experience need to be improved and where to add magic moments. Based on the journey the hospital managers should be able to intuitively identify areas for improvement without having to read an entire report. The experience map can be printed and hanged on a wall in the hospital to keep the project alive at all times and to stimulate positive change (figure 17).

Design choices for the employee experience map

This experience map is different in some aspects from regular customer journeys since it discusses the working day of an employee instead of a customer interaction with a service. Therefore some adjustments to the journey are made to make it more suitable for this specific case. A 'phase' is now called a 'theme' since they are not always run through in a specific order. The themes consist of multiple actions like 'changing' or 'gathering disposables'. These are still high level descriptions. Changing for example consists of multiple actions like gathering clothes, going to a changing room, undressing, dressing and so forth. If the hospital is really serious about improving the employee experience a journey for each action could be created in order to micromanage the employee's experiences. For this project

the actions are described as high over since the goal is to identify themes and design interventions that show potential. For every theme, such as collaborating with doctors, the most important NICU nurse values are identified, such as affiliation and belonging. The design interventions are presented per opportunity and separately from the basic experience to easily identify the promising ones

Predicting experiences

In the journey an attempt to predict the nurses' future experience is made. By documenting both positive and negative influences for the most important values per theme an estimation of the future experience is made. Since the map describes a future situation and experiences cannot be measured all the negative and positive influences have a received weight number. This number is created by intuition based on all previous research and improved in collaboration with management. This way the exact predicted influences on the future experiences become clear and can be discussed openly with stakeholders in order to improve the map or in order to identify influences which are in need of improvement most.

Think like a designer and keep on iterating

This journey can be used to define and shape future NICU nurse experiences. However, this is just the first version of hopefully many. Based on this journey more insights can be gathered per theme to make more accurate predictions. Smaller maps for each theme can be made as well. It takes belief, dedication and some iterations to make it work but this is a positive first step.

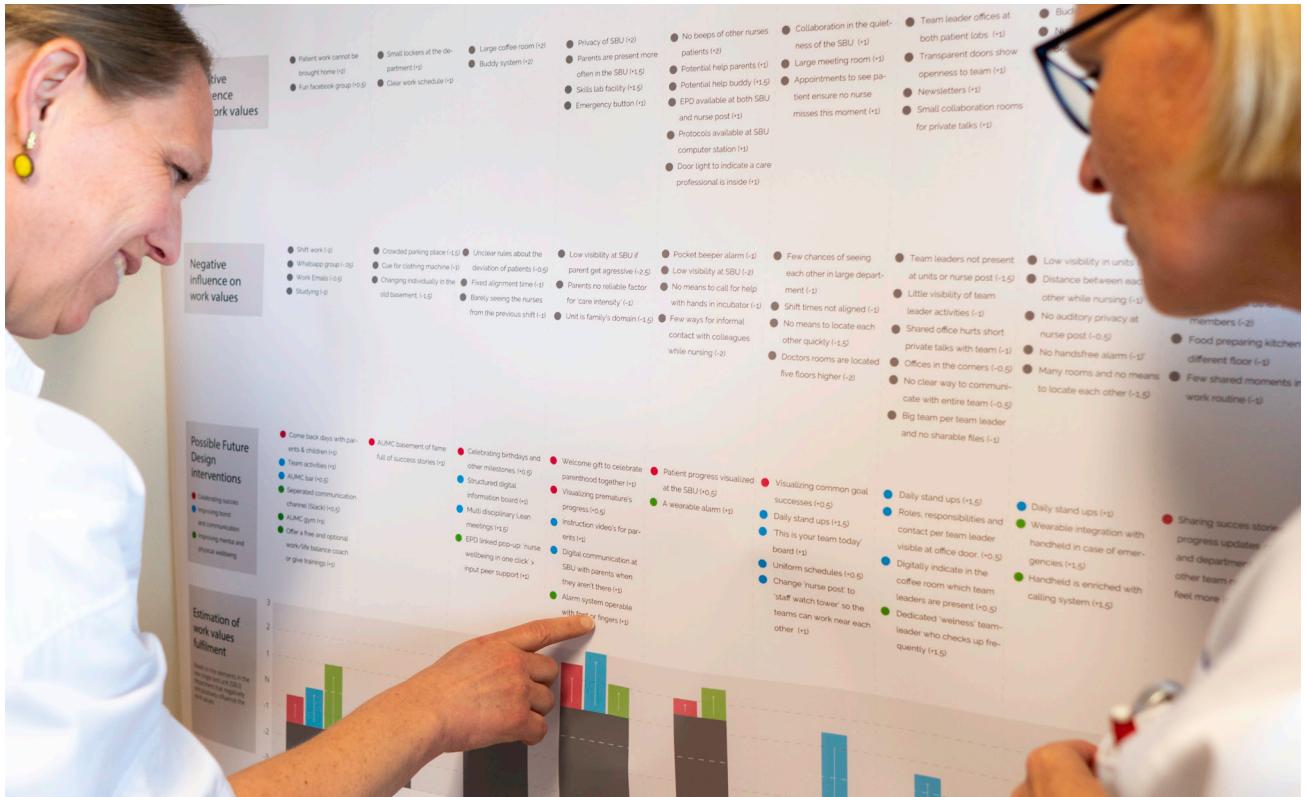


Figure 16: Two team leaders at the VUmc engaged in a future employee experience conversation

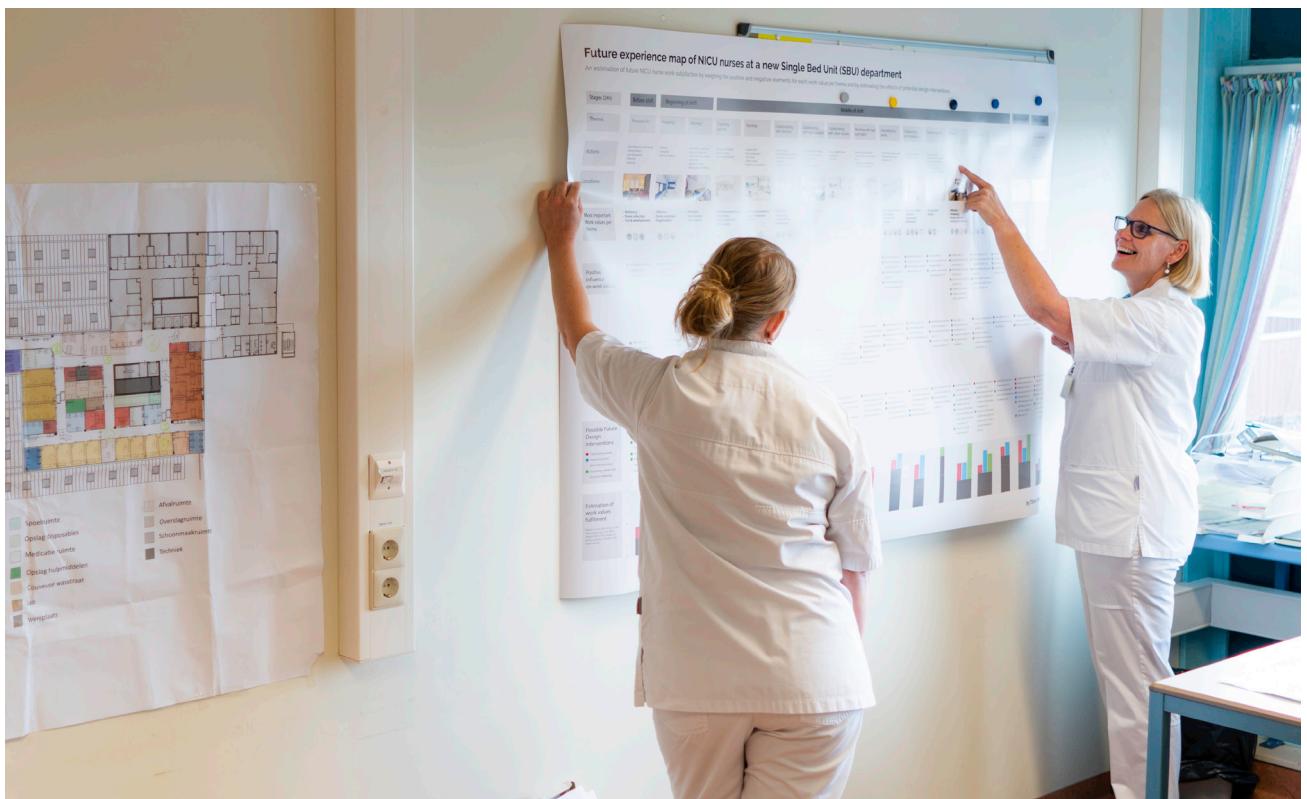


Figure 17: Hanging the future employee experience journey on the wall in a team leader office at the VUmc

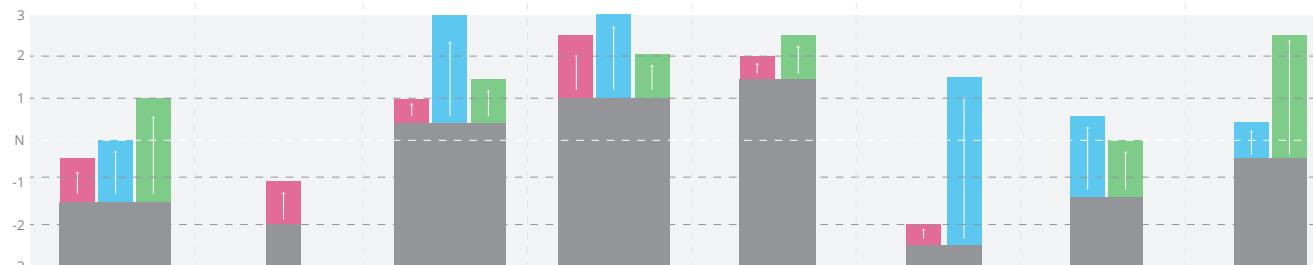
Future experience map of NICU nurses at a new Single Bed Unit (SBU)

An estimation of future NICU nurse work satisfaction by weighing the positive and negative elements for each work value per theme and stage.

Stages (24h)	Before shift	Beginning of shift	Midshift	End of shift				
Themes	Personal life	Preparing	Planning	Coaching parents	Nursing	Collaborating with doctors	Collaborating with team leaders	Collaborating with other nurses
Actions	<ul style="list-style-type: none"> - Spending time with family - Doing hobby's - Life obligations - Relaxing - Studying 	<ul style="list-style-type: none"> - Parking - Changing - Storing valuables 	<ul style="list-style-type: none"> - Assembling nurse team - Discuss deviation of shifts, patients & buddies - Drink coffee - Alignment at SBU - Discuss plan with buddy 	<ul style="list-style-type: none"> - Help breastfeeding - Teach nursing - Give mental support 	<ul style="list-style-type: none"> - Update EPD - Give medication - Give food - Wash/clean - Respond to situation 	<ul style="list-style-type: none"> - Doctor's round - Multi-disciplinary meeting - Assist with research/ok/transport - Medical questions 	<ul style="list-style-type: none"> - Multi-disciplinary meeting - Organizational questions - Private meetings - Evaluations - Workgroup meetings 	<ul style="list-style-type: none"> - Discuss patient plan - Supporting - Chit chat
Locations								
Most important Work values per theme	<ul style="list-style-type: none"> - Wellbeing - Stress reduction - Fun & entertainment 	<ul style="list-style-type: none"> - Affiliation - Stress reduction - Organization 	<ul style="list-style-type: none"> - Affiliation - Organization - Information 	<ul style="list-style-type: none"> - Self-transcendence - Rewarding - Stress reduction - Information 	<ul style="list-style-type: none"> - Self-transcendence - Rewarding - Stress reduction - Quality 	<ul style="list-style-type: none"> - Affiliation - Rewarding - Organization - Information 	<ul style="list-style-type: none"> - Self-actualization - Rewarding - Organization - Information 	<ul style="list-style-type: none"> - Affiliation - Rewarding - Wellbeing - Fun & entertainment
Positive influence on work values	<ul style="list-style-type: none"> ● Patient work cannot be brought home (-2) ● Fun facebook group (+0.5) 	<ul style="list-style-type: none"> ● Small lockers at the department (+1) ● Clear work schedule (+1) 	<ul style="list-style-type: none"> ● Large coffee room (+2) ● Buddy system (+2) 	<ul style="list-style-type: none"> ● Privacy of SBU (+2) ● Parents are present more often in the SBU (+1.5) ● Skills lab facility (+1.5) ● Emergency button (+1) 	<ul style="list-style-type: none"> ● No beeps of other nurses patients (-2) ● Potential help parents (+1) ● Potential help buddy (+1.5) ● EPD available at both SBU and nurse post (+1) ● Protocols available at SBU computer station (+1) ● Door light to indicate a care professional is inside (+1) 	<ul style="list-style-type: none"> ● Collaboration in the quietness of the SBU (-1) ● Large meeting room (+1) ● Appointments to see patients ensure no nurse misses this moment (+1) 	<ul style="list-style-type: none"> ● Team leader offices at both patient lobs (+1) ● Transparent doors show openness to team (+1) ● Newsletters (+1) ● Small collaboration rooms for private talks (+1) 	<ul style="list-style-type: none"> ● Buddy system (+1.5) ● Nurse posts (+1.5) ● Beeper system (+1.5)
Negative influence on work values	<ul style="list-style-type: none"> ● Shift work (-2) ● Whatsapp group (-0.5) ● Work Emails (-0.5) ● Studying (-1) 	<ul style="list-style-type: none"> ● Crowded parking place (-1.5) ● Cue for clothing machine (-1) ● Changing individually in the old basement. (-1.5) 	<ul style="list-style-type: none"> ● Unclear rules about the deviation of patients (-0.5) ● Fixed alignment time (-1) ● Barely seeing the nurses from the previous shift (-1) 	<ul style="list-style-type: none"> ● Low visibility at SBU if parent get aggressive (-2.5) ● Parents no reliable factor for 'care intensity' (-1) ● Unit is family's domain (-1.5) 	<ul style="list-style-type: none"> ● Pocket beeper alarm (-1) ● Low visibility at SBU (-2) ● No means to call for help with hands in incubator (-1) ● Shift times not aligned (-1) ● Few ways for informal contact with colleagues while nursing (-2) 	<ul style="list-style-type: none"> ● Few chances of seeing each other in large department (-1) ● Little visibility of team leader activities (-1) ● Shared office hurts short private talks with team (-1) ● Offices in the corners (-0.5) ● No clear way to communicate with entire team (-0.5) ● Big team per team leader and no sharable files (-1) 	<ul style="list-style-type: none"> ● Team leaders not present at units or nurse post (-1.5) ● Distance between each other while nursing (-1) ● No auditory privacy at nurse post (-0.5) ● No handsfree alarm (-1) ● Many rooms and no means to locate each other (-1.5) 	
Possible Future Design interventions	<ul style="list-style-type: none"> ● Celebrating success ● Improving bond and communication ● Improving mental and physical wellbeing 	<ul style="list-style-type: none"> ● Come back days with parents & children (+1) ● Team activities (+1) ● AUMC bar (+0.5) ● Separated communication channel (Slack) (+0.5) ● AUMC gym (+1) ● Offer a free and optional work/life balance coach or give trainings (+1) 	<ul style="list-style-type: none"> ● AUMC basement of fame full of success stories (+1) ● Structured digital information board (+1) ● Multi-disciplinary Lean meetings (+1.5) ● EPD linked pop-up: 'nurse wellbeing in one click' > input peer support (+1) 	<ul style="list-style-type: none"> ● Celebrating birthdays and other milestones. (+0.5) ● Visualizing premature's progress (+0.5) ● Instruction video's for parents (+1) ● Digital communication at SBU with parents when they aren't there (+1) ● Alarm system operable with foot or fingers (+1) 	<ul style="list-style-type: none"> ● Welcome gift to celebrate parenthood together (+1) ● Visualizing premature's progress (+0.5) ● Instruction video's for parents (+1) ● Digital communication at SBU with parents when they aren't there (+1) ● Alarm system operable with foot or fingers (+1) 	<ul style="list-style-type: none"> ● Patient progress visualized at the SBU (+0.5) ● A wearable alarm (+1) 	<ul style="list-style-type: none"> ● Visualizing common goal successes (+0.5) ● Daily stand ups (+1.5) ● This is your team today board (+1) ● Uniform schedules (+0.5) ● Change 'nurse post' to 'staff watch tower' so the teams can work near each other (+1) 	<ul style="list-style-type: none"> ● Daily stand ups (+1.5) ● Roles, responsibilities and contact per team leader visible at office door. (+0.5) ● Digitally indicate in the coffee room which team leaders are present (+0.5) ● Dedicated 'wellness' team-leader who checks up frequently (+1.5)

Estimation of work values fulfilment

Based on the elements in the new single bed unit (SBU) department that negatively and positively influence the work values.



U) department

and by estimating the effects of potential design interventions.

End of shift	After shift							
Working with support team	Educating students	Collaborating with Obstetrics	Doing logistics	Breaks	Workgroups	Personal development	Rounding up	Personal life
<ul style="list-style-type: none"> - Receiving medication - Receiving introduced parents - Receiving labelled food - Receiving new stock         	<ul style="list-style-type: none"> - Teach theory and practice - Make education plans - Evaluate work         	<ul style="list-style-type: none"> - Couple care nursing - Patient admissions         	<ul style="list-style-type: none"> - Cleaning beds - Getting clean incubator - Preparing medication - Preparing food - Disposing garbage - Get medical equipment - Restock disposables         	<ul style="list-style-type: none"> - Food breaks - Coffee breaks - Toilet breaks         	<ul style="list-style-type: none"> - Work individually - Work together - Communicate results /decisions - Reading mails - Collaborating with third parties like other UMC's         	<ul style="list-style-type: none"> - Clinical lessons - Studying         	<ul style="list-style-type: none"> - Alignment - Change - Gather values - Optional cup of hot drink         	<ul style="list-style-type: none"> - Spending time with family - Hobbying - Life obligations - Relaxing - Studying         
<ul style="list-style-type: none"> - Affiliation - Stress reduction - Organization - Information 	<ul style="list-style-type: none"> - Self-transcendence - Rewarding - Organization - Quality 	<ul style="list-style-type: none"> - Self-actualization - Affiliation - Organization - Information 	<ul style="list-style-type: none"> - Organization 	<ul style="list-style-type: none"> - Affiliation - Wellbeing - Stress reduction - Fun & entertainment 	<ul style="list-style-type: none"> - Self-actualization - Organization - Quality 	<ul style="list-style-type: none"> - Self actualization - Quality - Information 	<ul style="list-style-type: none"> - Rewarding - Wellbeing - Fun & entertainment 	<ul style="list-style-type: none"> - Wellbeing - Stress reduction - Fun & entertainment 
<ul style="list-style-type: none"> ● Satellite pharmacy at the department (+2) ● Host to receive and prepare parents (+1) ● Large coffee room (+1) 	<ul style="list-style-type: none"> ● Skills lab facilities (+1.5) ● More safe learning environment at SBU (+1) ● Collaboration spaces (+1) ● Flex workspaces for study, research & preparation (+1) 	<ul style="list-style-type: none"> ● Departments border (+1) ● Couple care rooms (+2) ● Lessons about each others patient category (+2) 	<ul style="list-style-type: none"> ● New facilities (+3) ● Locally arranged 24 hour storage at SBU (+1) ● Incubator washing street at the department (+1) 	<ul style="list-style-type: none"> ● Coffee/snacks (+1) ● Enough kitchen gear like microwaves (+1.5) ● Buddy system to protect break time (+1) ● Thank you postcards from parents (+0.5) ● Television for events (+1) ● Enough collaboration spaces elsewhere (+1) 	<ul style="list-style-type: none"> ● Flex workspaces (+1.5) ● Collaboration spaces with facetime facilities (+1.5) ● More expertise with larger group (+1) ● Larger number of patients equals more valid & faster research results (+1.5) 	<ul style="list-style-type: none"> ● Skills lab facilities (+1) ● Daily lessons (+1) ● Possibility to learn basic mother care (+1) 	<ul style="list-style-type: none"> ● Lockers at department (+1) ● Large coffee room (+2) ● Fun facebook group (+0.5) 	<ul style="list-style-type: none"> ● Patient work cannot be brought home (+2)
<ul style="list-style-type: none"> ● Patients and parents barely visible for pharmacy workers and other team members (-2) ● Food preparing kitchen at different floor (-1) ● Few shared moments in work routine (-1) 	<ul style="list-style-type: none"> ● Only one patient per SBU takes up more time (-1) ● Having a buddy and a student is extra (-1) ● No shared meetings (-1.5) ● Students are on their own at the SBU without nurse (-1) 	<ul style="list-style-type: none"> ● Walking distance (-1.5) ● Little visibility of each others patients (-2) ● Old equipment will still be used (-1) ● No overview of locations of lesser used items (-1) 	<ul style="list-style-type: none"> ● Walking distance between rooms and storages (-1) ● Work related info (-2) ● Pocket Beeper (-2) ● Small work meetings (-1) ● Bad acoustics when crowded (-1) 	<ul style="list-style-type: none"> ● Bad coffee (-1) ● Work related info (-2) ● Pocket Beeper (-2) ● No means to share (-2) ● No structured way to communicate results and deliver feedback (-2) 	<ul style="list-style-type: none"> ● Time is not protected and there is no way to protect own time (-2) ● No means to share (-2) 	<ul style="list-style-type: none"> ● Few career paths (-2) ● No clear overview of opportunities (-1) 	<ul style="list-style-type: none"> ● Changing individually in the old basement (-1.5) ● Old parking space (-1.5) 	<ul style="list-style-type: none"> ● Shift work (-2) ● Whatsapp group (-0.5) ● Work Emails (-0.5) ● Studying (-1)
<ul style="list-style-type: none"> ● Sharing success stories and progress updates of patient and department work for other team members to feel more involved (+2) 	<ul style="list-style-type: none"> ● Visualize student milestones (+1) ● Daily stand ups (+0.5) ● Extra beeper features for guiding students and to allow quick questions (+1) 	<ul style="list-style-type: none"> ● Show success stories and other positive happenings of Obstetrics at the NICU and vice versa (+1.5) ● Daily stand ups (+1.5) ● Shared clinical lessons (+1) 	<ul style="list-style-type: none"> ● Extra employees for supporting with logistics (+1) ● Storage labelling to indicate what should go where (+1) 	<ul style="list-style-type: none"> ● Succes stories symbolic totem pole place (+2) ● Fun zone in coffee room to play games together (+2) ● Relaxation space (+3) ● Creating a small meeting zone in the coffee room to keep it away from the rest of the space (+1) ● Free fruits, nuts and healthy snacks (+1) 	<ul style="list-style-type: none"> ● Share successes visually in the coffee room (+1) ● Sharing progress & results digitally in separated communication tool with space for feedback (+2.5) ● Protect personal time with handheld. Press reserve 30 minutes' and this is communicated to parents and team (+2) 	<ul style="list-style-type: none"> ● Gamify skills, lessons & visualize results (+1) ● Visualized career paths and pro active guidance in possibilities (+1.5) 	<ul style="list-style-type: none"> ● Visualize shift results (+0.5) ● Drinks & presentations (+1) ● Basement of fame (-1) ● Day evaluation with TL (+1) ● Feedback box (+0.5) ● EPD linked pop-up 'nurse wellbeing in one click' > input peer support (+1) ● Relax room (+2) 	<ul style="list-style-type: none"> ● Come back days with parents & children (+1) ● AUMC bar (+0.5) ● Team activities (+1) ● Separated communication channel (Slack) (+0.5) ● AUMC gym (+1) ● Offer a free and optional work/life balance coach or give trainings (+1)

5.3 Conceptualization

One concept per category in the map

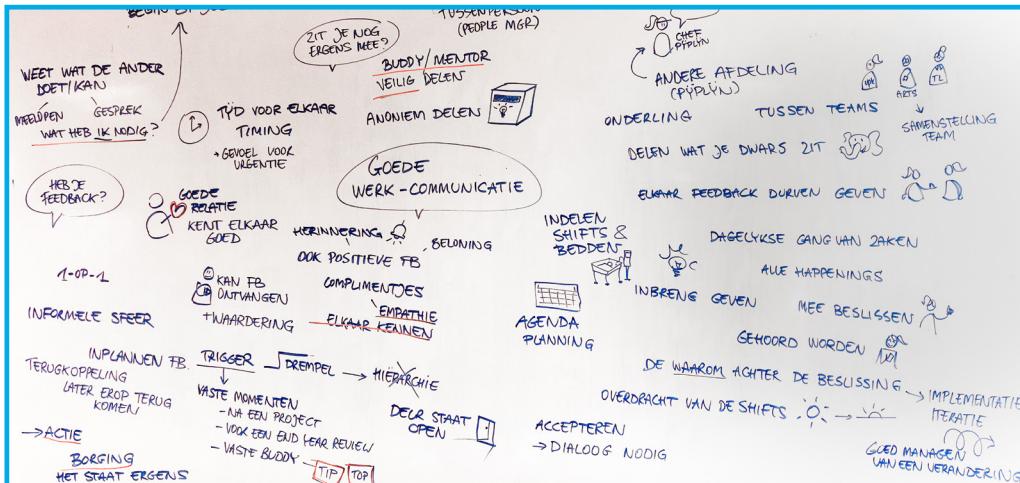


Figure 18: Visual Ideation on Improving bond & communication



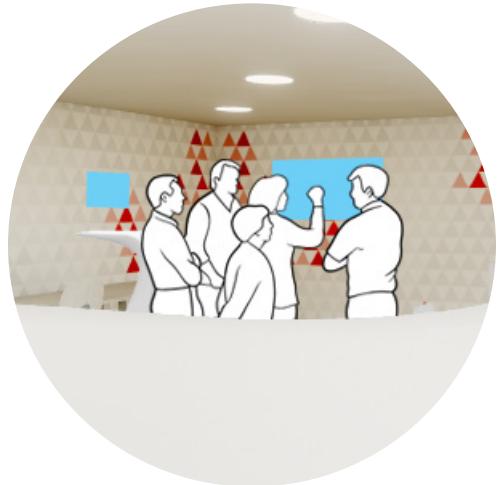
Figure 19: Visual ideation on Celebrating progress to keep nurses enthusiastic



Figure 20: Visual ideation on Improving the nurses' their physical and mental wellbeing

Daily stand-ups

Every day, same time, same place doing a quick multi-disciplinary team stand-up meeting. Get to know each other fast while practicing to communicate efficiently.



#Celebrate

Sharing success on a large screen in the coffee room with dynamic footage. Happy parents and children, fun facts, employee milestones and much more.



Boost

One moment per shift entirely away from all stress and stimuli. Ten minutes to relax, refresh and energize in a room that is designed specifically for this purpose.



5.3.1 Daily stand-ups

Every day, same time, same place doing a quick multi-disciplinary team stand-up meeting. Get to know each other fast while practicing to communicate efficiently.

Open, Sensitive, Innovative

The results of the qualitative research show that nurses do not feel heard and seen which is important for Job satisfaction which is also described earlier in chapter 3.1. There is a gossip culture and a lack of positive communication with some doctors and team leaders. Furthermore there is little understanding of the day-to-day business at the obstetrics department, which is a part of the future Perinatal Center as well. Lastly, after the merger many people will not know each other personally which can take long times at a department. Other issues will arise as well which need to be discussed.

Benefits

- Everyone feels heard and understood.
- You get to know each other rapidly.
- Learn to think in solutions.
- Multi disciplinary team building .
- A stronger connection with Obstetrics.

Who needs to attend

- At least one nurse of a buddy pair.
- The team leaders.
- Doctors or doctors assistants
- Admission coordinators
- Obstetric nurses assigned to couplet care
- Obstetric specialists
- An external facilitator
- Total number = 7 per nurse post

Execution

- The promise of a limited stand-up duration of max 15 minutes.
- Small standing table near screen
- External facilitator or trained session leader
- Everything gets documented in actions by a secretary

Agenda

- Wat did you do today? What did your buddy do today?
- Did you achieve to do your actions?
- What will you do until the end of the shift? What will your buddy do until the rest of the day?
- Is there anything you need to do this?
- Write down action and follow up next meeting.

When?

Right after the visit everyone is at the department. This is the best moment for everyone to do the stand-up as discussed with the departments team leaders. That would be around 11:30. However, later in the day might work as well since this gives the opportunity to follow up on the decisions made during the Visit.

Research questions

- What makes the meeting interesting/ relevant?
- How should it be called and promoted?
- Which specific agenda questions work best for this specific context?
- Is it possible to do the meetings within a limited time duration?
- How much time is necessary?
- Is it possible to do the meeting at a fixed

figure ?: Celebrating progress to keep nurses enthusiastic

time slot every day? When?

- How can Obstetrics be best involved? Long distance? Or physically present?
- Will all stand-ups be at the same time? Or should they be divided in time slots?

Approach

As with every step in this project the nurses and other relevant parties should be involved. Next steps could be:

One workshop in which possible stand-up agenda points will be established and answers to the research questions will be given

together.

Then, two test rounds of both one week in which a daily stand-up concept will be introduced based on the previous workshop. Short interviews will be held to evaluate and improve the concept.

If nurses and other disciplines aren't enthusiastic after the second round the concept will not be realized and attention should be refocused.

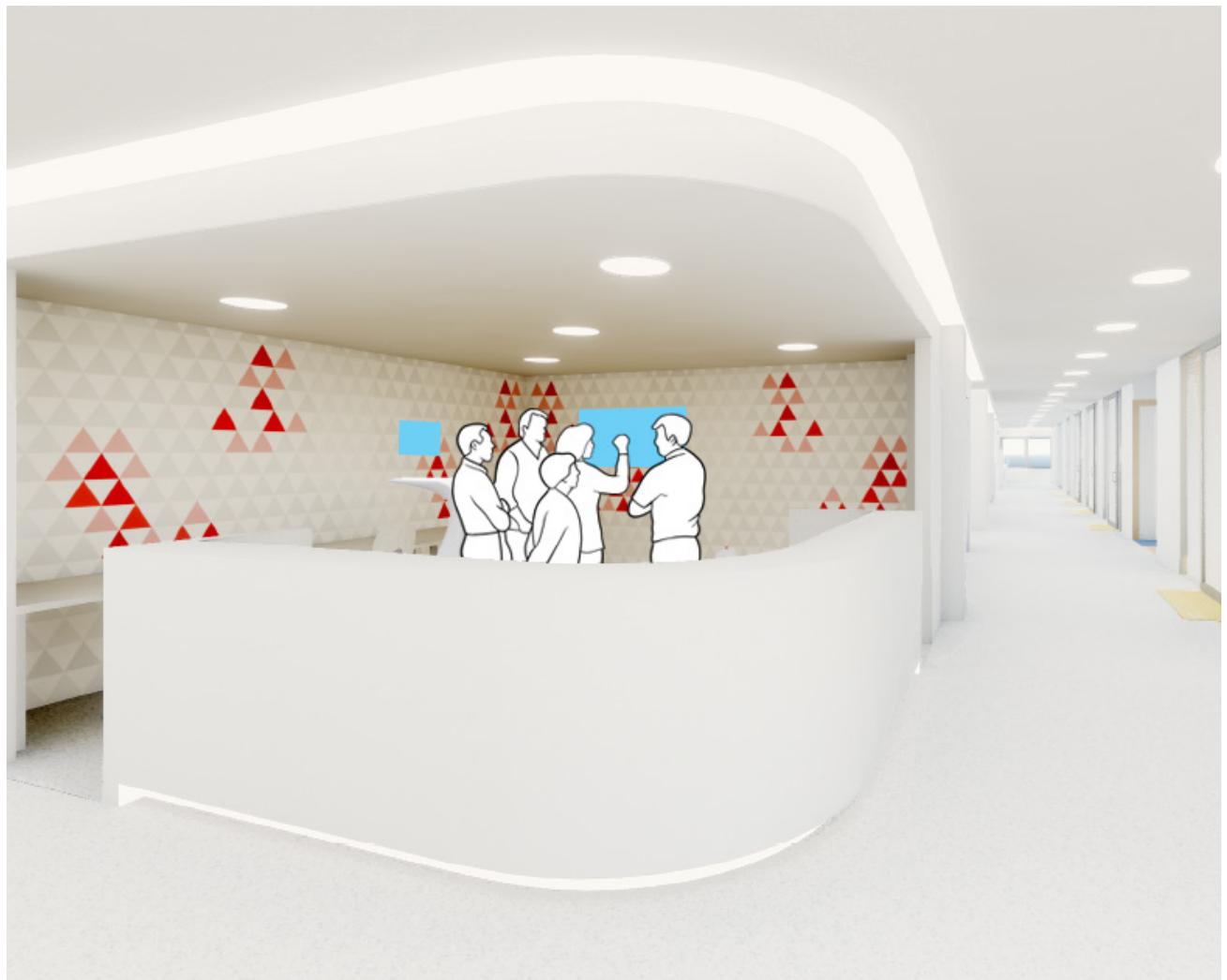


Figure 21: Multi-disciplinary daily stand-up at a nursing post in the post-merger NICU department

5.3.2 #Celebrate

Sharing success on a large screen in the coffee room with dynamic footage. Happy parents and children, fun facts, employee milestones and much more.

Benefits:

- Reminding people of their purposeful and extremely appreciated job
- Getting to know each other faster by seeing employee related footage
- Feeling a part of something larger
- Feeling progression in your career even after many years
- Proud and positive atmosphere might attract more people

Content made by the employees and for the employees

Most of the content should be generated by small employee groups, but everyone should be able to contribute through an app. Either on their phone or available iPads. After taking a picture a hash tag and bright color are chosen and a small text is entered. The message is then signed. After uploading the software will make a celebration card of which three examples are showed in figure ?.

In theory many cards could be generated automatically by integrating them with the Zorgpunt app, EPIC and HR systems.

A modern and digital form

Information is communicated faster and more dynamic these days with the rise of video and social media. Employees should not be forced to put in effort in order to get engaged in the service. Instead they should receive positive/funny/useful information

all the time in a passive manner. By using hash tags, large pictures, sentences with a maximum amount of 75 characters this can be achieved.

Celebrating employee related milestones

#newcolleague
#congratulations
#specialthanks

Celebrating patient related milestones

#biggerstronger
#progression
#born (newpatient)

Celebrating department, PNC and organisation related milestones.

#milkproduction
#teameffort
#successtatistic
#inthenews

Let's start today

In appendix 9: What can be done now? The idea of sharing stories from the Poli was mentioned. Pictures can be made from children during their check and large prints can be placed in the coffee rooms accompanied by small text delivered by the parents or child.

Approach

First establish two main groups for delivering input. Then organize a workshop with the users to explore how to design for the desired target behavior (see example in chapter 6) which is creating and presenting content. Then test and evaluate (examples in chapter 7

and 8).

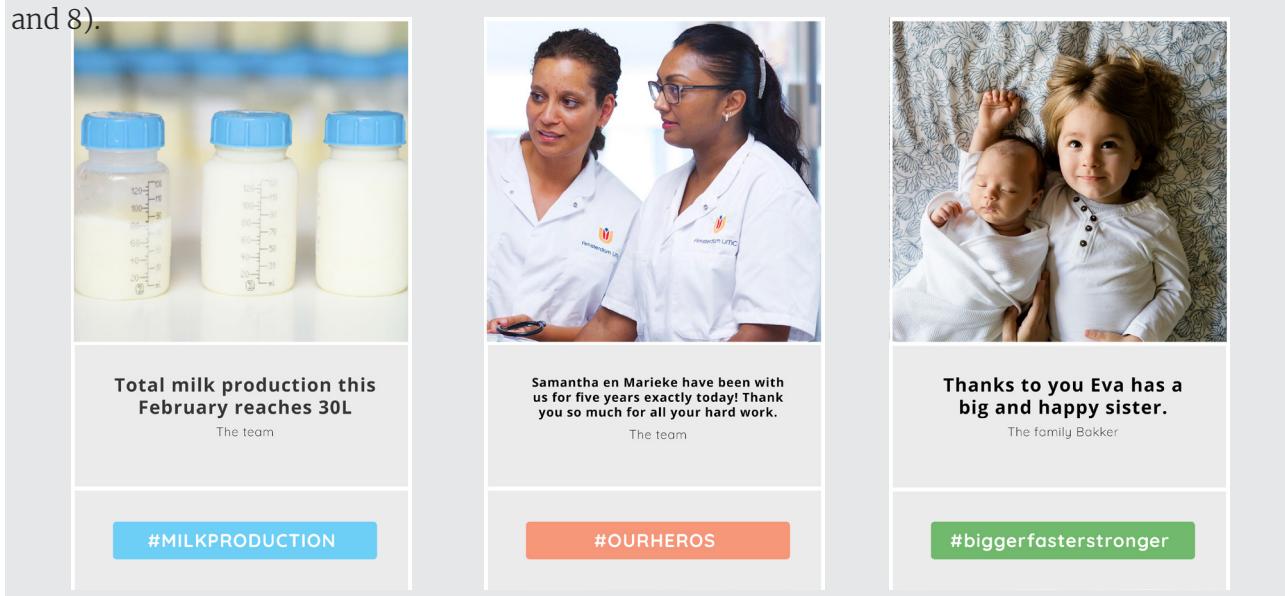


Figure 22: Three example celebration topics and cards



Figure 23: Experiencing positive messages without having to do any extra effort for it.

5.3.3 Boost

One moment per shift entirely away from all stress and stimuli. Ten minutes to relax, refresh and energize in a room that is designed specifically for this purpose.

Open, Sensitive, Innovative

During this research many nurses have joked about introducing massage chairs at the department. There is truth behind these jokes, the research shows a desire to get some physical but also mental relaxation. The hospital can use this merger as an opportunity to reserve one space specifically for their employees wellbeing.

Benefits

- It is a strong message of appreciation from higher and middle management.
- Physically and mentally healthy.
- It has a lot of appeal which can keep or attract staff.
- It can offer a positive peak experience (Appendix 12) which will greatly contribute to the overall memory of a day.

Creating a successful space consists of three parts:

- Creating high internal motivation to use the room.
- Making it easy to use the room.
- Reminding nurses at the right time and in the right way.

Challenges

- Time is limited and forms a barrier when it comes to 'leaving the department'.

There is always something to do at an Intensive Care.

- Taking care of patients means guarding them, which you cannot when you leave.
- Using the room while everybody else is working might not be socially accepted without proper guidance.

This is the chosen concept

This is the concept that will be prototyped and tested in the upcoming chapters.

When deciding which concept to choose the following question was considered:

If I was a nurse, what would make me happy the most of these three concepts?

A stimuli free place and a massage chair are elements specifically proposed by the nurses themselves. Therefore choosing this concept makes them feel heard and does not take much time to explain and promote which was one of the earlier defined wishes. Furthermore the idea can be implemented today if necessary and could easily be realized in a new department. Prototyping and testing this concept therefore seems like a good first step to take.

Iteration plan

Since this is the chosen concept chapter 6 and 7 dive into the further development of taking a personal moment during a shift at an intensive care unit.



figure 24: A hospital stimuli free room specifically for employees



Figure 25: Choosing any activity or setting in the room within two clicks

06



PROTOTYPE

Design for behavior, prototyping

The previous chapter presented a future employee experience map with many ideas for improving the feeling of recognition and appreciation of NICU nurses in the post-merger department. Three concepts are described in further detail. Out of these three, the 'Boost' concept is developed into a prototype which fits just within the time of this project. This chapter describes the fun prototyping phase of the design thinking process.

6.1 Designing for behavior

The goal of the 'Boost' concept is to stimulate nurses to take a personal moment during a work shift. Based on the experiences during

this research and the larger problem of a low nurse-to-patient ratio it can be said that there is always something to do at the department. It therefore is a challenge to create the desired behavior within this high work pressure culture. To design for behavior the Fogg behavior model (FMB) is used figure 26. In his model Fogg describes behavior as a product of three factors: motivation, ability, and triggers, each of which has subcomponents (2009). Working with subcomponents makes it easy to identify areas which need to be designed. Each component's relevance within the intensive care context is discussed on the next page.

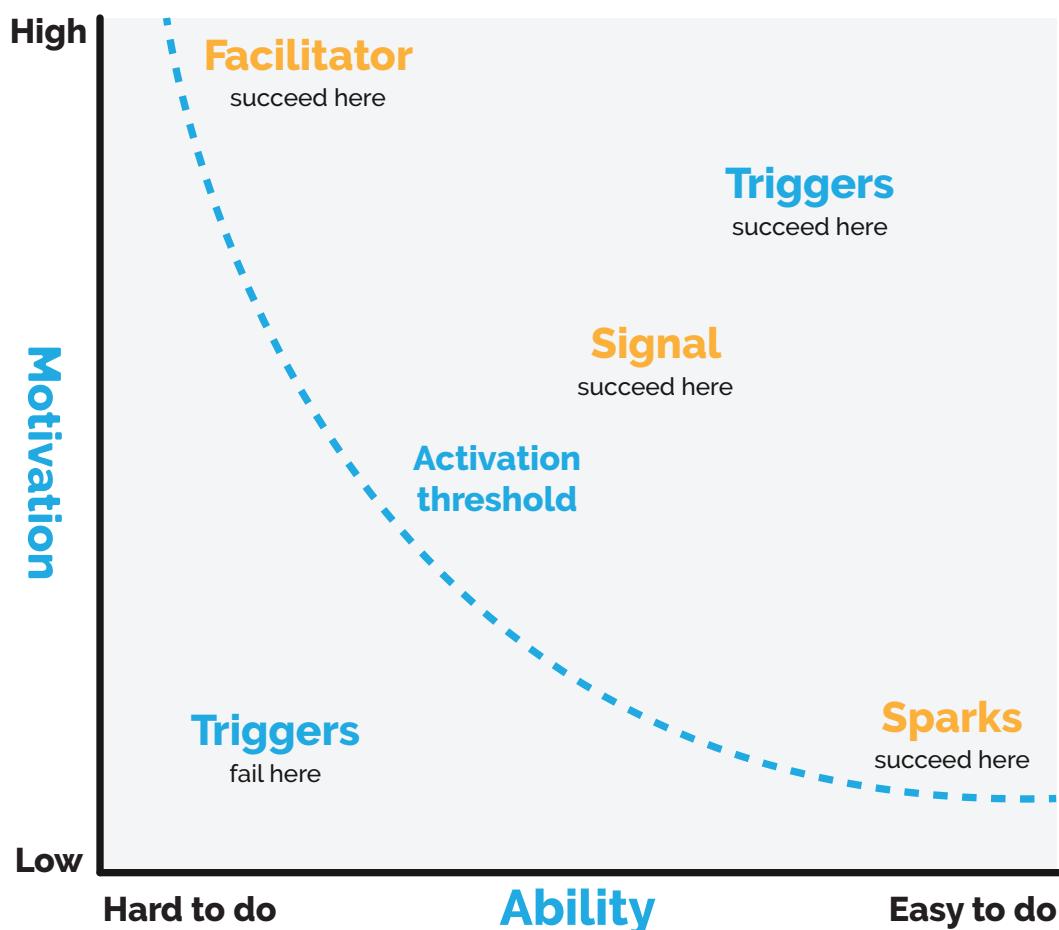


Figure 26: The Fogg behavior model

Behavior workshop

To create a space which is not only desirable to use (high motivation) but is also easy to use (ability), a design for behavior workshop (Appendix 13) with three VUmc nurses is done. The goal of this two hour creative session is threefold:

1. Motivation: What should the room look like for nurses to desire it and forget work for ten minutes?
2. Ability: How can it be made as easy as possible to use the room?
3. Trigger: How and when do the nurses need to be reminded (trigger) of the possibility to use the space?

6.1.1 Motivation results

As discussed each factor (motivation, ability, triggers) has sub components which are discussed here. All prefer relaxing activities over fun/play activities. Sports is interesting for all.

Motivator #1 Pleasure/pain

The room needs to provide immediate pleasure or plain relief. One participant said: if you try it and you feel it works, you will do it again. Ideas from the workshop:

- Massage
- Sports

Motivator #2 Hope/fear

Nurses need to believe that going to the room will make good things happen. It has to offer something they want like:

- Feel refreshed/relieve stress
- Being more productive

Motivator #3 Social acceptance

It takes teamwork to use the room so therefore it is important for the room to be socially acceptable. The name of the room is important for example. It cannot sound like the nurses “need to relax” because this labels them as weak which is socially unacceptable. The room needs to fulfill the goals of the group and not only the individual. Some ideas:

- ‘Boost’ or ‘A personal moment’
- Not ‘good for your health because you are weak’ but ‘good for patient care’
- A guest book to make your use of the room visible for others.

6.1.2 Ability results

Ability #1 Time

This is the biggest threshold when it comes to using the room during day shifts. The nurses expect that using the room will not take time from their regular breaks. Otherwise they don’t think they will use it. During the workshop it was decided that:

- Agreeing on optional time slots in the morning gives the opportunity to make time for the room during day shifts

Ability #2 Money

The nurses mentioned that since they expect the service to be free and the time used to be paid working time that money is no issue.

Ability #3 Physical effort

The nurses don’t expect using the room will cost them much physical effort besides walking “all the way” to the room to find out if it is available. It was therefore decided that:

- It should be visible in other places (for example the hand held, nursing station or both) if the room is available

Ability #4 Brain cycles

It is agreed upon that it should not take endless puzzling when planning to use the room. The created idea is much in the hospital's spirit:

- Create a protocol for using the room. Step one is this, and step two is this, and everyone can expect you to be back at step four in 10 minutes.

Ability #5 Social deviance

This ability is less obvious so a short example is given: breaking social rules like for example going to work in pajamas. The nurses mention that using the room should be approved by management. They think building the room says that it is OK to use it, but extra reinforcements can never hurt

- Management should pro-actively promote the room. For example by: building one, mentioning it in meetings, placing flyers in the coffee room and responding enthusiastically to nurses who used it.

Ability #6 Non-routine

At the moment taking a break in a relax room is not yet. Some ideas from the workshop to create a routine:

- Discuss and divide time slots for the room at the beginning of the shifts when all the breaks are discussed
- Work with buddy teams which can watch the other's patients and use the room right after each other.

6.1.3 Trigger results

There are three kind of triggers, each of which is appropriate for a different motivation and ability balance (figure 26).

Trigger#1 Spark

When there is little motivation but the ability is high a trigger with a motivational element should be used. The situation in which this is most likely to happen is during a quiet night shift. An idea could be:

- A promotional video that highlights pleasure and inspire hope. This can be played during night shifts at the nursing posts or in the coffee room.

Trigger#2 Signal

When there is high motivation and it is easy to do a simple reminder is all that's needed. Ideas are:

- A small icon in the handheld which only pops-up when all patients are stable and indicates if the room is free or not.
- A light at the door which indicates availability or gives a time indication.

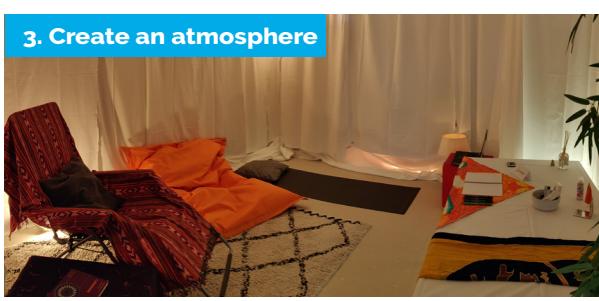
Trigger#3 Facilitator

When there is high motivation but low ability a facilitating trigger is needed. The goal of this trigger is to make going to the room easier. Ideas are:

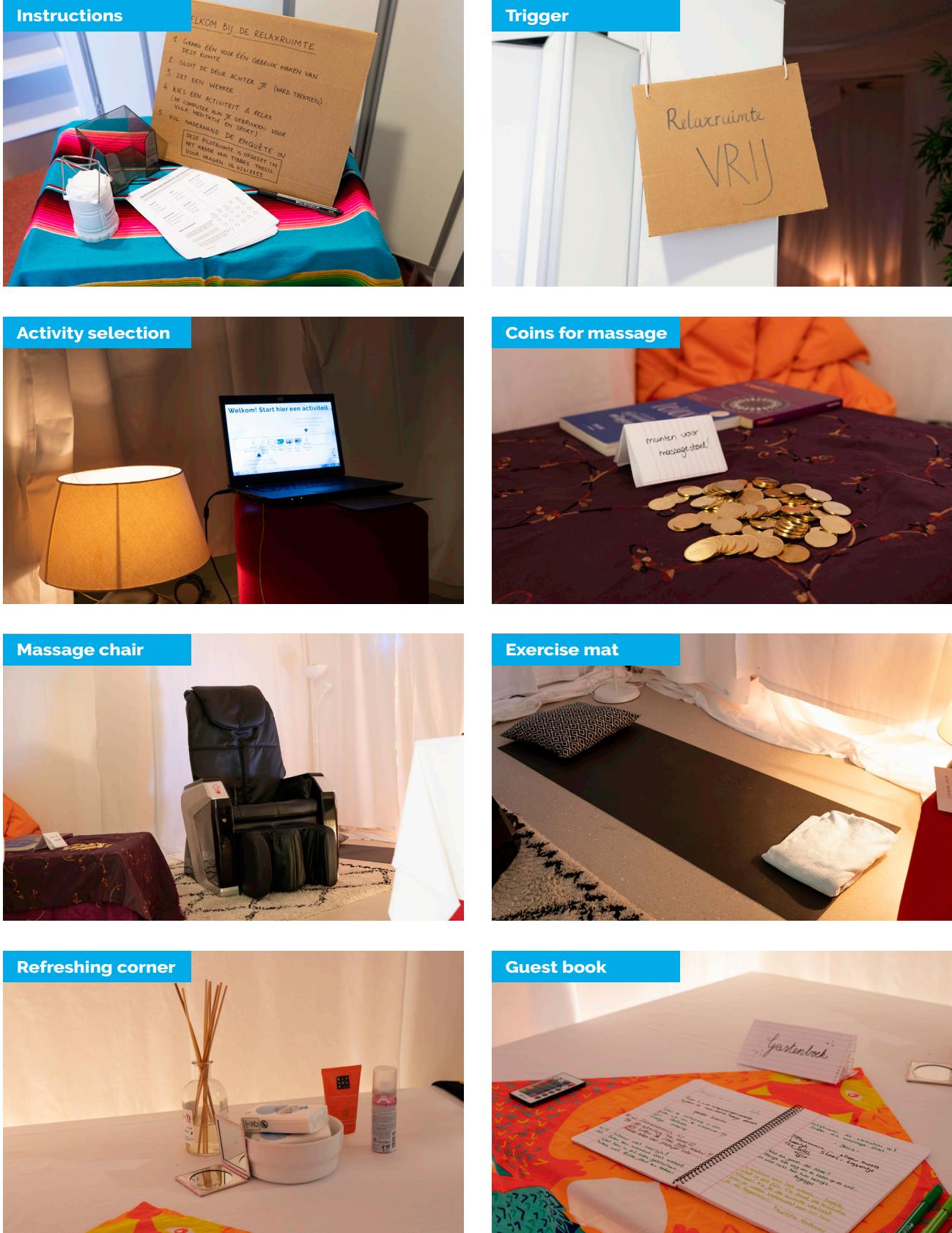
- A nurse buddy can function as a facilitating trigger by telling the other that she will watch the other's patients.
- At the right time, the handheld could incorporate propose a function to the nurse that says: Do you want to tell the team you are away from all communication for 15 minutes? By only clicking yes the nurse now has reserved fifteen minutes to quickly go for a relaxing moment.

6.2 Prototyping the Boost concept

Based on the elements described in the previous pages a prototype is built. At the VUmc there is a deserted intensive care unit due to nurse shortages. They were convinced to create a relax room in an patient isolation room for three weeks. Many blankets from the hospital are used to cover the walls and ceiling of the room. A massage chair is borrowed from the sustainable employment department. An old laptop is re-installed and borrowed from a elementary school. The desktop page shows how to choose one of the pre-installed activities. All other furniture is gathered in personal accommodations. An effort is made to make both the lighting and smell different from the hospital's.



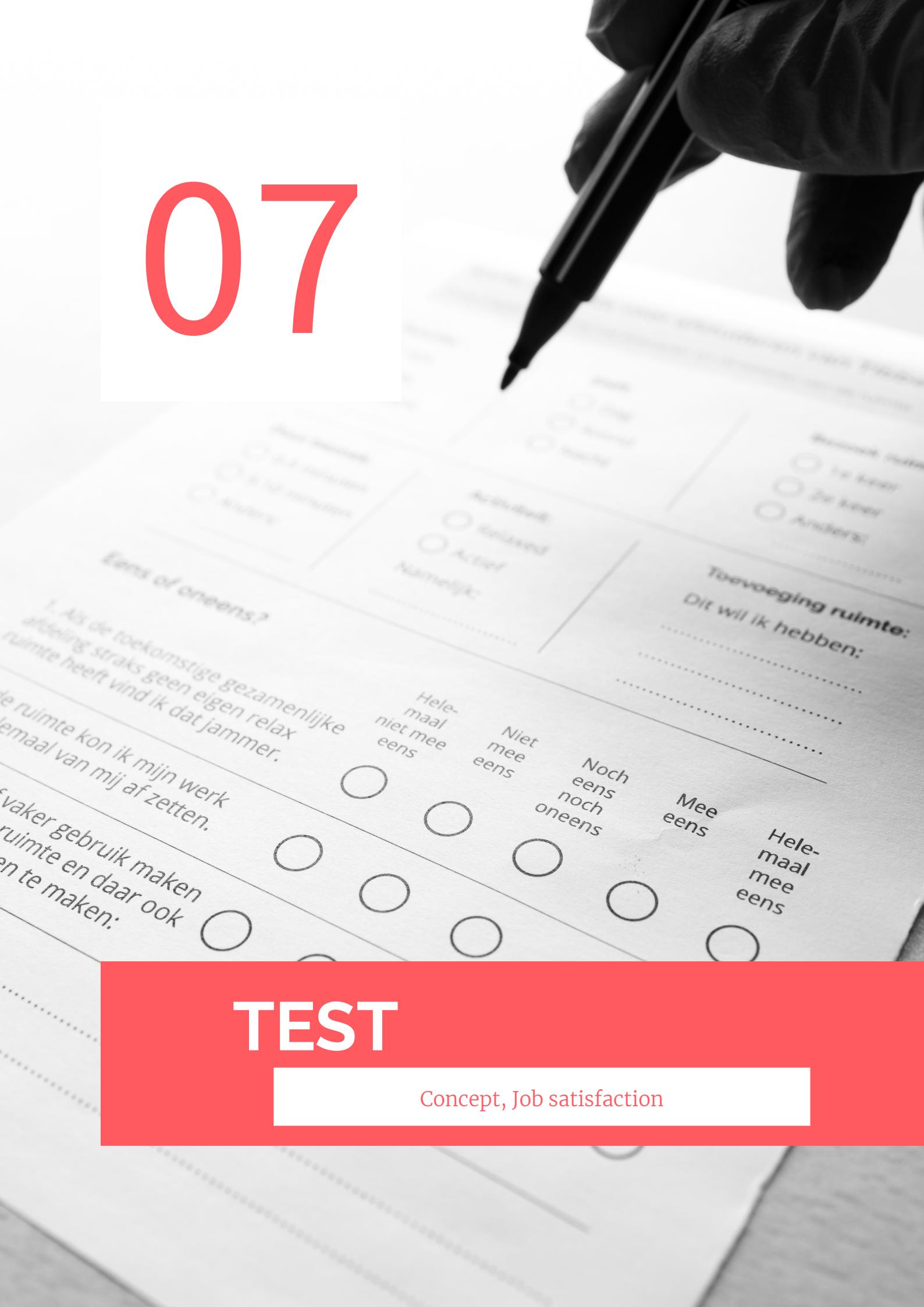
PROTOTYPE





EVALUATE

07



TEST

Concept, Job satisfaction

In the previous chapter is described how a the 'Boost' prototype is made. This chapter uses this prototype to evaluate both the concept and its potential effect on job satisfaction.

7.1 Evaluation study

7.1.1 Aim

There are two goals for this evaluation study:

- To evaluate and improve the 'Boost' concept in order to be able to propose a design and give further recommendations
- To evaluate if the concept has the potential to improve the feeling of recognition and appreciation by improving the staff's wellbeing in order to increase job satisfaction.

7.1.2 Research questions

A: Boost concept

Is it desirable? What makes this so? Is it viable? Does it fit within the hospital work routine? Will it survive over time? Can/do people make time to use it? How long do they use it? How can the room be improved? Is the concept feasible? Is there a place for the concept in the future department? Are the benefits worth the costs?

B: Job Satisfaction

How do people describe their experience afterwards? Can any effects on the feeling of recognition & appreciation, wellbeing or job satisfaction be measured?

7.1.3 Methods

The evaluation study is only held at the VUmc

since this is where the 'Boost' prototype is build and the effects can be measured

A: Boost concept

For a period of 21 days ranging from April 15 to May 6, the Boost room is tested. Three things are done to gather information regarding the 'Boost' experience research questions. A small questionnaire is placed next to the room which can be filled in after using it. This questionnaire gathers quantitative data like profession, shift, duration, desirability and viability (Appendix 15). A guest book is placed inside the room for people to write down their experiences and thereby gathering qualitative insights. For a period of one week participants are also interviewed after using the room. Everyone working at the department is free to use the room.

B: Job Satisfaction

The week before April 15th a zero measurement is done by handing out questionnaires in the morning during multiple shifts. This questionnaire contains 7 statements which are derived from a large questionnaire which is send yearly to all employees. The statements which show relation to employee wellness and employee appreciation are borrowed for this measurement (Appendix 15). By doing so this measurement speaks the same language as the hospital's measurement and management does. My mentor in the hospital explained that this makes the results more valid and usable. Every statement is measured on a five point scale ranging from 'I do not agree at all' to 'I completely agree'. One example of the five scale rating is: I feel appreciated within the VUmc. May 7 and 8 the second measurement is done, three weeks after first introducing the Boost concept. The

same questions are used in the hope to measure a difference. To anticipate on the fact that both the number of participants and the implementation time of the design intervention are not perfect for measuring quantitative differences one question is added to the questionnaire: I have the feeling that the relax room positively contributes to the statements mentioned above. Only nurses are asked to fill in the job satisfaction questionnaires.

7.1.4 Results

The massage chair is used 146 times during 21 days. This is an average of 7 per day and 2,3 per shift. This number is known by counting the amount of coins that were used to operate the chair which was emptied at the start. How did these employees and other employees experience the 'Boost' concept?

A: Boost concept

43 questionnaires are submitted, 37 are submitted by nurses of which 22 were first time users and 15 were returning visitors. One person reported to have used the room eight times. Nurses spend a little more than 10 minutes inside the room on average. 9 nights shifts, 16 evening shifts and 10 day shifts. All of them enjoyed a relaxing activity. The scored three main topics on a five point scale, namely: how disappointed would you be if the future department will not have a 'Boost' space? (must-have) To what extent could you temporarily forget your work? (effect) and do you see yourself using the room more often and reserving time to do so (motivation)?

First time visitors (n = 22):



Returning visitors (n = 15):



Some suggestions are made to improve the room such as:

- Adding a virtual reality experience
- A yoga ball to do stretching exercises
- Having the ability to control music

Qualitative experiences

The guest book is fun to read and contains much positivity (Appendix 16). Here are some illustrative quotes from the book and from the interviews:

7 night shift in a row... This is so nice. The chair, the space wow. When you leave the room you are ready for everything again.

Tibbe, I will request a royal award for you. This deserves a ribbon. Let's prolong the pilot!

It was fantastic to relax for a moment, I will be back tomorrow.

The chair has to stay and is a must for the new unit. It makes everything more enjoyable here.

It felt weird to sit in a massage chair during a shift but at the end I was disappointed it was over already. I can see this work at the new department. Thank you!

Wow I could really use this right now. It feels like a fresh start and I'm ready to go back.

The smell and the music alone are worth it.

B: Job Satisfaction

A total of 20 questionnaires are submitted. 10 belonging to the zero measurement and ten belonging to the second measurement. Overall a small increase is noticed in every statement except for the second one.

1. Being under the impression that the department values nurse job satisfaction:



2. Expecting the future department to notice the individual nurse



3. Having the feeling that the department values the wellbeing of the nurse



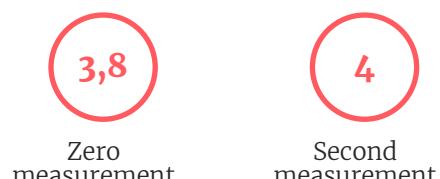
4. Feeling happy with the VUmc as an employer



5. Feeling fit and able to do the job



6. Having the feeling of being appreciated by direct superiors



7. Having the feeling of being appreciated within the organization



8. Having the feeling that the 'Boost' concept positively contributes to all of the above



7.1.5 Conclusions

A: Boost

The 'Boost' concept is very well received within the VUmc NICU and the qualitative research clearly shows the desire for the room to and massage chair to have a place at the department,

both now and in the future context. It is mostly the massage chair that is desired in combination with the relaxed atmosphere.

In the beginning there were some concerns if it was even possible to make time for the room and to fit it within a work routine. Eventually more than 150 people used the room within just three weeks. The number of users also seemed to increase over time and the results show that returning visitors score the concept higher than first time visitors do. The same amount of nurses used the room during day shifts as during night shifts which is unexpected but shows that it might indeed be possible to make time for a boost in most cases.

Without any budget a room is created which is described as 'perfect' by many nurses. Team leaders are enthusiastic as well and in the future floor plans there seems a potential space available. As is discussed in the next paragraphs the potential to influence job satisfaction and therefore also reducing the intent to leave is there which makes the room worth some

B: Job Satisfaction

Even though only twenty job satisfaction questionnaires have been collected it is notable that 'wellbeing' and 'appreciation within the organization' score the lowest on average. This only adds evidence to the initial qualitative research insights and the chosen design goal. Furthermore there is a small increase in six most statements after using the room once or more. Most importantly the highest score of is given to the statement that the 'Boost' concept positively contributes to all statements which are related to measuring job satisfaction by Amsterdam UMC standards. Combined with the positive qualitative stories the results show a potential for increasing job satisfaction among NICU nurses.

7.1.6 Discussion

The results look promising but nothing can be said about how this will evolve over longer periods of time. It can be that the current enthusiasm is just caused by curiosity and that this effect will diminish. This should be further investigated.

Besides the massage chair, the other options are barely used. However, this could also be due to the fact that the possibility to do so is not self-evident in the prototype (a laptop in the corner of the room). Also, when people go for the first time they want to try the chair first. A longer pilot and an improved prototype is needed to conclude on this manner.

The number of filled in questionnaires for the job satisfaction study ($n=20$) is not high. Larger number of participants should be used to receive more accurate results. The same questionnaire can be used to gather information after two months of usage and again after half a year.

Another factor is that the nurses probably want this project to succeed as can be observed in the positive messages in the guest book like: "good job!". Results might turn out different when management conducts the research.

7.1.7 Recommendations

In a best case scenario a massage chair is bought or leased by the hospital and placed inside a space at the department. Nurses are enthusiastic about the concept now so don't stop offering the service. A serious effort to create the desired target behavior should be made just like described earlier in the prototype chapter. Keep measuring data and if nurses don't go to the room any more after some months pass try to improve the situation. If it doesn't work don't create a 'Boost' concept in the new department since it is not viable in the long run. However, if it does work the room should be realized.

08



FINAL DESIGN

Visualization, design elements, user story

In the previous chapters the Boost concept is prototyped and tested. Based on the results this chapter now presents the final design proposal for this concept.

8.1 Final Design

More than 50 ideas are placed on the employee experience map but only the boost concept is visualized (figure 27). To do this a drawing is made in Photoshop starting with a blank canvas. From there first all the elements are added before adding textures, colors and shades. The room is based on the measurements of a small collaboration space in the floor plans (Appendix 3). It has a short side of 2,75m and a long window side of 3,2m adding up to a total of 8,8m².

8.1.1 Elements

The room's design elements are based on the research results and on the criteria documented in the list of criteria and wishes. Most important for the design choices here is the criteria that the solution should be able to be executed now or when the new department opens.

Digitally controlled environment

The room is controlled intuitively through a large touchscreen. Lights, colors sounds, guided activities, alarms, pod casts and more are always available within two clicks. Each program has a time indication.

Wellness corner

Nurses reported being happy with the wellness corner in the prototype (containing soaps among other things). By literally

refreshing the nurse's their mood can also be refreshed. Free healthy and protein rich snacks like nuts or very dark chocolate are located here as well.

Healthy snacks

The room is about taking a moment to feel energized again.

Exercise corner

In this corner multiple activities can be done like stretching, some short (physiology) exercises, meditation and yoga.

Multi-sensory experience

There is an air filter and a pleasant smell in the room since nurses mentioned to find this appealing about the prototype. Furthermore the walls and ceilings are covered with soft curtains. A soothing background tune is always playing when no activity is started.

Massage chair

This is what most people desired. The massage chair helps them to forget work and reminds them when to start again.

Magazine rack

Next to the chair a rack with some magazines is placed.

8.2 User story

A storyboard helps to understand all steps in the intended interaction with the Boost concept. This user story is found in the pages after the visualization of the room which is placed on the next pages..

FINAL DESIGN

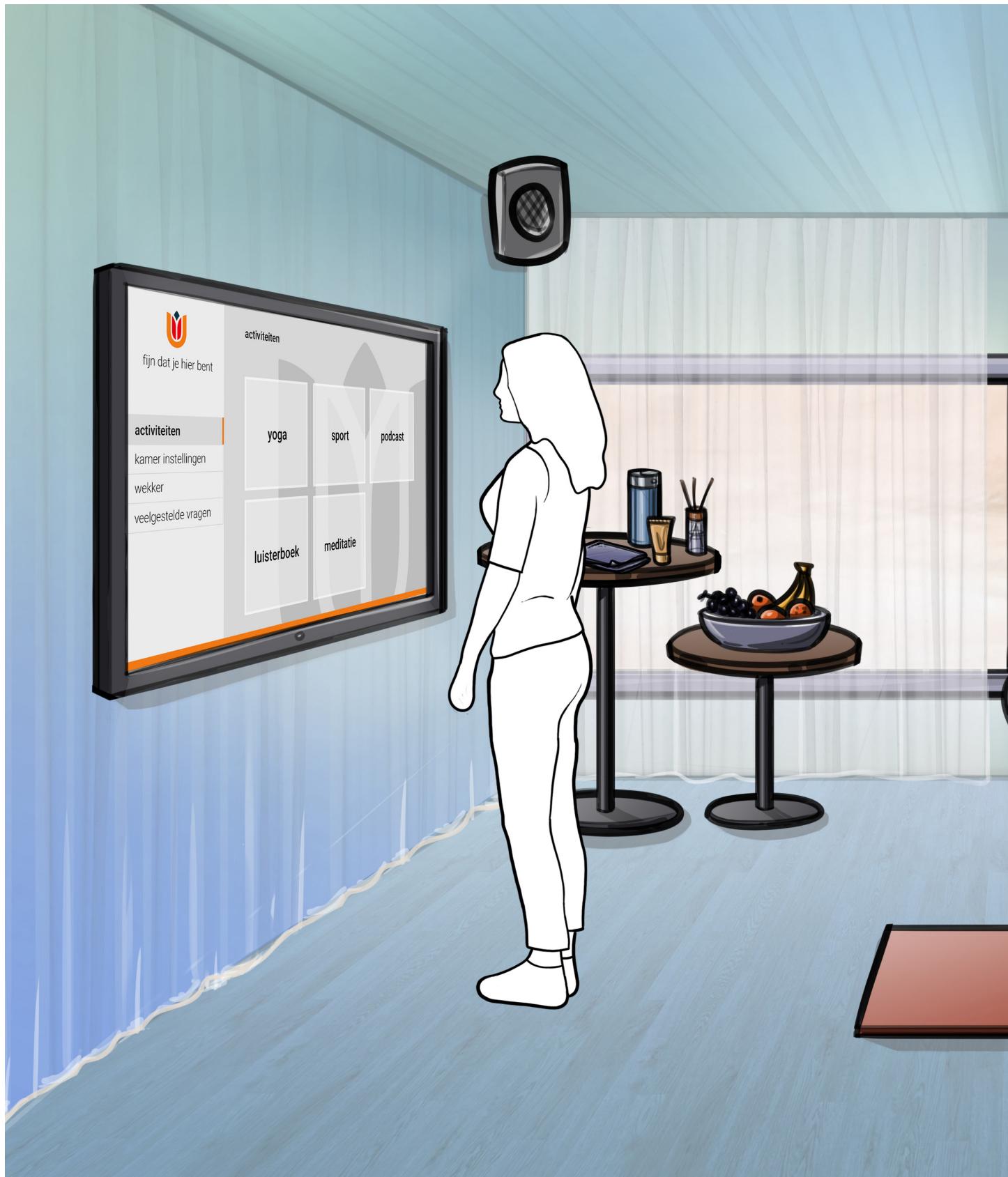


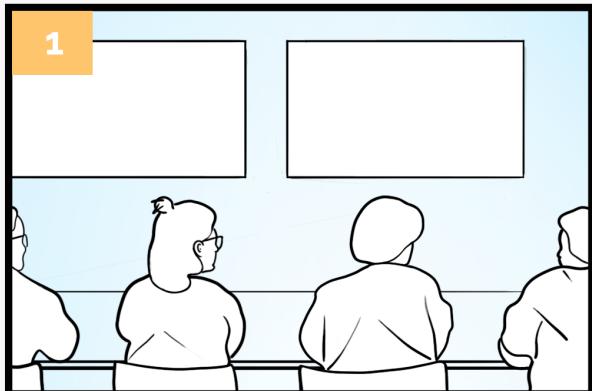
Figure 27: Digital drawing of the Boost concept for the future department

FINAL DESIGN

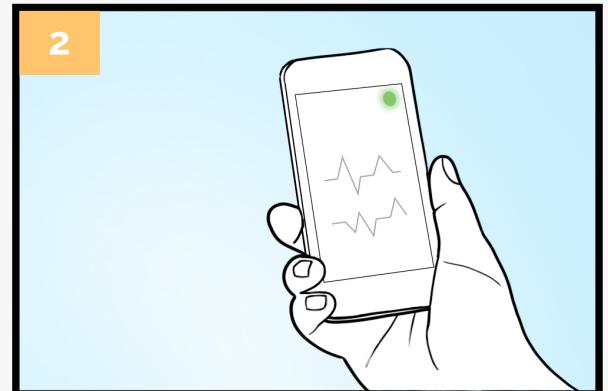


Taking a personal moment as a nurse at the ICU

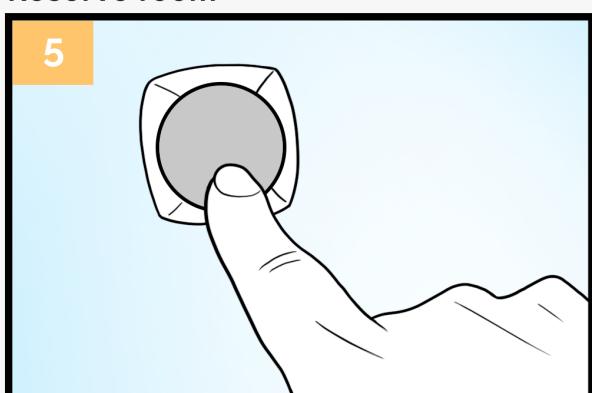
Planning



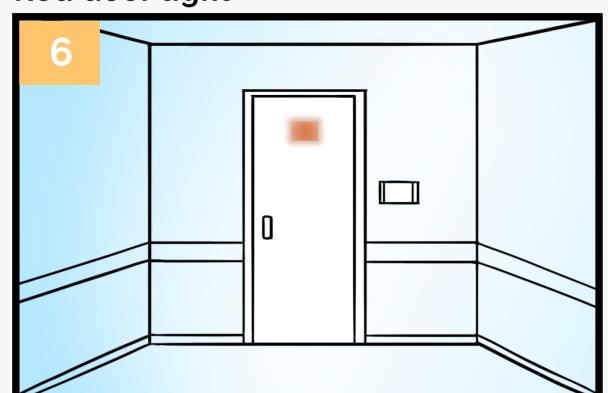
Reminder



Reserve room



Red door light



Do activity



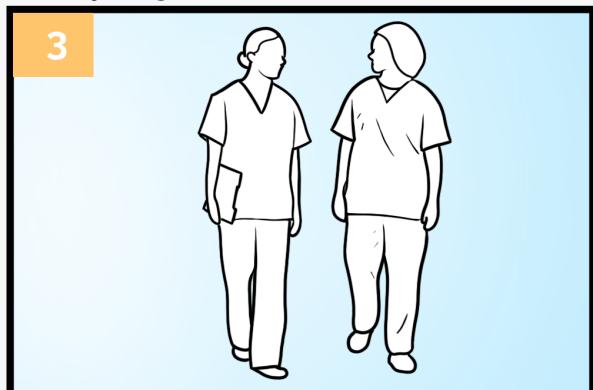
Gentle alarm



Figure 28: User story of a neonatal intensive care nurse who is taking a personal moment to relax during a shift

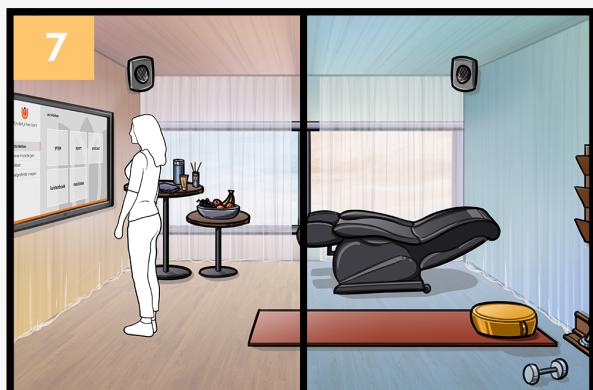
Intensive Care

Buddy alignment



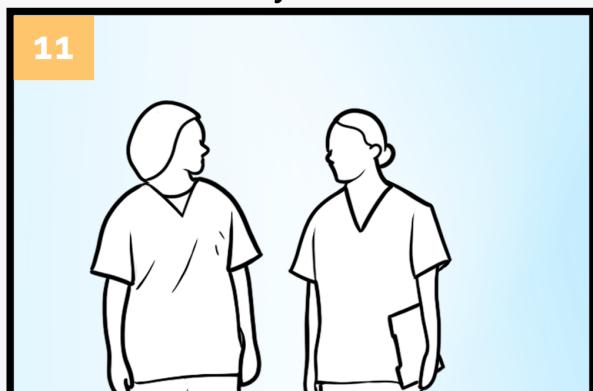
Sarah hands over her handheld and patients to her nurse buddy and agrees to be back within 15 min.

Environment control



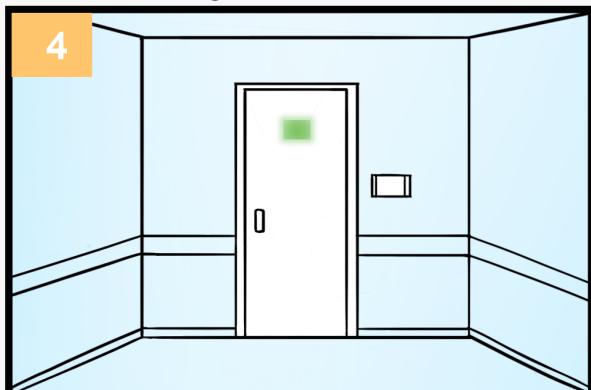
With just two clicks Sarah changes the rooms lights from blue to red and sets a 10 minute alarm clock.

Switch with buddy



After taking both handhelds her buddy now leaves to take her moment.

Green door light



A green door light at the outside of the room tells Sarah that the room is still available for her to use.

Choosing a guided activity



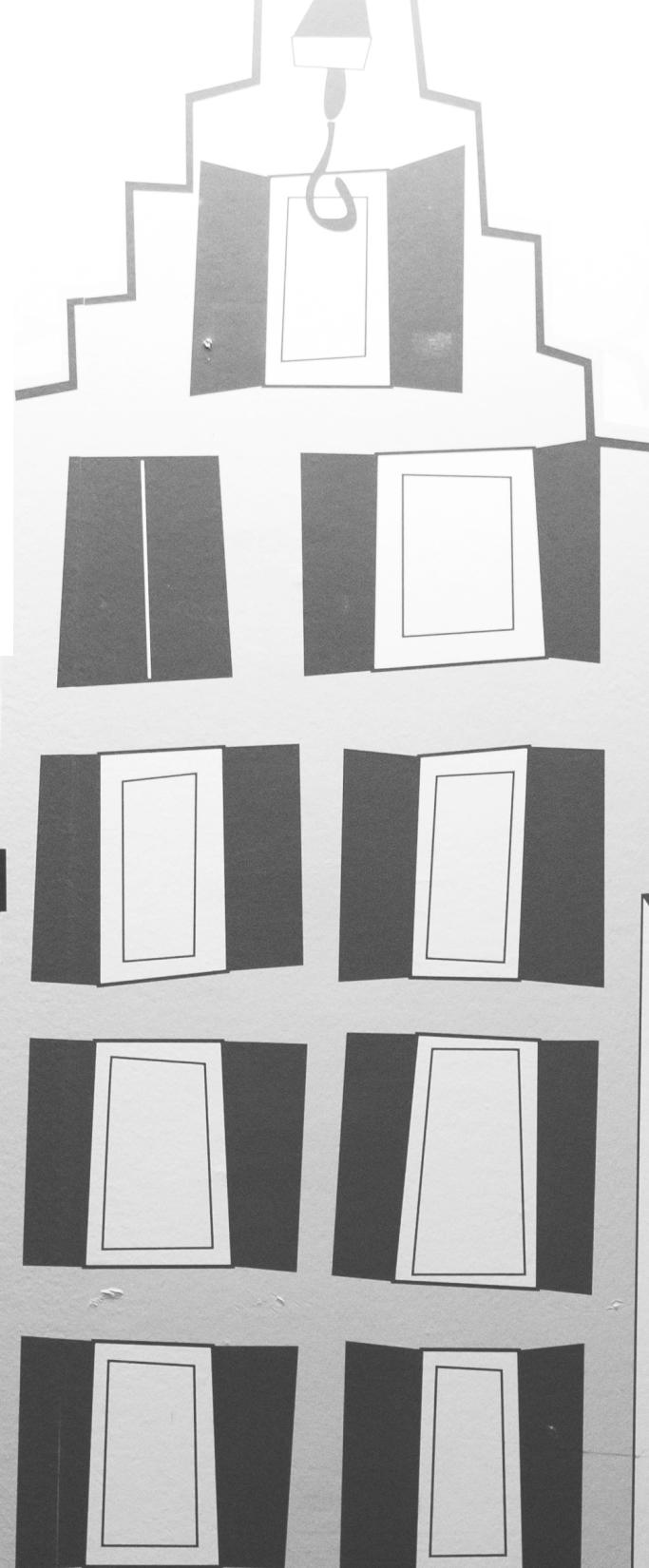
Sarah can choose any guided activity like podcasts, massages or sports with just one press

Continue work



Sarah then continues working with renewed energy.

09



RECOMMENDATIONS

Concept, approach, research

9.1 Recommendations

Although this thesis is at an end the mission to increase nurse job satisfaction in a post-merger department is not over. The boost concept can and should still be improved. There are still many design interventions to be realized and there are other departments about to merge which can benefit from a similar design approach.

9.1.1 The boost concept

First of all the boost project should be realized in the new department, that is the first recommendation. The physical spaces are available and the first results gathered during the three week study are very promising.

The boost concept should be realized in the new department

The final designs for the Boost concept are made parallel to the evaluation study during which some promising improvements are identified. Other areas of improvement are also noticed during conversations with management. The following topics should be explored further:

- Possibilities of adding a **VR experience** to the Boost experience should be investigated. A simple pair of VR glasses has the potential to completely change a nurse's environment and allows to do unique guided activities as well.
- Adding some **daylight glasses** to the Boost experience so employees can receive some day light during their night shifts has potential and can easily be implemented now already for 200 euro.
- Curtains are maybe not the best options

for the room considering fire safety or hygiene but the main idea is to make the walls and ceiling radically different from the hospital walls. Together with the building management the options should be discussed regarding this wish.

- More investigation should be done regarding the Boost **room capacity**. It is expected that there might be some peak moments for the room. In that case the room should maybe be divided into two rooms to allow everyone a spot. Maybe even four rooms are necessary. Based on the first results the massage chair is the most desired activity. It is therefore a choice to offer some space now used for active activities in order to add more rooms and massage chairs which should still be separated by walls. The individual experience might be a bit less great without exercise space but more nurses will benefit.

9.1.2. Increasing job satisfaction in order to decrease nurse shortages

The Boost concept is prototyped, tested and improvement within a month. There is the potential for increasing job satisfaction based on the first qualitative and quantitative results. This is a confirmation that focusing efforts on the design interventions in the experience map might prove very fruitful for job satisfaction and maybe even nurse shortages.

Combine the future employee experience map with a design thinking mindset (empathize, define, ideate, prototype, test) to realize many incremental gains in nurse job satisfaction

Some further thoughts on this topic:

RECOMMENDATIONS

- During the project it was tried many times to gain insights in the exact staff capacity numbers but it appears there is no clear overview of these numbers. In order to **measure the effects** of efforts to increase job satisfaction it is necessary to map out the current situation and set targets. Promising results will also help to convince the evidence based board to open the doors for a similar design approach in other departments.
- As discussed this project proposes an **incremental gains philosophy** to increase job satisfaction. Removing many small irritations leads to a significant total increase in satisfaction. The Boost concept is therefore not the answer to all problems but it is a start. There is an entire employee experience map ready to be used. All the design interventions placed in the map have the potential to contribute positively to the total experience once they are prototyped, tested and improved. The two other concepts 'daily stand-ups' and '#celebrate' are a good place to start but other ideas are promising too. If enough effort is made in shaping the future experiences of the employees the results might contribute significantly in solving the nurse shortage problem in the long run. This could quickly make the Amsterdam UMC the most healthy and successful UMC in the country and one of the most competitive academic hospitals globally.

9.1.3 Design Research in other departments

Many more departments will merge over the coming decades. The most important

recommendation is therefore to do at least some qualitative research within all departments in order to adjust the to be build departments to not only the practical needs of their employees but also their emotional needs:

Study the experiences of employees at each merging department

Much can be learned from this research to improve future research activities in order to increase job satisfaction in other post-merger departments:

- **The value Pyramid of Bain & Company** is very useful to quickly identify the intrinsic values of the group and to identify most promising areas of improvement. It might even be the case that the values will not (or barely) differentiate for the same group in a different department and only a little for a different group. For example a NICU nurse might have similar values to an Obstetrics nurse but different values from a Neonatologist who's values can be expected (based on the cultural differences) to be more masculine and individual as opposed to those of the nurses. This should of course be tested but if this is true it would speed up the process for qualitative research in each department. The values per group then only need to be verified and ranked in order to identify promising areas for improvement within a short period of time.
- Exploring the **cultural differences** in a qualitative manner is more time consuming than working with the value pyramid but teaches a lot about the context. Based on this research it is expected that even similar departments

RECOMMENDATIONS

can have large cultural differences. When presenting the NICU culture the management of Obstetrics mentioned their department to be completely different. It seems each department within both the AMC and VUmc has an own sub culture. Although very interesting defining the cultural differences seem less promising for design work. This is so because it is hard to establish the desired culture. If everyone is more indulgent then what will this do for the experience of the individual values? And for the patient care? It can probably be done but is a highly complex topic. However, recognizing the differences is still important and helps to make better design choices. In order to be able to trust the results more these differences should be tested with larger numbers of participants through proven questionnaires.

- **Design Thinking** is a promising mindset to adopt for the hospital's management when it comes to improving experiences. However it cannot replace the evidence based mindset for creating care protocols. It takes mental flexibility and training to switch between two ways of thinking. A more promising approach would be to hire full time experience officers (like Emile Elsbeek, mentor for this project) who will focus on the experiences of both employees and patients so the hospital management can focus on what they do best which is providing the best care possible.

Personal reflection

I learned so much more than expected when I started this graduation thesis. Not only did I underestimated the complexity of the project but I also overestimated my own capabilities to deal with this. Now the storm is over I feel proud at everything I have achieved and I wouldn't have wanted it any other way. As is tradition, I will use this section to reflect on my Design for Interaction Master Thesis.

My graduation thesis felt like an unique opportunity to do something good for the world. The possibility to choose a topic in a place where there wouldn't normally be budget for a project of this scale. When choosing the topic I specifically decided on healthcare employees since I felt that this is one of the most important and less discussed audiences when it comes to designing experiences, I still feel the same way. 16.000 people work at the Amsterdam UMC and all of them do so to make provide people a better life. Improving the lives of the employees does not only benefit this already large group but also directly benefits all those people who come in every day and hope to get the best care possible. I believe a design thinking approach is a good way to changing the world for the better and it was more than fun to test this mindset in a truly complex and evidence based context.

I learned a great deal about positioning yourself in a large organization. It was Monday 24 September 2018 when I walked into the AMC to start my first day of this assignment. They showed me a small work space with six workspaces and eight other interns from different studies and ages. After observing some hierarchical behavior towards interns in the first couple of hours I realized

that an intern would probably have a hard time to accomplish anything within a large organization like this. I decided to not work in the intern office and not mentioning I was an intern in my email signature. In my mind this project was my first big assignment to help a client become even better at what they already do and I wanted people to take me seriously. I think this mindset really helped me throughout the project. Being a student has large benefits like people their willingness to help or explain things but once you try to turn the tables you have lost too much credibility

I also learned a great deal about gaining support for a project within an organization which was one of my main learning goals. Doing this involved telling a lot of people very small but relevant parts of the larger story that was the project. I also held many presentations in Dutch and took every opportunity to present my work to smaller groups. Explaining common goals helped to create a team spirit with many different teams. For most of the part I am satisfied with the amount of support I got for the project, especially when considering how much everyone's attitudes changed towards the project. During the first important PNC build meeting I presented my project and started out by explaining what design thinking is and how they could benefit from my project. They wanted to know how much time I needed from them and didn't like the answer (half an hour per week), they then started discussing if my project should even continue. Now, six and a half months later they have contributed many more hours than I asked for in the beginning and are generally really enthusiastic. The reason I am not satisfied is that the most important person to convince wasn't convinced during the 30 minutes in which I got the chance to present my insights. I received the remark that: "these (insights

PERSONAL REFLECTION

gathered during the research) are all just experiences and if they don't have a single cause they cannot be solved. I learned that spending more time on creating the feeling of urgency, explaining the working of human experiences and proposing the incremental gains approach are essential elements of a higher management presentation before discussing any insights. Furthermore the insights should be formulated more positively. I already tried to do this but did not succeed as well as hoped. When the insights are so many, a positive formulation alone isn't enough anymore. There needs to be a larger positive message and larger insight clusters to reduce the number of negative messages. Luckily there will be a second appointment outside of the scope of this project.

As a design researcher this project was incredibly valuable to my development. The learnings are too many so I am just going to mention some of the most important ones. First of all in User Experience research (testing websites and mobile applications) I am used to focus most on the interviews on observations and experiences. However, when many issues are complex protocols or organizational struggles it is less intuitive to understand people their experiences. More questions should therefore be spent on understanding the situation before focusing in-depth on the experiences. Maybe the first interview should only be someone explaining exactly and objectively how things work. Furthermore I am happy with using the value pyramid of Bain & Company during this project. It taught me a way to look at intrinsic motivation and proved very valuable for design work in my opinion. It took me a long while to really understand the pyramid and its use for design work but in retrospective it all seems much clearer now. Especially communicating the results of the pyramid is hard since there are thirty values ,based on

research which are used to design etcetera. I now see the pyramid as a way to identify most promising areas for improvement based on a profile of the group's internal values for a specific context. In my further career I will most likely use the model again, hopefully in even more complex and inspiring contexts.

Most importantly I am really grateful that my work was appreciated by the nurses themselves. It took some time to gain trust and my approach wasn't flawless. I learned to introduce myself more clearly (TU Delft, graduation project, common goal, expectations) and to expect that not everyone is always directly enthusiastic about me or change. Near the end I felt I had grown more comfortably in the role of walking around two departments as an outsider. I talked with more than 50 nurses and even became a little famous near the end. I think the best two things I did was always telling all the nurses it was my own decision to do an assignment specifically for them and to decide on prototyping the 'Boost' concept since this had the most direct benefit for the nurses and thereby showed them, myself and the management the positive effects of this project.

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During the past 100 days of this project we have achieved something greater than I could ever have hoped for. I say we because I could not have done this without the help of some very special people.

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I would like to thank my friends and family who helped during this project. We are probably all glad this project is over and you guys deserve the break. Mirjam, mentioning you here is my equivalent of a ‘mommy’ tattoo with a heart, you are my inspiration for doing something good within the scope of this project. Mirjam, Joost and Alexander, thank you for reading and re-reading so many chapters and for giving your most valuable feedback. A special thanks to Emilie for providing me support, feedback, input and happy distractions throughout the entire project. You have earned your own massage chair room just as much as the nurses do.

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References

Adams, A., & Bond, S. (2000). Hospital nurses' job satisfaction, individual and organizational characteristics. *Journal of advanced nursing*, 32(3), 536–543.

Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J., & Silber, J. H. (2002). Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *Jama*, 288(16), 1987–1993.

Almquist, E., Senior, J., & Bloch, N. (2016). The elements of value. *Harvard Business Review*, 94(9), 47–53.

AMC, VUmc (2018) VKC Plan | Visiedocument. Amsterdam

Ashforth, B. E., & Mael, F. (1989). Social identity theory and the organization. *Academy of management review*, 14(1), 20–39.

Boundy, E. O., Dastjerdi, R., Spiegelman, D., Fawzi, W. W., Missmer, S. A., Lieberman, E., ... & Chan, G. J. (2016). Kangaroo mother care and neonatal outcomes: a meta-analysis. *Pediatrics*, 137(1), e20152238.

Braun, B. & Kramer, J. (2015). *The corporate tribe*. Alphen aan den Rijn: Vakmedianet Management B.V.

Carter, B. S., Carter, A., & Bennett, S. (2008). Families' views upon experiencing change in the neonatal intensive care unit environment: from the 'baby barn' to the private room. *Journal of Perinatology*, 28(12), 827.

Cartwright, S., & Cooper, C. L. (2012). *Managing mergers acquisitions and strategic alliances*. Routledge.

Diana, C., Pacenti, E., & Tassi, R. (2012, September). Visualtiles: Communication tools for (service) design. In Conference Proceedings ServDes. 2009; *DeThinking Service; ReThinking Design; Oslo Norway 24–26 November 2009* (No. 059, pp. 65–76). Linköping University Electronic Press.

Domanico, R., Davis, D. K., Coleman, F., & Davis, B. O. (2011). Documenting the NICU design dilemma: comparative patient progress in open-ward and single family room units. *Journal of Perinatology*, 31(4), 281.

Fogg, B. J. (2009, April). A behavior model for persuasive design. In *Proceedings of the 4th international Conference on Persuasive Technology* (p. 40). ACM.

Gerhart, B. (2005). The (affective) dispositional approach to job satisfaction: Sorting out the policy implications. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, 26(1), 79–97.

Haslam, S. A., Jetten, J., O'Brien, A., & Jacobs, E. (2004). Social identity, social influence and reactions to potentially stressful tasks: Support for the self categorization model of stress. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 20(1), 3–9.

Herzberg, F. (1964) The Motivation-Hygiene Concept and Problems of Manpower.

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Sage publications.

Kolko, J. (2015). Design thinking comes of age.

Lee, E. S., Park, T. Y., & Koo, B. (2015).

REFERENCES

Identifying organizational identification as a basis for attitudes and behaviors: A meta-analytic review. *Psychological bulletin*, 141(5), 1049.

Liu, C., Zhang, L., Ye, W., Zhu, J., Cao, J., Lu, X., & Li, F. (2012). Job satisfaction and intention to leave: a questionnaire survey of hospital nurses in Shanghai of China. *Journal of clinical nursing*, 21(1-2), 255-263.

Locke, E. A. (1976). The nature and causes of job satisfaction. *Handbook of industrial and organizational psychology*.

Lu, H., Zhao, Y., & While, A. (2019). Job satisfaction among hospital nurses: a literature review. *International journal of nursing studies*.

McCrae, R. R., & Costa Jr, P. T. (1997). Personality trait structure as a human universal. *American psychologist*, 52(5), 509.

Martin, A. (2008). Employee perceptions of organisational commitment, job satisfaction and turnover intentions in a post-merger institution (*Doctoral dissertation, University of Johannesburg*).

Maslow, A. H. (1943). A theory of human motivation. *Psychological review*, 50(4), 370.

O'Brien, K., Robson, K., Bracht, M., Cruz, M., Lui, K., Alvaro, R., ... & Soraisham, A. (2018). Effectiveness of Family Integrated Care in neonatal intensive care units on infant and parent outcomes: a multicentre, multinational, cluster-randomised controlled trial. *The Lancet Child & Adolescent Health*, 2(4), 245-254.

Poncet, M. C., Toullic, P., Papazian, L., Kentish-Barnes, N., Timsit, J. F., Pochard, F., ... & Azoulay, E. (2007). Burnout syndrome in critical care nursing staff. *American journal of respiratory and critical care medicine*, 175(7), 698-704.

Reason, B., Løvlie, L., & Flu, M. B. (2015). *Service design for business: a practical guide to optimizing the customer experience*. John Wiley & Sons.

Sanders, E. B. N., & Stappers, P. (2013). Convivial Toolbox: generative design research for the fuzzy front end.

Sanjeev, M. A., & Surya, A. V. (2016). Two factor theory of motivation and satisfaction: an empirical verification. *Annals of Data Science*, 3(2), 155-173.

Schuh, S. C., Van Quaquebeke, N., Göritz, A. S., Xin, K. R., De Cremer, D., & Van Dick, R. (2016). Mixed feelings, mixed blessing? How ambivalence in organizational identification relates to employees' regulatory focus and citizenship behaviors. *Human Relations*, 69(12), 2224-2249.

Spector, P. E. (1997). *Job satisfaction: Application, assessment, causes, and consequences* (Vol. 3). Sage publications.

Stappers, P. J. (2012). Teaching principles of qualitative analysis to industrial design engineers. In DS 74: *Proceedings of the 14th International Conference on Engineering & Product Design Education (E&PDE12) Design Education for Future Wellbeing, Antwerp, Belgium*, 06-07.9. 2012 (pp. 109-114).

Staw, B. M., Bell, N. E., & Clausen, J. A. (1986). The dispositional approach to job attitudes: A lifetime longitudinal test. *Administrative Science Quarterly*, 56-77.

Swanson, J. R., Peters, C., & Lee, B. H. (2013). NICU redesign from open ward to private room: a longitudinal study of parent and staff

■ REFERENCES

perceptions. *Journal of Perinatology*, 33(6), 466.

Toivonen, M., Lehtonen, L., Löyttyniemi, E., & Axelin, A. (2017). Effects of single-family rooms on nurse-parent and nurse-infant interaction in neonatal intensive care unit. *Early human development*, 106, 59–62.

Tyler, T., & Blader, S. (2013). *Cooperation in groups: Procedural justice, social identity, and behavioral engagement*. Routledge.

van Veenendaal, N. R., Heideman, W. H., Limpens, J., van der Lee, J. H., van Goudoever, J. B., van Kempen, A. A., & van der Schoor, S. R. (2019). Hospitalising preterm infants in single family rooms versus open bay units: a systematic review and meta-analysis. *The Lancet Child & Adolescent Health*, 3(3), 147–157.

Watson, S. I., Arulampalam, W., Petrou, S., Marlow, N., Morgan, A. S., Draper, E. S., & Modi, N. (2016). The effects of a one-to-one nurse-to-patient ratio on the mortality rate in neonatal intensive care: a retrospective, longitudinal, population-based study. *Archives of Disease in Childhood-Fetal and Neonatal Edition*, 101(3), F195–F200.

