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Design facilitators' journeys through the jungle of Co- in healthcare

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Abstract: In this paper we discuss our experiences of facilitating collaborative creative activities within healthcare. The study consists of a larger case study on innovation scouting with the staff at the emergency room backed up by a series of seven retrospective mini-case studies. By means of discussing our experiences we identify some insights and challenges. Challenges for design facilitators working in this domain relate to: 1) dealing with the clash of professional eco-systems, the informal designers' way of working with the formal and procedural healthcare operations; 2) Positioning yourself 'at the right table' in order to find backing for concepts; and, 3) steering the intertwined processes of developing strategic direction and concrete products and services on the floor.

Keywords: Co-Design, Co-Creation, Emergency Room, Design Facilitation

1. Introduction

Tuesday morning. A team of designers from various backgrounds is engaged in developing ideas from a landscape of insights. Two team members are at the Emergency Room (ER) to gather some additional data to refine insights (see figure 1), when a trauma case comes in. Jumping into the staff room, within seconds crowded with many nurses and caregivers, they witness the trauma patient brought in on a video screen, streaming real-time action just a few feet away. Strikingly impressed by their teamwork, speed, accuracy and calm, they watch the trauma doctors and nurses do their job. A strange kind of collective excitement comes over the ER professionals. This is what they geared up for: treat first what kills first. It rubs off on the designers. Their group app goes on overdrive. Other team members back in the 'creative war room' want to get in on the action: *'tell us what happened, what is going on?'* Jealously almost... Have they become emergency junkies?

The title of this paper refers to *'the Jungle of Co'*, a paper by Koskela-Huotari et al. (2013) in which they tried to unravelling the various Co-'s that had become fashionable in the field of innovation: co-creation, co-design, co-production. In this paper we describe and discuss some of our experiences facilitating such collaborative creative activities in healthcare, offering some insights and challenges.

Figure 1: The design team at work in the 'creative war room' (left) and doing research in the Trauma Room at the ER (left).

2. Background

2.1 Design Facilitation

Over the past decades, the focus of design has broadened from products via interactions to services and systems. This has led to an explosion of new design domains – social design, transformational design, design thinking, and so on. Their shared essence is that the designers' role has moved from creating products, in which the designer has sole dominion over the properties, to the design of, and/or within, complex systems, in which this dominion is no longer present. In accordance, existing engineering design methods no longer suffice. Such methods aim at reducing complexity by compartmentalizing, and as such disregard emergent properties of such systems (e.g. Snowden and Boone, 2007). As for the role of the designer, as she now longer 'owns' the result, she needs to find a new role in co-creating changes together with the stakeholders in the system (users, producers, providers, any person who has an influence on the quality of the way the product/service system. On the one hand this relates to the designers' ability to 'shape the future', synthesizing knowledge into tangible options, concepts, prototypes, to aid people to experience 'what could be'. On the other hand, designers take the role of guiding people in the process of journeying towards the future. This role for the designers as facilitators of creative processes has been criticized (e.g Nelson & Stolterman, 2012) for it could reduce the role of the designer to a passive, reactive role mere servant to the users' wishes. However, we see design facilitation as a active role, designing the process and tools needed, as well as creating embodiments of the future as scaffolds (Chermack and Van der Merwe, 2003), in order to enable people to move beyond their current and past experiences, such as in the Philips Design Probing programme (e.g. Gardien, 2006).

2.2 Co-creation in care

As design researchers and designers, we have been involved in many planning and guiding collaborative creative processes, varying from single meetings to involvement in multiple-year innovation projects. In the hospitals and care institutions that we worked with, we encountered many a Babylonian confusion regarding the use of the term 'co-', as in co-creation, co-production or co-design. Mattilmakki and Sleeswijk Visser (2011) describe how co-creation has become a popular practice in many domains, with marketing and business having prominent positions. They mention that the meaning of co-creation in these fields can be very different from how it is used in the context of design:

> "It has to be emphasised that co-creation, however, has several meanings beyond design:

    – A collective creativity as a mind set for collaborative activities

    – Business discussion about openness and exchange as well as networking and crowdsourcing to create new values

    – Service co-creation as the moment of creation when a service is being delivered and even sharing responsibilities when creating and offering services. (Mattilmakki and Sleeswijk Visser, 2011, p.7)"

In care situations a variety of stakeholders influence the quality of the care experience. Typically, when co-creation is mentioned in the context of care, it relates to the joining of the patients (and/or parents) in the development and/or operation of care. However, in this paper we turn to the involvement of professional care-takers in the design process, reflecting on some of the issues that we encountered as design facilitators when collaborating with care professionals.

Over the past nine years, we have been involved in many innovation and research projects in a variety of fields of care, always involving a variety of stakeholders by enabling them 1) to come from a place of 'being experts of their own experiences' and 2) to fully participate in the creative process. In this paper, we present and discuss our insights regarding meaningful collaboration between caregivers and designers. As we move into care coming from the design field, in which we coin the term 'Co-Design' to refer to the process, tools, methods needed for involving both everyday people as 'experts of their own experiences' (Sleeswijk Visser et al, 1995) and domain experts in collaborative efforts to design new products and services. This process of co-designing is wedged between, and interdependent with other collaborative processes (see Wallin & Horelli, 2010): co-visioning on the strategic level and co-producing on the operational level, see figure 2.
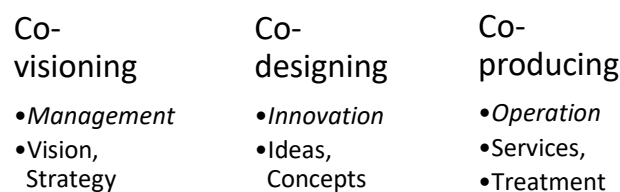
Co-visioning	Co-designing	Co-producing
•*Management*	•*Innovation*	•*Operation*
•Vision, Strategy	•Ideas, Concepts	•Services,
		•Treatment

Figure 2. Interrelated kinds of co-creation in different organisational process domains and their outcomes.

This also colours the lens through which we regard co-creation in care, taking primarily the focus of shaping something new, in close interaction with the people (caretakers, patients and their companions, managers, and other stakeholders) who are going to live and work with the consequences of this process: the resulting products, services, environments, treatment plans, and so on.

3. Method

Our research largely follows a T-design multiple case study (e.g. Thölke et al, 2001), where a series of mini case studies is used for open sampling, to generate a sense of direction and initial coding schemes, followed up by an in-depth case study for theoretical sampling (Strauss & Corbin, 1990). However, in our study this T-design was inverted: We use an in-depth case study as the primary source for developing insights, and then grounded them in a series of seven mini case studies and/or in theory.

The in-depth case study involved a project with the aim of scouting innovation opportunities at the Emergency Room of a large academic hospital (see section 4). Both authors were involved in this project. The first author, with a background in design research and creative facilitation primarily as facilitator and project coordinator. The second author, with a background in interior design, with a strong focus on user involvement, functioned primarily as member of the professional design team and lead the design research. We followed a participatory action research approach (Whyte, 1989). The team, including the authors, made notes of occurrences and reflections by means of reflective journals (Sleeswijk Visser, 2005). Insights were generated through discussions with the team and between researchers in which we compared and reflected on our notations of experiences in the project. The 7 mini case studies for additional grounding consisted of co-design in care projects that we have been involved in over the past five years (See table 1 for an overview).

Table 1. Descriptions of the seven mini case studies.

project	client	Team members	aim	Time frame
POKO (Participatory Design for Child Oncology)	Child Oncology Ward UMC Groningen	Product- and service designers, healthcare researchers,	Developing products- and services to support children in healthy moving and eating	3 years
'De weg naar huis' (The Way Home)	IC Wilhelmina Children's Hospital	spatial designers, pedagogical staff, caregivers and patients	formulating recommendations and envisioning concepts for the refurbishment of the IC unit	6 months
Powertools	Various mental health care institutions	Product- and interaction designers, mental healthcare professionals- and researchers		2 years
Solace	MUMC+, Adelante	Product, service, interaction designers, healthcare researchers	Self management in chronic pain strategies	2 years
Creating Care	Symposium initiated by University of the Arts Utrecht, various hospitals	healthcare professionals, designers, psychologists, policymakers, students	knowledge exchange, sharing experiences and finding common ground in designing for care environments	annually, 6 editions so far
Public spaces in polyclinics	Meander Medical Centre	programme managers, building managers, nurses, students	Design course on designing waiting lounges and public areas near polyclinics	5 months
Spaces for children with cancer	Prinsess Maxima Centre for Child Oncology	programme managers, interior architect, architect, caregivers, students	Design course on designing activity rooms and private units for children with cancer	5 months

4. Case: Rescue Creations

4.1 What: The Project

Rescue Creations consists of a short intense design intervention to scout for innovation opportunities at the Emergency Room (ER) of a large academic hospital, also referred to as a University Medical Centre (UMC). An earlier innovation effort on improving the neck-brace, uncovered a lot of latent innovation potential at the ER, both in content and in the eagerness for the staff to participate in projects to improve the ER's effectiveness of treatment and the experience of the patients and their escorts at the ER. At the moment, the ER is regarded as a mere portal for the various divisions in the hospital. The ER management recognizes that in order to become a self-standing division in an academic hospital, it needs to develop a reputation of research and innovation.

4.2 Why: The Aim

The programme aims to lead to in framing, conceptualizing, prototyping and evaluating concepts for at least five high priority directions for innovation. The intention is to develop two to three of these demands into larger follow-up projects with broader research consortia. Stakeholders and users of the ER, beyond the caretakers and patients, such as doctors, policy makers, management, and so on, will need to be actively involved, further developing and implementing the innovation strategies. In order to get this kind of involvement, the selection of these innovation directions is also determined by relevance to the wider scope of research within the UMC.

4.3 Who: The Team

The team consists of a group of creative professionals, both design researchers and designers from a variety of backgrounds: Interior Architecture, Interaction Design, Product design, Medical Design, Graphic Design. In addition, so called 'clinical anchors' from the ER staff were allocated to the project as liaisons between designers and caretakers, patients and family. Each clinical anchor was assigned with a specific research focus, thus enabling the team not to address everybody, with everything, all the time. This granted easy access, quickly going to in depth conversations regarding emerging questions. The team spent many hours on the ER floor, interacting with many staff members, doctors and patients.

4.4 When: The Time Frame

The entire project scope is one year, starting with an innovation week in February 2016, a pressure cooker at the hospital for scouting opportunities, in close interaction with the ER staff. From this week a range of themes were defined: communication, safety, hospitality, self-reliance and duration of a patient's visit. The themes resulted in project cases varying from new technical solutions, to communication tools, design strategies and new services. Student teams, in design labs, took on these project cases during a four-month period.

In a second innovation week in July 2016, concepts developed by the student teams were brought back into the ER, in order to explore their potential. The objective was to develop Lo-fi experiential prototypes (Buxton, 2007), to help staff and patients imagine what it would be like to be in a situation in which these interventions have become common practice. This has lead to various follow-up projects, such as a system for dealing with the many tubes and cables at ER patient rooms and ER rooms for geriatric patients.

5. Discussion of Results

5.1 Building Connections with the ER Team

The ER staff is used to experts, like academics and company professionals, coming in to tell how things should be. When we first came into ER floor, we noticed that the staff kept their distance, with a slightly critical attitude: 'here's yet another group of outsiders who are going to tell us how to do our jobs'. This quickly changed. In the first innovation week, we started off by taking shifts observing and interviewing the ER staff in action. Coming into the ER with a beginner's mind-set, asking 'stupid' questions about the context (eg. Beyer, H. & Holzblatt, K. 1998), and with an attitude of respect and gratitude to be allowed into the ER staff's work sphere, we quickly built up report. By repeatedly expressing to the staff, how we had come to regard them as highly effective, extremely flexible, trustworthy caregivers opened the door to more personal and vulnerable conversations. They started sharing insecurities, which in an environment of constant achievement is not easily admitted to, yet *"very valuable input, in increasing the quality of patient care" (ER team leader)*. This in turn presented a next challenge: How to convince the ER personnel that this is not just another initiative that remains in the realm of talking, by showing that the team can actually implement changes? As a RescueCreations team we made sure that some of the ideas could be implemented (almost) immediately. For instance, a prototype for an ER passport for patients with personalized information was developed by one of the designers, and integrated in operational practice immediately after the innovation week.

5.2 Pressure Cooking and Slow Roasting

The project flow consists of an alteration of intensive innovation weeks and slower paced design labs. Innovation week one is marked by unprejudiced quick scans, human centred observations, energetic interactions, decision-making and conceptualization. This week is followed by design labs, where students explore the challenges determined throughout the innovation weeks more in depth and comprehensively. The design labs are stretched out over a few months' time, allowing designers to revisit earlier observations, elaborate on insights and perform further context research, resulting in preliminary designs for new applications, spatial interventions etc. The second innovation week focused on testing, prototyping, gaining insights on applicability, and refining the concepts together with the staff.

This work form with two peak moments of intense real-time contact, and slower development periods in between generated willingness with the staff to cooperate and join in on the discussion freely and even eagerly, since they knew the 'rescue creations team' would be on the floor only briefly. Seizing the opportunity to share their knowledge, lively conversations with various opinions and experiences occurred.

5.3 Stepping in, stepping out

As a team we were located in a room close to, but not inside the emergency ward. During the innovation weeks, we switched as needed between interacting with the ER, doing more directed research, generating and developing ideas. The location allowed for quick connecting with the reality of the ER Room, while still allowing to take some distance, allowing for reflecting on the dynamics on the floor, without getting sucked into the system (Stam, 2006). For our ER caregivers that functioned as 'clinical anchors', the creative workspace created some distance from their daily routines, enabling them to attain a broader perspective, and to elaborate on certain subjects. In one instance, one of the ER team leaders rushed into the room, expressing she was glad to answer some questions, but

that she only had 15 minutes to spare. She ended up staying 1.5 hours. While running out of the room to fetch her child from day-care, she made a point expressing *"how valuable these kind of interventions are in a job that revolves around the daily life threatening emergencies and routines (ER team leader)"*.

5.4 Shared External Memory

On a large wall in the room, we condensed the data from the design process: data fragments, insights, comments, ideas, questions on the walls, in order to provide a map on which we could jointly navigate in the process. (see fig. 3). From a first clustering of data elements, themes emerged, which were then used as 'common attractors' for the remaining of the search. Any insights, ideas, concepts, and related theoretical foundations were organized around these themes. In addition, cross-references and relationships were identified across the various themes. This resulted in a rich and dense landscape that represents both the problem- and the solution space for innovation at the ER. Such a collective graphic memory (McKim, 1972) provides "*an easily accessible database of earlier ideas, information, and* considerations (Van Dijk and Van der Lugt, 2013)", which aids in creating a better-integrated idea generation process (Van der Lugt, 2005).

Figure 3: Shared External Memory at the creative workspace during Innovation Week 1.

The information on the wall was then translated to a large digital poster, which we use both to ground subsequent activities and to communicate with the ER staff. Sevaldson (2011) proposes the activity of 'gigamapping', in order to get a sense of the system as a whole. However, he primarily focuses on using gigamaps to present the current state of a system. We have used the approach as a tool to navigate and to create shared understanding regarding the process.
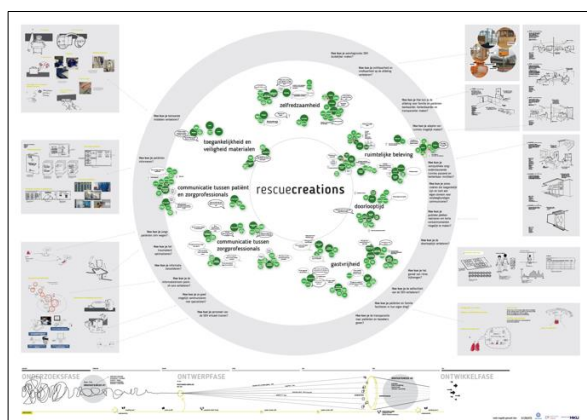
fig. 4: Left: The gigamap consisting of research data, insights, and ideas (in Dutch). Right: Using the gigamap to determine direction for further activities with the ER team.

The design team proudly presented the map to the caregivers as an overview of the results of this first innovation week (see figure 4). Surprised were we to discover however, that the joy over this new found understanding was not met by the caregivers. They simply did not know how to read, or interpret what they were looking at, how they could use this diffuse information. This lead us to believe this tool works for a multidisciplinary design team, tackling complex situations and helping them to grasp the challenges at hand. However, it failed as a means to communicate and discuss insights with the ER team. To them the poster came across as a messy cloud of information that they could not grasp in the limited time available (see Skjelten, 2014). Based on this experience we wrapped up the second innovation week by preparing clear fact sheets as infographics on which we based further discussion.

6. Challenges

6.1 Clash of professional eco-systems

The care environment is known to be hierarchically organized, focused on control and precision. accountability is evidence-based. Care is serious business. Patients need immediate attention and oftentimes lives are at stake. There is a 24-7 operation mentality, following the heartbeat of working in shifts There is a strong push for evidence-based work, seeking accountability through theory and/or statistics. In contrast, design is more fluidly, openly organized, necessary to be able to move quickly forward, loosely bound by rules and regulations, seeking to go beyond the boundaries of the current view on things (also referred to as re-framing). There is no single way to go about, no single optimal solution. Designers are trained to deal with 'wicked problems' (Rittel & Webber, 1973), complex situations where the problem shifts as a solution is proposed. This requires moving forward while accepting uncertainty and a lack of information. Accountability is oftentimes based on traceability of the internal structure of reasoning. Observing the different habits and cultures in the two domains, it is no wonder that collaboration between healthcare professionals and designers can be troublesome (e.g. Verhoeven et al, 2014).

6.2 Connecting to decision makers at the right level

In order to open up the potential for impact, the challenge for a designer working in a hospital environment is to gain strategic position and make explicit her role as consultant within complex processes. The first step in that direction is to position yourself 'at the right table'. This by itself is a challenging process. However, in the Rescue Creations project we faced an additional problem; the current absence of a Medical Manager. It is his or her position to lead the department in future developments, take direction and determine focus points. This means that there is no 'right table' at the moment. And yet, the ER is a high profile landing of the hospital. It belongs to no one and to all divisions at the same time. Currently, there is no coherent vision, which makes it hard to gain purchase on strategic level, let alone to make decisions on the floor.

Staff involvement beyond the willingness to welcome us on their ground, during their day to day occupations is necessary for further development. but without vision or orchestration on management level, caregivers will tend to remain in the comfort zone of what they do best: the operations of taking care of people.

6.3 Product development versus strategic design

The first innovation week resulted in two directions. One direction concerned developing and refining products and applications, the other strategically overviewing the whole, unravelling overall demands, connecting themes. In considering the chain of communication with the patient, we covered nearly all challenges addressed. Drawing out the patient journey with touchpoints shed light on how issues (and ideas for possible solutions) were interconnected. The duration period of patients is one of the main concerns of the caregivers. They face questions regarding progress many times a day. One of the ER staff members said: "*I think I spend 30 % of my time explaining people that I can't explain why it takes so long (nurse-researcher)*". By connecting our design challenges to the chain of patient communication, we found common ground with the care professionals. They immediately understood the implications of our efforts and were able to contribute.

Regarding architectural design questions, lots of input was collected, varying from 'wayfinding' (Lynch 1960), to 'placemaking' (Jacobs, 1961) and creating 'soft edges' (Gehl, 2006), where informal conversations between staff and family could take place, giving room for so called diffusing moments after anxiety and tense situations. The challenge for implementation here is timing. There are generally two types of budget allocated to refurbishment. One via maintenance budgets (short term) and another through building development funding, connected to the lifecycle (10 years) of the facility. The concepts developed in the Rescue Creations programme are integral proposals. They are not easily separated into small entities that can be addressed with maintenance budgets. Therefore, a so called Spatial Strategic Brief was written, revealing opportunities and potential for innovation and how these can be approached in a co-creative process. If the ER will be rebuilt in about five years (as scheduled), this is the time to start this process, develop maximum involvement and learn through prototyping and trying out these strategic directions in the current ER practice.

7. Conclusion

RescueCreations was a short and intense pressure cooker project, which aimed to pro-actively scout for opportunities to innovate in a hospital division, the ER. By scanning for opportunities and potentially feasible innovation projects, the pressure cooker ignited a lot of energy, both in the design team and the SEH staff. It also generated a lot of attention. But in order for effective follow-up, strategic positioning and connection with the decision makers is needed. For instance, the absence of a medical manager and the lack of interaction on policy level, meant that the urgency for strategic design was heartfelt among the care-takers of the division, but without any resonance at the top it resulted in a dead end, leaving participants disappointed. One of the ideas that emerged in the evaluation of the project, is that the division could have a small innovation budget that allows the staff to initiate and test potential improvements of practice on a small scale. Generating space outside of the hospital hierarchy for experiment and further development of ideas could enable collaborating staff and design researchers to take the projects one step further. The results of these experiments, can provide first empirical evidence, which can make it easier to attract investing partners from the outside, as well as open doors on higher management levels inside and enlarge the willingness to revisit existing policy and regulations.

A pressure cooker project almost by definition involves moving forward with incomplete information. As we primarily connected with the ER nurses, the data and insights that we uncovered are likely to have a bias towards the nurses' perspective. These biases need to be acknowledged, and the results need to be valued accordingly. Next steps in the development of concepts need to also take different perspectives into account.

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