Games as Design Medium

Utilizing Game Boards for Design Enquiry with Cancer Patients

Abstract

As the view of patients as passive receivers of care is changing towards more active participants in the healthcare process, hospitals are gearing up to provide more patient-centric services. At the same time, they are under increasing pressure to do more with stretched resources and demographic changes. To this end, service design has been utilized in many institutions to provide insights gathered from stakeholders and to design services to that focus on the patient. However, hospitals as a unique design context provide specific constraints for the design process. This paper presents a method of enquiry that was developed during an experimental service design project in which services were developed for sarcoma-type cancer patients. The method borrows visualizations, tangible props and actions from the world of games to assist the patients in the interviews to remember, understand and communicate their patient experiences. The patient journey was visualized in the form of a board game and physical props used by the patients to indicate significant people and events during their care. The game board acted as a design medium, both presenting information for the participants and engaging them to communicate personal and sensitive experiences. It was observed that in addition to the patients, the hospital staff was drawn to the game board as a way of representing information about the patient journey in an easily accessible way. The feasibility of the method was evaluated in the action and fine-tuned during the process. This paper describes the context of the case, the method developed and discusses the implications of this method for design research in services.

KEYWORDS: design research, patient experience, design games, customer journey

1 Introduction

The project described in this paper, conducted at a large hospital in Finland, was primarily founded on a need to renew the hospital organization to focus on value

created for patients and to prepare the way for a construction of a new wing in the hospital building. The pilot group chosen for this study, patients with a sarcoma-type cancer, present specific constraints to the design inquiry that needed to be taken in accord when planning the methods. As design researchers, we were drawn to this pilot group partly due to the challenges it posed for the design process. Planning within these constraints and drawing inspiration from the field of design games, we created a new method based on a customer journey game board. By utilizing this method in our interviews we were able to gather data on patient experiences that could have been otherwise left out due to their sensitive nature.

In this article, we first go through the context of the study, a cancer treatment unit at a hospital in Finland, present relevant theoretical background for the development of the method, describe the method in detail and finally discuss the implications of the method to the service design field.

2 Sarcoma Patient Treatment at Tampere University Hospital

The number of sarcoma-type cancer cases has been increasing at the case study institution, the Tampere University Hospital. This is due to a move towards centralizing sarcoma treatment to a few key hospitals in Finland. The move for centralization is motivated by a focus on providing the best possible quality of the diagnosis and treatment. In order to respond to these developments, a rethinking of resource-allocation is needed to ensure the most efficient and functioning way of producing services. During the year 2010 the hospital started a renewal program with the focus on patient-first and patient-centric thinking as a key priority. The objectives are to reform the hospital's operations and service, and to build or renovate facilities for outpatient clinics, wards and operation theatres. The reform should address a successful interplay between the different functions to ensure a flow in the services received by the patient. First on the development list are special care units, which are providing services on a national level.

Sarcoma is rare type of cancer, which presents specific challenges for treatment. Doctors are not usually experienced with diagnosing it, which may delay sending patient for further medical examinations. Sarcoma diagnostics and treatment are complicated and need co-operation of several different special doctors. Sarcoma patient goes through multiple tests which takes several weeks or even months. During the diagnosis phase, patients travel to the hospital many times, often from

long distances. After the diagnosis, most common treatments are surgery and radiation therapy. Surgeries are often large, time-consuming and extremely heavy for both patient and for medical staff. Recovering from the surgery is a stressful process which requires mental care and support in addition to the physical care for the wound. For the patient, a surgery can mean losing a limb or ability to move, which causes immense stress for the patient and family before and after the procedures. After the treatment phase patients are regularly invited to control visits at the hospital for detecting any possible cancer recurrences. This control phase can last for several years after the treatment has ended.

It was evident from the start of the project that patients with a sarcoma-type cancer present specific constraints for the design research. First, even though we considered hosting interviews on-site, due to the sensitivity of the issues under discussion and the fact that many of the patients have difficulties in standing or walking for long periods of time due to old age, we decided to arrange a private and comfortable space for the interviews. Second, revisiting the treatment process can be an exceptionally taxing exercise in which the researchers need to be sensitive to emotional and mental issues. It was important to make sure, that the interview situation is made as comfortable as possible to the patient and a safe atmosphere is created that supports intimate discussions. It was also essential that the researchers maintain their professional role since the interview situations might have a danger of being transformed into treatment for emotional traumas. Third, the patients need support in remembering their experiences of the treatment. Due to the lengthy treatment periods and a lack of oversight of the process, patients might have difficulties in remembering different phases and events. With these in mind, we iteratively designed a method that combines aspects of customer journey visualizations and design games.

3 The Design Media: Customer Journeys and Design Games

3.1 Customer Journeys in Design Inquiry

Customer journeys are one of the central tools in service design. They visualize a service from the customer's point of view by presenting it as sequential interactions between the customer and the service provider. They allow for the exploration of the intangible elements of a service by providing a visible and tangible artifact onto which the participants can map various aspects of the customer's experience throughout the service process (Kimbell 2009a).

Touchpoints, the individual points of interaction between the customer and the service provider, structure the service as a temporal process with a beginning and an end constituting a “journey”. The visualized aspects depend on the aim of the project and can be for example customer actions, goals and aims, areas of importance, physical items, service roles or opportunities for improvement. Assembled on a customer journey map they provide a holistic view of a service rendering it accessible for examination and redesign.

In design practice, customer journeys are used when analyzing and mapping a current service, creating ideas or conceptualizing new services and presenting results from an inquiry. They are also often used as boundary objects (Star and Griesemer 1989) in co-design sessions to allow dialogue between different disciplines, views and interests. In addition to the different components constituting a customer journey, the visual qualities play an important part. In contrast to service blueprints (Shostack 1984), which provide a detailed and technical, but often visually complex account of a service operation, customer journey maps often present a more simplified visual design. Diana et al. (2009) argue, that a careful consideration of the visual qualities of the representation can assist in various stages of the design process. Early on in a design process, abstract representations present general insights, avoid misguiding information and leave sufficient space for the imagination. On the other hand, realistic imagery such as photos or drawings provide clues to the experience and atmosphere, allow for critical examination of the design setting, and later on concretize service ideas for evaluation and feedback.

3.2 Games as a Tool for Design

Games have been used in co-design and design inquiry as a metaphoric framework for engaging designers and stakeholders in a dialogue. The aim of the activity varies and examples include exploring design opportunities (Habraken & Gross 1987), creating scenarios of future use (Brandt & Grunnet 2000), negotiating organization of work (Ehn & Sjögren 1991) or analyzing data (Vaajakallio et al. 2009). Design games are seen as a useful way for involving stakeholders in participatory design as they create a common learning space for designers and users (Brandt 2006).

Games introduce a way for engaging the participants in a mode of storytelling through the use of certain rules, material props, and visual aesthetics that set the context. The rules set out the framework for interaction in games and they guide the participants through the game-playing process. Even though competition is

usually not the aim of design games, other rules, such as turn-taking, progression, tasks or roles can be used to structure the activity (Brandt 2004). Games also utilize a certain aesthetic to inform the participants of the context or goal of the game. Through the material, participants are invited to create meanings based on their personal experiences and share them with others. Pictures, visualizations, texture and material qualities are be used to create the shared context in which the game is played. For example, in a game that is about building and managing hotels the materials might include pictures of the buildings, the visual design of a game board might suggest the aim of the game and the sensory qualities of the props might be hinting at their value or intended use.

Besides offering entertainment, games also offer participants an opportunity to discuss issues that might otherwise be considered difficult to share. While playing, the participants form an implicit contract which allows the extension of the boundaries of social conduct in a safe environment. Challenges, provocations or roles are used to make the participants act or express themselves in a way that they would normally not allow themselves to behave. In co-design, games can be used to create a setting in which the participants can free themselves from the constraints of social roles and engage in creative activities such as envisioning the future, enacting scenarios or creating use-cases for design props. Through allowing to act “out of the box” and based on the inspiration provided by the game it is possible to bring forth meanings that might otherwise be left outside the design space. In the context of the design project in question, games are understood as a social practice and utilized as a medium that allows for an engagement of the researcher and informant in a dialogue about the patient experience.

4 Game Board Patient Journey

4.1 Overview

The objective of the design research was to support the ongoing organizational change processes by providing insights based on qualitative data collected from the patients. We collected and analyzed data of the their patient experience in order to improve services, assist in the planning of the treatment and offer insight into the development of supporting service infrastructure. The deliverables included design drivers guiding future design of services, improvements to the existing patient journey and new service concepts.

Figure 1 Different activities in the design research process

1. First we created **an initial understanding of the patient journey** together with two doctors. This was **a two-hour workshop** in which we co-constructed the patient journey visually on a poster on the wall. This exercise revealed big gaps in the knowledge of the doctors of what happens to the patients and who is responsible for it.
2. Next we interviewed caretakers with whom the patients are in contact by conducting **a walk-through of the patient journey** in the hospital. This refined our **understanding of the view the staff has on patient care** on the field and filled in gaps that were not recognized by the caring doctors. Based on this knowledge we were able to produce the first visualisation, which was a flow diagram. This was shown again to the staff to refine the patient journey and validate our understanding so far.
3. Now we had enough understanding to start with the **patient interviews**. The patient journey was visualized in the form of a game board and two types of wooden game props, a pawn and a button, were used to signify significant people or events. The game board is described in more detail later on.
4. Data from the interviews was **analyzed and formulated** into insights, design drivers, initial concepts and improvements.
5. The results were used as the basis of a **patient co-design workshop** in which the results were discussed and two initial concepts created during the analysis were worked on.

4.2 Gameboard design

The end result of the method iterations for the interviews, a board game, consists of a visual game board printed on A2 cardboard paper, three 3 cm high wooden pawns and three 3 cm diameter wooden chips. The game board visualizes the customer journey in a simplified form, showing the main touchpoints on a winding journey through the board and pictures taken of people, surroundings and artifacts.

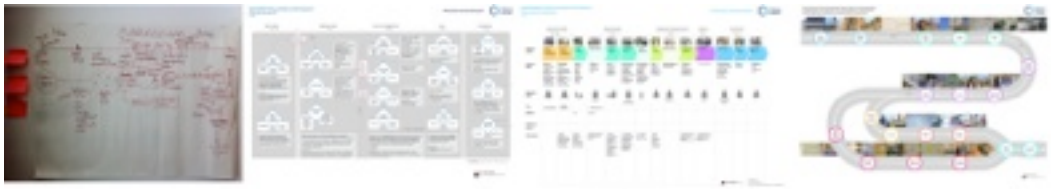

Figure 1 Visual iterations of the customer journey

Layout: The board layout was kept as simple as possible to allow for fast comprehension in the interview situation and leave space for scribbles on the paper. Much of the information present in earlier visual iterations, such as descriptions of touchpoints, problems encountered or people involved, were left out. Even though we wanted to imitate a game board design, we kept the visual overview of the board solemn as we did not want to overstate the entertainment aspects of games.

Images: During earlier phases we had taken a vast amount of photographs from the hospital. Some of these were included in the board to provide visual triggers for the interviewees and allow them to point out specific people, places or items that affected their experience.

Text: The amount of text was kept minimal. It included a description of the purpose of the board and names of different touchpoints. Between the touchpoints where waiting times were considered to be too long we included a notification of time in weeks that the patient has to wait.

Symbols and icons: The symbols included round color-coded circles to specify touchpoints, a general winding journey timeline and arrows pointing from a touchpoint to the next. Colors usually specified those touchpoints that were either procedurally or temporally close to each other. For example, sample-taking consists of three touchpoints which were all coloured in light green.

Materials: The game board was printed on cardboard to give it the correct material feel. The pawns and chips were chosen to be wood so that they could feel comfortable and warm on touch in comparison to e.g. plastic or metal alloy.

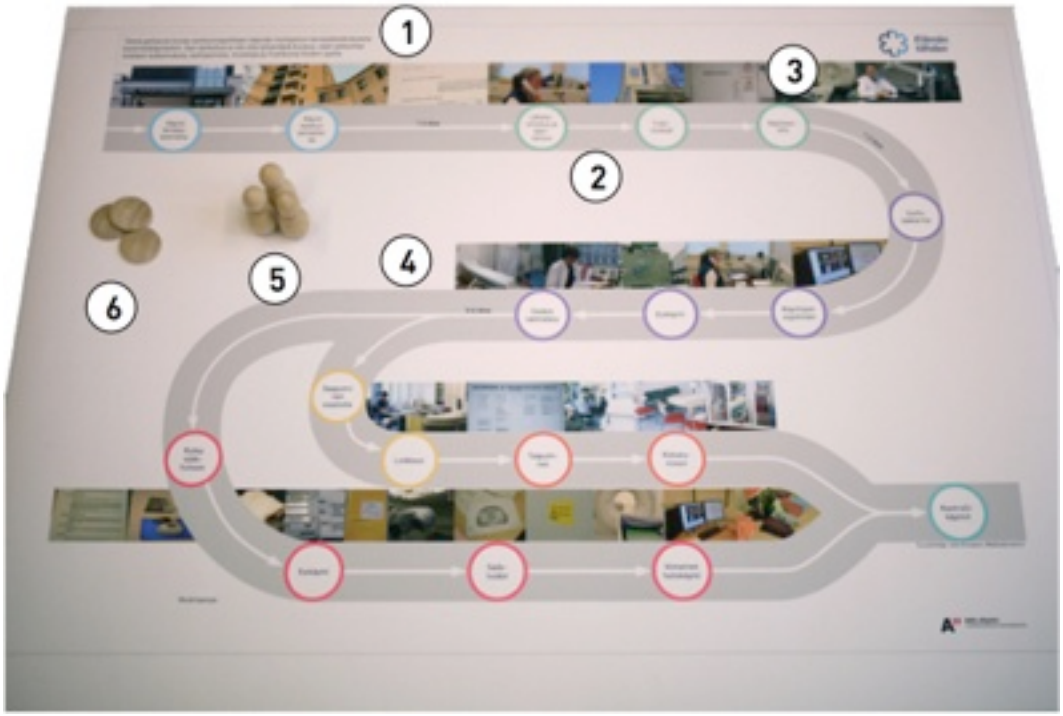

Figure 2 The gameboard composition

1. Short textual instructions to orientate the participant
2. Touchpoints are visualized on a timeline and colour-coded according to treatment phases
3. Pictures taken of personnel and surroundings
4. Differing treatments presented as diverging paths
5. Wooden pawns representing significant persons
6. Wooden chips representing significant events

4.3 Using the game board in interviews

The interviews in which the game board was used were held at the hospital and lasted approximately 1,5 hours each. Each interview was recorded on audio for later analysis. The game board was placed at a table in the middle of the room with chairs set close to the table. The ages of the interviewees ranged between 25 to over 70 years and all of them had gone through at least some parts of the treatment. We asked them to bring with them someone that had been close to them during the process and any kinds of important items they wanted to show.

The interviews were structured in three main parts: general questions, game board questions and closing questions. The first part started with an introduction

to the purpose of the interviews and general questions based on first impressions of the hospital. At this stage the main purpose was to set a comfortable mood for the interviews. After this, the game board was introduced and the patients were asked to place the pawns and chips on specific parts of the board to mark significant people and events that they had encountered. This activity often sparked discussions about specific events that the patients felt deeply about. At times the distinction between people and events became blurred as the discussion on significant events often involved significant people, and vice versa. However, we did not consider this a major drawback as the pawns were able to trigger reflection on patients' experiences, which was the main aim of the interviews. After the pawns were placed, the questions focused on specific parts on the map. As we wanted to keep the interviews as flowing as possible, we picked up clues from the patients' reflections to point to specific touchpoints. This was continued until all touchpoints the patients had experienced were discussed. If the patients mentioned any physical items, such as letters from the hospital, we asked them to present them for discussion. Finally, we ended the interview with issues that the patients still wanted to address that had not come up in the interviews. Sometimes these final discussions proved to provide valuable information that we had not thought of before.

The data produced from the interviews included audio recordings that were transcribed for analysis and images from the placement of the props on the table. These were pre-analyzed by the researchers and further studied in a two-day sense-making workshop.

5 Discussion

The value of design in service development is in a large part due to the ability of designers to visualize services to communicate within the design team and stakeholders (Segelström 2009). Through constructing visualizations using different aesthetic qualities designers also have the ability to create aesthetic experiences (Dewey 1934; Rylander 2011) that allow for new meanings to emerge. Historically designers have paid more attention to the meaning embedded in the form than to the associations it facilitates in interaction. Krippendorff (2006) emphasizes that designers need to become more aware of the meanings stakeholders create through using and discussing artifacts created by them and that they have competences for this. In addition to the attention that is paid towards rational understanding, designed artifacts can also evoke emotional and situated meanings, which are notoriously difficult to capture and

thus traditionally dismissed in management research (Rylander 2011). Considering the recent attention paid to user experiences in the design of products and services, the methods by which to evoke emotional meanings become increasingly important.

The game board method consciously combines the design of aesthetic qualities with customer journeys and design games to support the inquiry phase of service design. It does this through a conscious utilization of gaming metaphors and inclusion of photographs that remind the patient of their service encounters. During the interviews the patients reacted to the board positively. The mode of operation (i.e. reading the journey, adressing touchpoints, placing pawns) came naturally since the interaction modes of a board game are near universal. All participants reacted to the board with interest and, as some chuckled with the comprehension that it was a “game”, they were drawn to the comprehensive picture it presented of their treatment. During the interviews both the interviewers and patients used the board by placing their finger on specific points when discussing those treatment phases. Most participants reacted to some pictures by explaining their experience with the places, people or artifacts represented in them. Thus, for each participant, the game board became a platform for expressing their individual experiences of the treatment.

Another aspect of the game board is it’s utilization within the organization as a tool for communication and collaboration. Initially, we printed ten pieces to be used in each interview, but we noticed that we were able to conduct the interviews using the same board. The remaining nine game boards were quickly picked up by members of the staff who were drawn to it for various reasons. Even though we have yet to systematically follow up on the specific reasons for their interest, this signalled that the aesthetic medium was being accepted by the members of the organization. During the staff interviews, many expressed challenges in thinking of the treatment from the patient’s point-of-view. This is largely due to the predominating organization-centric work culture of the hospital. An easily understandable game board visualization assists in turning thinking towards a patient-centric approach. With this in mind, we continued to use the visualization in other parts of the design process, including the presentation of the results of the study. The game board was also included in a design concept as a collaboration tool for future patient-centric planning of hospital work.

6 Conclusions

This paper presented a service design method for assisting in interviewing people with specific constraints, such as difficulties in moving, long periods of service duration and dealing with sensitive themes. The game board method was presented as a design medium, drawing inspiration from the customer journey mapping method and design games. By utilizing aesthetics and interaction modes from games, the method became accessible and engaging and allowed for the exploration of sensitive and personal themes in the patient experience.

The method can be further developed through utilizing it in different contexts and design phases. For example, we propose that it can significantly assist collaboration in co-design workshops with stakeholders with no prior knowledge of the customer journey as a method. We welcome further development of this method with the inclusion of different game interactions, additional props, rules or aesthetics.

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References

Brandt, E. and Grunnet, C. (2000). Evoking the future: drama and props in user centered design. *Proceedings of the Participatory Design Conference*, CPSR.

Brandt, E. and Messeter, J. (2004). Facilitating collaboration through design games. In *Proceedings of the eighth conference on Participatory design Artful integration: interweaving media, materials and practices - PDC 04. 2004.*

Dewey, J. (1934). Art as Aesthetic Experience. New York: Perigree.

Diana, C., Pacenti, E. and Tassi, R. (2009). Visualtiles as Communication tools for (service) design. In *First Nordic Conference on Service Design and Service Innovation*. Oslo, Norway.

Ehn, P. and Sjögren, D. (1991). From System Descriptions to Scripts for Action. In Greenbaum, J. and Kyng, M. (eds.) *Design at work*. Lawrence Erlbaum Associates, Hillsdale, New Jersey.

Habraken, H. J. and Gross, M. D.(1987). Concept design Games (Book 1 and 2). A report submitted to the National Science Foundation Engineering Directorate, Design Methodology Program. Department of Architecture, MIT, Cambridge, Massachusetts.

Kimbell, L. (2009a). The turn to service design. In Julier, G. and Moor, L. (eds.) *Design and Creativity: Policy, Management and Practice*. Oxford: Berg; 2009:157-173.

Kimbell, L. (2009b). Design practices in design thinking. *European Academy of Management*, Liverpool, UK. 2009.

Krippendorff, Klaus (2006). The Semantic Turn: A New Foundation for Design. Boca Raton: CRC Press, FL.

Rylander, A. (2011). Designers as Language Innovators? Challenges and Opportunities for Designers and Managers with Design-Driven Innovation. In *The 9th International European Academy of Design Conference*, May 4-7, 2011, Porto, Portugal.

Segelström, F. (2009). Communicating through Visualizations : Service Designers on Visualizing User. In *First Nordic Conference on Service Design and Service Innovation*. Oslo, Norway.

Shostack, G.L.(1982). How to Design a Service. *European Journal of Marketing*. 16(1):49-63.

Star, S.L. and Griesemer, J.R. (1989). Institutional Ecology, Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39. *Social Studies of Science* 19 (3): 387–420.

Vaajakallio, K., Ahde, P., Hahn, Y.-A. and Latva-Ranta, S. (2009). Narri - Utilizing the full potential of narrative data through a design game. In *Proceedings of 40IADE40 conference*, Lisbon, Portugal 2009.