Well Connected. What does design offer in the complexity of blood donation management

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Abstract: Person centred design has generated significant attention in the business press and has been heralded as a novel problem-solving methodology well suited to the often-cited challenges and complex problems which organisations face, but offers up questions of the role that the designer should take on in co-designing with users. Through a person-centred approach to innovation we argue that designers can play a significant role in complex problem solving. This paper proposes that it is in the co-development between user-input and ideas, and the designers’ sensibility, idea-generation, visualisation and future-casting that innovative solutions are arrived at.

This paper draws upon the ‘Experience Labs’ method, an approach derived from the Institute of Design Innovation at the Glasgow School of Art. The authors present preliminary findings from a design-led approach to creative problem solving within the context of health and social care, referencing a project delivered in partnership with a blood donation service.

Keywords: co-design, design innovation, creative problem solving, preferable futures, user-centred design

1. Introduction

Within the last decade, design has had a strategic role and purpose in tackling escalating environmental, social and economic problems. Through design thinking, creative methods have been applied to problem solving via a process of collaboration and designers working in new territories and knowledge domains.
This paper focuses on the complex problems within blood donation – a vital process that requires strangers to donate blood and time for no reciprocal value. We define complexity as a state of entangled elements that often involve several parties who may have different interests. Untangling elements is however a possibility and so is distinct from ‘Wicked Problems’ (Rittel, 1973) that have an indeterminate scope and scale.

This research will draw upon preliminary findings from a design-led approach to creative problem solving in partnership with blood donation teams. Through a person-centred innovation approach, we argue that designers can play a significant role in tackling the complexities surrounding the management of blood donation and in arriving at solutions for a preferable future. These problems are situated where there are a tangle of elements and connections, meaning that they have to be approached as a whole. The identification of solutions can only be arrived at through a process of co-evolution and Dorst (2012) argues that this requires the constant reframing of the problem as part of solution. This paper proposes that it is in the co-development between both problem space and solutions space as well as between user-input and ideas, and the designers’ sensibility, idea-generation, visualisation, ideas realisation and future-casting that innovative solutions are arrived at.

This paper will explore the work in the area of Well Connected – undertaken by researchers based at The Glasgow School of Art (GSA). Throughout this work the researchers seek to raise awareness of the importance of the person-centred innovation within the context of health and social care. Through positing the research question ‘what does design offer in the complexity of the blood donation experience?’, we begin by discussing the changing role of the designer and outline the challenges of articulating the applications of design-led innovation within this project. This paper will conclude by reflecting upon a person-centred innovation approach to re-design the existing blood donation experience that worked towards developing future scenarios.

2. Context

This paper is framed within the context of ‘Experience Labs’, a concept developed by McAra-McWilliam (ibid). The Institute of Design Innovation’s research in this area focuses on the common good and how we can design and create sustainability for communities and improve their quality of life – a preferable future (McAra-McWilliam, n.d.). They offer a safe and creative environment where researchers, businesses, civic partners and service users can collaborate on innovative solutions to the health and care challenges facing our society. The Labs are a core component to the work undertaken by the Digital Health & Care Institute (DHI) a Scottish Innovation Centre funded by the Scottish Funding Council, in partnership with Scottish Enterprise and Highlands and Islands Enterprise (HIE). The Experience Labs team is assembled from across a field of design and social science, recruiting researchers from a domain of different disciplines. The researchers apply design-led research methods to engage with our partners and participants, who are encouraged to share their own experiences in co-design sessions to allow new technology, services, processes and behaviour to be trialled rapidly.

This paper is based on the authors’ observations and experiences from a programme of work which positioned co-design and user-centred design in health and social care scenarios, drawing from an example from a UK blood donation service. This project was aimed at improving a web-based platform central to staff’s work.

The platform was used by many staff on a daily basis to determine protocols for their work with members of the public to ensure that procedures were safe. However, the platform was time-consuming for staff to use and caused frustration for both staff and public. A series of three
workshops were hosted connecting staff who play a pivotal role within blood donation and collection and designed, using the design innovation process of scoping the problem and content to gather insights, followed by two workshops to frame concept generation and concept development.

Figure 1  Mapping the blood donation process and the staff’s interactions with digital and analogue systems. Photo by Louise Mather, no middle name creative.

3. The Transforming / Changing Role of the Designer

Design teams are increasingly working with users to collectively discover the root of issues and co-design solutions. Designers have taken up methods and tools from different disciplines such as anthropology and ethnography and fields such as participatory action research as a way to ensure that the voice of the users are heard throughout the design process. Designers have added these to their own tools, perspectives and expertise, creating new approaches and vocabulary such as participatory design research, experience based design, co-creation and design thinking. All aim for designers to reach an in-depth understanding of users through empathy and to support, inform, create and develop solutions to identified problems. The role the designer takes on is not inherent in the approaches themselves and ranges from facilitator to producer, informed mainly by the interpretation of the individual designer, their ideology, different stages of a project or ideology of their workplace. It is clear that the role of the designer is under flux. Whilst following several service design projects Han (2009) identifies three roles that designers take on: leading, facilitating and producing. The role is determined by the project context, but also depends on the style of the individual designers/design teams and Han observed that designers sometimes switch between them. In his book, the Ten Faces of Innovation, Tom Kelly (2006), talks about the ever changing role of the designer within a project and the need for a designer and a design team to be able to take on
multiple roles at different stages of the projects. Having many different methods in the designer’s toolbox and many different roles is useful for the designer, but this also brings some confusion as to how much or little, and in which way the designer should contribute to a process that is user-centred. Should designers act mainly as facilitators? Or design tools for the users to complete a design innovation on their own or use users to validate design specs? How much and what type of collaboration is in the ‘co’ in co-creation, co-development or co-design?

Through our work with our participants and project partners we have come to understand that the contribution of the designer is to create the framework for designing preferable futures (Dorst, 2012 & McAra-McWilliam, n.d.). Hence the consideration becomes not a matter of how much or little the designer should ‘interfere’ with the participants’ or users’ contributions, but should be seen through the lens of how the designers and users can best achieve the design of a preferable future.

In the mid 1990s, Maher was one of the first researchers to propose that the design process could be described as an iterative process where the design problem and potential solution ‘co-evo’lve over time by a designer continually exploring the ‘problem space’ and the ‘solution space’. These are two conceptual spaces that continually inform and influence each other (Maher et al., 1996).

Designers have historically brought new products to light by moving between a problem space and a solution space as observed by Maher (Maher et al. 1996) and Dorst & Cross (2001) letting the spaces continuously inform each other. Designers co-designing with users have the added value of the knowledge of the users and their lived experiences, but the process is still the same. We have found that in order to reach a preferable future solution the design team must move the project between these spaces and also move the users between problem and solution space. This becomes even more central when the complexity of a system or problem increases where the design team act not just to connect the phases of insight gathering, ideas generation and concept development, but also connect solution and problem spaces spiralling the project forward.

Figure 2  Ideation session with blood donation staff. Photo by Louise Mather, no middle name creative.
4. Scoping the Problem; Capturing Insights & Validating a Need

To identify design opportunities, the design researchers worked on uncovering a mutual understanding of the problems and issues through mapping techniques to gather rich insights into members of staff interaction with the system.

The design researchers started by visiting several donation sessions, observing procedures and talking to on-session staff in order to understand the context and issues staff and donors have. This was followed by various clarification sessions with key staff members and walk-through of procedures. To gather in-depth insights into staff’s needs, the design team structured a workshop with 11 members to map out the interactions staff had with the web portal along with any other equipment, paper or other portals before, during and after a blood donation session. Staff were also asked to identify ‘pain points’ in these interactions and these were recorded and categorised. Some ideas also emerged and these were likewise captured and categorised. The design team then worked with the findings to synthesise information, identify design opportunities and themes to validate in the following phase of the project and the second workshop with staff.

4.1 Reflection

During our work with the blood donation teams it became clear that the issues the staff faced were connected to many more aspects than simply their interactions with the web portal. The picture that emerged was much more complex than the staff had anticipated and it became clear that only a portion of the challenges could be solved by improvements to the web portal. Issues that initially looked like they were interactions with the web portal, such as looking up disease risk for travel in a tropical country, turned out in equal amounts to be issues with donor expectations and being able to communicate information between staff.

Tim Brown (2009) points out that uncovering people’s needs is not necessarily easy as people excel at adapting to inconvenient situations/products/services and do not necessarily know that they are doing it. This is why, according to Brown (2009), simply asking people what they want will usually not reveal much new insight. This view is somewhat in line with Verganti’s suggestion that consumers are limited by their socio-cultural field of understanding (Verganti, 2008). Although Brown (2009) echoes the sentiment that asking users what they want will likely not provide much new insight, he advocates that understanding the needs of users is key to good design. In this way the real job for the designer is to help people articulate the latent needs they may not even know they have (Brown, 2009:40).

In the context of the blood donation service, part of the task was to identify the underlying issues and expose the complexity of the service and its components. This was best done with the staff whose expertise and experience of their working process provided insights and wishes. The design teams role was to provide the tools and prompts to enable the discussion, but also subsequently to synthesise the information and identify connections, themes and suggest success criteria for the preferable future moving from the problem space to a very partial solution space. The time pressure of working with staff who have to fit design workshops into their working lives mean that the design team took on some work which could possibly have been taking on by the staff. However, what started to emerge during our work was the importance of the work done between sessions with users, which relied heavily on the designers’ expertise as lateral thinkers and not being tied to the context or problem in order to lift the problems out of their context to be able to see them from new angles.
Figure 2  To identify pain points and insights the design team used a metaphor of the donation process operating as a motor with interconnected parts. The staff mapped the components and identified what threw ‘spanners in the works’. Photo by Louise Mather, no middle name creative.
5. Ideation

Following the insight gathering workshop, the design team presented the findings to participants at a second workshop. Integrated thinking was applied to make connections between captured insights and information to transition synthesised information towards novel ideas and concepts. Only a few of the participants had been at the first workshop, which presented a chance to validate the insights with a new group of staff. The staff then engaged in two brainstorming activities focused around three central themes, which the design team had drawn out from the insight-gathering phase and workshop. The goal was to generate as many ideas as possible and encourage out-of-the-box thinking enabling staffs’ knowledge to transcend into possible solutions based on their actual needs and desires. This formed the basis of the next phase of the project for the design team to build upon.

5.1 Reflection

Bowen et al. (2010) describes their experience applying Experience-Based Design at an NHS facility as being good for involving users in identifying problems, but much less good for implementation and measurement and good for identifying easy wins and less good for solving wicked or complex problems. Although not using an EBD approach, our experience working with participants mirrors these findings. During our ideas generation workshop with staff, we produced a large amount of ideas for relatively quick wins for individual problems and fewer ideas that addressed the connectivity between elements in the system or overall themes. The design team subsequently synthesised the output captured from staff and then worked in a concept development session applying lateral thinking and visualisation to connect ideas for different aspects of blood donation in order to address the issues surrounding the staff’s work. Many of the stand-alone ideas generated by staff became the basis for suggestions for quick wins presented to the Blood Donation Services that would ease the frustration level of the staff and provide some solution in the short term, while the users and the design team also explored a more radical solution through concept development and prototyping. Having distilled the initial mapping of the issues staff face and collate these into themes the design team was able to provide staff with an overview of the process and interrelated elements, which helped staff address the issue within a framework that made the complexity less daunting and more manageable.

6. Concept Development & Prototyping

In the final phase the design team worked with the ideas generated by staff whilst looking for connections between ideas to bridge the gap in between the three themes while considering needs and desires expressed throughout the project as well as insights captured in the insight gathering phase. The design team further developed the ideas into concepts and shared them with members of staff a second time to validate the ideas, gather feedback and feed what was captured into further development of the ideas. This iterative process was undertaken by a multidisciplinary team of designers and researchers in a close collaboration with the blood donation team. This resulted in three interlinked concepts visualised using rough sketches which were presented back to the staff (a mix of participants form the first and second workshop) at a third workshop. Staff worked in teams to rework the concepts facilitated by the design team. Members of staff found it difficult to work with the rough sketches and as aids for the this development phase the designers provided the staff with rough prototypes and early stage mock-ups of the concepts as well as related idea cards for each theme. Alongside these mock-ups members of staff were also provided with a list of proposed
key features to consider during the concept development session which resulted in three rough prototypes to be taken forward by the design team.

6.1 Reflection

In order to create the required thinking space for members of staff to generate ideas for connected problems and solutions the design team presented staff with simple mock-ups/very low fidelity prototypes of preferable future concept sketches. These rough prototypes not only facilitated the generation of meaningful conversations but also provided staff team with a platform to build upon and generate targeted solutions for each theme and towards a more connected user experience. Prototypes should command only as much time, effort and investment as are needed to generate full feedback and devolve an idea. The goal of prototyping is to learn about the strengths and weaknesses of the idea, to build on those insights and to identify new directions that further prototypes might take (Brown, 2008).

Working with the mock-ups helped the design team to communicate design concepts to members of staff in order to validate the ideas, and gather feedback to refine the ideas and develop them further towards tangible solutions. By building prototypes of design concepts, questions about a design or specific aspects of a concept can be answered concretely (Yang and Epstein, 2005).

Through future casting design scenarios the design team enabled staff to start thinking about the user experiences rather than isolated solutions for individual themes and view the problems and solutions as a set of entangled elements of a story with a sequence of events happening around key concepts. By distilling the process into three interrelated design concepts the design team was able to reduce the complexity, but still address most of the issues identified by the staff. This process helped staff to think about different possibilities and scenarios to create an ideal blood donation user experience that could be thought of outside the current context. As with most projects, the constraints of time to further develop these concepts from the concept development phase into prototypes meant that this task was undertaken solely by the design team. Whilst the staff’s knowledge and expertise were integral to uncovering the underlying needs and the development of ideas relied heavily on their involvement, this engagement was reduced the further along the process went as this collaborative process provided the design team with enough insights to continue working on the further development of the ideas. Refining and changing the rough prototypes acted as a route to allow staff to take ownership of the concepts put forward by the design team.

7. Going Forward

The final concepts developed sought to address the identified staff needs and the needs of donors as perceived by staff. However, as the project was framed from the staff’s point of view a further iteration with donor’s would be necessary to ensure the proposed solution met the needs of both staff and donors. The final concepts developed was a two part solution; 1) an ideal user journey encompassing the three interrelated concepts – a design of what a preferable and possible futures scenario could look like and what elements would be needed to achieve this, and 2) an optimised version of the current working practice and web portal. This joint solution was put forward recognising the need for some immediate, relatively easily implementable changes (some of which would be steps on the path to a preferable future), but also the need to change the perspective to one that saw the donation process and the staff interactions in its entirety seeking to create a smooth and safe donation experience for both staff and donors.
8. Conclusion

This paper proposes that it is in the co-development between user-input and ideas, and designers’ sensibility, ideas generation, concept validation through prototyping and future-casting that innovative solutions are arrived at. However, the focus on the user as paramount along with using methods from disparate fields influences the role of the designer and how much or little he or she should contribute to the design process. By focussing on how designers and users can best achieve the design of a preferable future this conundrum becomes less pertinent.

With the increased focus on person-centred co-design with users, the role of the designer is undergoing a significant change. The role of the designer is transforming to become an agent that mediates participant interaction between the problem and solution spaces, often working behind the scenes in the spaces in between to drive a project forward. Designers are continuously fusing methods from other fields in order to support, inform or develop solutions to identified problems with the user groups, often acting as catalysts in multidisciplinary teams and in complex projects.

The findings also highlight that often the spaces in between go unnoticed and further work is required to truly gain deeper insight. We have found that in order to reach a preferable future solution the designer must move not just the project but also the users between the problem space and the solution space as well as between the phases of the project (such as insight gathering, ideation and concept development) spiralling the project forward. The role of the designer is
therefore someone that moves a project and its participants between problem and solution spaces. This becomes even more central when the complexity of a system or problem increases.

Many participants are better as producing stand-alone, incremental solutions to isolated problem. In order to move into a space where a preferable future scenario can take shape the skills of the designer to ideate, envision, imagine and see connections are therefore paramount when complexity rises. Through the design skills designers should be able to move users between new problem and solution spaces that encompass complexity. Designers hold the expertise to move the project and participants between problem and solution spaces in order to reach novel solutions and preferable future scenarios, which is what the designer does when working with participants at workshops. However, they are equally responsible for the work undertaken in between these events. These tie the design innovation process together through the designers skills and expertise as lateral thinkers and problems solvers that can reduce seemingly complex areas by changing perspective and viewing a process in its entirety rather than isolated problems. These skills are central to be able to move a project from complexity into a manageable concepts and help participants view the issues as interconnected in order to come up with interconnected solutions.

Future research is required to unveil the spaces in between the design innovation process, only through making them more explicit can be revealed new spaces for innovation.

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