The Applicability of Online Communities in Health Service Co-Design

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Abstract

Evidence indicates that engaging local communities in health service co-creation can contribute to more responsive and efficient services. A variety of approaches have been proposed to involve the various stakeholders along the service life-cycle. While the planning, delivery and monitoring of health services are increasingly characterized by an extensive use of the Internet, little is known about its applicability in their co-design. However, the current health service co-design practice presents major challenges in involving overloaded staff and hard-to-reach patients. This study aims to explore the challenges faced by the health service co-design practice in physical environments and the potential and limitations of online communities for health service co-design. We will describe how an online community was integrated in a recent health service design project, and discuss some observations from the design facilitators and responses from the project coordinators and participants.

KEYWORDS: service co-design, online communities, healthcare

Background

Community engagement in the co-creation of health services has been suggested to lead to more efficient services that are more responsive to local community needs (Fisher, 2011; Needham & Carr, 2009; Wolstenholme et al., 2010). The involvement of the public and the various stakeholders in the co-design and co-production of health services enables improvements not only to the pathways and processes, but also to the aesthetics of experience (Bate & Robert, 2006; Bowen et al., 2010; Nesta, 2012; Vaajakallio et al., 2013). Accordingly, health care commissioners have been encouraged to establish a continual and open dialogue with key stakeholders, including the public, patients and health professionals to improve services and outcomes (The NHS Confederation, 2013). A variety of approaches have been proposed for the implementation of this dialogue along the planning, design, delivery and monitoring of health services (NHS England, 2013). While the planning, delivery and monitoring of health services are increasingly characterized by an extensive use

of the Internet, the current health service design initiatives are fundamentally based on face-to-face interactions with little to no use of the Internet. However, it is acknowledged that the practice of collaborative design presents some practical challenges in ensuring understanding of the problem and balancing rigour and relevance of the solution (Piirainen et al., 2012). In particular, facilitators of face-to-face interactions are confronted with key factors, such as group composition, supporting technology, individual motivation or physical constraints (e.g. place, time), that inevitably affect the quality of the design (Karhumaa et al., 2009).

On the other hand, Internet-based approaches to customer engagement have been successfully applied to collaboratively develop new products and services in the private sector (Nambisan, 2002; Piller & Walcher, 2006; Sawhney et al., 2005). In particular, online communities, which bring together users with common interests to share their experiences, have become a rich source of socially generated knowledge that complements the knowledge generated from individual customer interactions (de Valck et al., 2009). It is acknowledged that the acquisition of patient experiences via online communities is destined to become of major value to the public and healthcare organisations (Rozenblum & Bates, 2013). More continuous and intense interactions as well as wider audiences are some of the benefits associated with virtual environments in contrast to physical environments (Nambisan & Baron, 2007). However, UK's healthcare organisations are yet to adopt online approaches to public and stakeholder engagement and little is known about the applicability of online communities in the collaborative design of health services.

The aim of this study is to explore the challenges faced by the practice of health service co-design in physical environments and the potential and limitations of utilising online communities for health service co-design. A better understanding of the potential of online communities will provide insight into how service designers, as developers of communities for service innovation (Han, 2010), can extend their role to the virtual world.

Method

An action research approach (Davison et al., 2004) was taken with the dual intention of improving the quality of a particular health service and contributing to service design theory and knowledge. Therefore, the authors were actively and deliberately involved both in design practice and research. One of the authors played the role of workshop facilitator, while the other played the role of online facilitator. The study took place in the context of a health service design project commissioned by Islington Clinical Commissioning Group, London. This project aimed to create integrated care pathways for safer medicines management amongst older people without compromising on cost and efficiency. A team of three experts in the areas of systems thinking (big picture understanding), design thinking (user-focused), risk thinking (proactive risk assessment) and lean thinking (flow and waste-focused) designed and facilitated three 3-hr stakeholder workshops. Eight stakeholder groups were invited to participate, namely, patients, carers, district nurses, GPs, community pharmacists, hospital pharmacists, social care workers and commissioners.

Each workshop was planned with a specific objective: i) whole system understanding and issue prioritisation for the first workshop; ii) idea generation and solution development for the second workshop; and iii) implementation planning for the third workshop. It was planned that the workshop participants would form small teams (6-10 people for each team) for discussion and design activities. At the first workshop, the participants were introduced to systems thinking in order to understand the whole system and identify the main issues

affecting the service. The workshop facilitators presented a number of textual and diagrammatic representations, including persona, stakeholder maps, and process map, as a way to understand the service and identify potential issues and challenges. The participants were then introduced to proactive risk analysis to prioritise the most sensitive issues. At the second workshop, the participants were introduced to lean thinking in order to identify the root causes of the higher-priority issues and describe the best desired outcome for the problematic situation. A number of solutions developed in different contexts were then benchmarked by the workshop facilitators in order to encourage critical thinking in the development of ideas. At the third workshop, the participants were introduced to the concepts of business modelling and planning in order to develop a business case of their proposals. In particular, the workshop facilitators presented the business model canvas as a visual way to guide their thinking in the specification of their proposed service models.

In parallel with the workshop activities, an expert in the areas of innovation communities and knowledge management designed, developed and facilitated an online community (**Error! Reference source not found.**). A member account at the online community was created for each of the participants that provided an email address. All the registered members received their user credentials in a welcome email explaining the purpose of the online community together with a summary of the project. Each team was allocated a space on the online community where to store their documents. A number of online discussion tools, including posts, question and answers, and polls, were enabled for the interaction of the participants. Member accounts were also created to provide access to other stakeholders that were unable to attend any of the workshops, but were still interested in following the project. At the end of each workshop, the online facilitator published the documents presented and generated during the workshop. External documents that could not be discussed during the workshops, such as relevant research evidence and guidelines, were also published on the online community in order to extend the knowledge base of the

Figure 1: Workshops space on the online community.

participants.

Data were gathered using several methods. In order to understand the practical challenges of face-to-face workshops, the participation patterns of workshop participants and the knowledge flows and interactions between workshop facilitators and participants were carefully observed and reflected. The observations were complemented by the analysis of the documents and contents generated by facilitators and participants all through the design process. In order to explore the potential and limitations of the online community, online participation and activity patterns were observed and reflected. In addition, a questionnaire (Figure 2) on how and why the workshop participants did (or did not) interact with the online platform was completed by 20 workshop participants at the end of the final workshop. Furthermore, semi-structured interviews were carried out with three project coordinators, namely, the head of medicines management at Islington CCG, the clinical lead of this project, GP at Islington, and the lead pharmacist. The interviews provided a complementary perspective on both the challenges faced by the workshops and the potential and limitations of the online community.

1. Did you visit the project web site?

   _ Yes   _ No

2. If no, why? (Please tick all that apply)

   _ I did not know there was a project web site

   _ I do not have access to the Internet

   _ I was not provided with a user account

   _ I was not interested in visiting it

   _ I did not have the time to visit it

   _ Other (please state) _____

3. If yes, what did you find useful? (Please tick all that apply)

   _ Project background documents

   _ Workshop presentations

   _ Discussion tools (e.g. posts, polls)

   _ Other (please state) _____

4. What features and improvements would you like to see in the website if you would participate again in this project?

   _ More visual content (e.g. Workshops videos, photos)

   _ More social content (e.g. Twitter, LinkedIn links)

   _ Improved usability (e.g. easier navigation)

   _ Other (please state) _____

Figure 2: Online community evaluation questionnaire.

Results

Challenges faced by the health service design workshops

Two main challenges were identified in relation to the workshops. Firstly, it was observed that the participation of stakeholders in the workshops was inconsistent and uneven. As shown in Table 1, twenty people on average participated in each workshop.

	First workshop	*Second workshop*	*Third workshop*
No. of participants	23	18	20

Table 1: Workshop participants by workshop.

However, as shown in Table 1Table 2, only half of the participants were able to attend all the workshops. Participants alleged work commitments as the reason why they could not attend one or more workshops.

	Three workshops	*Two workshops*	*One workshop*
No. of participants	15	4	11

Table 2: Workshop participants by number of workshops attended.

On the other hand, some professional stakeholders groups, notably social care workers, had a limited representation in spite of their potentially important contribution to this project. Table 3 shows the number of workshop participants by stakeholder type. The project coordinators reported during the semi-structured interviews that this was due to the reduced number of staff available at some organisations. Patients and carers also had a limited representation, with only one patient or carer participating in each team. The project coordinators admitted during their interviews that patients and carers were especially hard to reach and a more continual communication with them would have facilitated their recruitment.

	Patient and carer	*GP*	*Practice manager*	*Community pharmacist*	*Community nurse*	*Hospital pharmacist*	*Hospital consultant*	*Social care worker*	*Commissioner*
No. of participants	3	5	1	3	4	3	1	2	8

Table 3: Workshop participants by stakeholder type.

Secondly, it was observed that the level of analysis of the participants was constrained by the limited duration of the workshops. Only core principles and a very simplified version of the methods for the various thinking approaches could be introduced and used in the workshops. Also, the workshop facilitators did not find time to present and encourage the discussion of research evidence and guidelines. Consequently, the workshops did not allow for the analysis of much information that the project coordinators had to include in their own analysis once the workshops concluded. The documentary analysis of the workshop outputs and the reflection on the workshop activities revealed that the participants were not

able to fully apply the various thinking approaches in their design activities. For example, a lean principle such as poka-yoke was introduced for solution development. It was reported by some participants that they were keen to think through this principle, but were not able to find time to do it due to the limited time available. Nevertheless, participants also reported to have used the two to three weeks between each workshop to reflect on, consult and research into their ideas. The coordinators acknowledged that the workshops were planned with a limited duration of three hours due to the busy schedule of some participants and the cost of organising each workshop.

Potential and limitations of the online community

Membership to the online community was widely spread among workshop participants. As shown in Table 4, twenty-five participants in total were assigned a member account. The 5 remaining participants could not be assigned a member account either because they did not provide an email address or because they were not Internet users. Their accounts were created after having participated in a workshop for the first time since the facilitators were not able to obtain their full details and consent until then. Additionally, another 15 member accounts were created for the workshop facilitators and other stakeholders that were unable to participate in any of the workshops, but still were interested in following the project.

	Members and accessed the community	*Members and did not access the community*	*Not members*
No. of participants	13	12	5

Table 4: Workshop participants by membership and access to the online community.

However, as shown in Table 4, the web analytics revealed that almost half of the participants with a member account never accessed the online community. As shown in Table 5, the questionnaire showed that their unawareness of the online community and lack of time were the two main reasons why they did not access the online community.

	I did not know there was a project web site	*I do not have access to the Internet*	*I was not provided with a user account*	*I was not interested in visiting it*	*I did not have the time to visit it*	*Other*
No. of responses	3	1	0	1	2	0

Table 5: Reasons why participants did not visit the online community.

As shown in Table 6, among those participants who accessed the online community, the web analytics exposed that more than half of them continued doing it after the workshops period. Project coordinators recognised during their interview that the online community had become a useful tool for them to view and share with others the documents that were presented and generated during the workshops, even after these had already concluded.

	Accessed during and after the workshops	Accessed only during the workshops
No. of participants	7	6

Table 6: Participants by period of access to the online community.

As shown in Table 7, the questionnaire revealed that this facility to access the documents published by the online facilitator was also the most useful feature of the online community according to the participants. However, the participants did not find the discussion tools so useful. Indeed, the level of online interaction was very limited, with all the discussions initiated by the facilitators and the project coordinators. No comments were made by the members of the online community on the contents published by the online facilitator.

	Project background documents	Workshop presentations	Discussion tools	Other
No. of responses	8	8	3	1

Table 7: Most useful features of the online community.

As shown in Table 8, the participants suggested the publication of more visual content as their preferred improvement for the online community. The usability of the online community and its integration with external social contents were the two other improvements suggested by the participants.

	More visual content	More social content	Improved usability	Other
No. of responses	6	3	3	1

Table 8: Suggested improvements for the online community.

Discussion

Three main themes emerged in relation to the challenges faced by the workshops and the way that the online community was used by the workshop facilitators and participants. Further research is suggested for each of the themes.

Firstly, the highly-distributed nature of the target service required the participation of many different stakeholders, as it is recognised that the involvement of all key stakeholders is crucial for the success of design projects (Smith & Fischbacher, 2005). However, the project coordinators had difficulties to recruit and involve some key stakeholders. Busy professionals, low levels of staff and hard-to-reach patients and carers translated into some key stakeholders missing one or more workshops. The online community alleviated this

problem by facilitating the involvement of new participants as well as keeping those missing one more workshops informed and connected to their teammates. Nevertheless, the role of the online community in the study was limited by the unidirectional and contingent approach to stakeholder involvement applied by the project. Further research is therefore required to understand how the extended reach and higher flexibility of online communities can help to overcome this challenge by establishing a bidirectional and continual dialogue with key stakeholders.

Secondly, the complexity of the target service required a detailed analysis of the problematic situation and the proposed interventions. In particular, it is highlighted the need for a whole-systems approach to the design and planning of health services (Edwards, 2005). However, the participants had difficulties to apply a level of analysis consistent with the goals of the workshop. Their analysis was constrained by the limited duration of the workshops at all the stages of the design process. The online community helped participants to reflect on their ideas in between the workshops by providing them access to the documents presented and generated in the workshops. Nevertheless, the ideas of the participants were hardly shared and discussed in between the workshops due to the low levels of online interaction. Further research is required to understand how online communities can help to extend the analysis and discussion between key stakeholders beyond the limits of their interaction in the workshops.

Thirdly, the knowledge-intensive nature of the target service and the complexity of its context required the integration of external knowledge sources into the internal knowledge base of the participants. In particular, it is acknowledged that the local interpretation of research evidence and guidelines by all key stakeholders is essential to ensure the efficacy of design interventions in healthcare (Carr et al., 2011). However, the workshop facilitators had difficulties to integrate external knowledge sources relevant to the design intervention. Their presentation and analysis was constrained by the limited duration of the workshops at all the stages of the design process. The online community provided relevant research evidence and guidelines that could not be presented during the workshops, yet this knowledge was hardly enacted and made social due again to the low levels of online interaction. Further research is therefore required to understand how online communities can facilitate the integration of external knowledge sources into the stock of knowledge constructed and shared by key stakeholders.

Conclusion

This study aimed to explore the challenges faced by the practice of health service co-design in physical environments and the potential benefits and limitations of utilising online communities for health service co-design. The results have shown three fundamental problems faced by a health service co-design workshops that were alleviated by integrating an online community in the design process. However, the online community also exposed some limitations to engage its members in the analysis and discussion of the problem and its potential solutions. Further research on service design in virtual environments is therefore needed for online communities to be better utilised in health service co-design.

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