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A Collaborative Rapid Persona-Building Workshop: Creating Design Personas with Health Researchers

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ABSTRACT

In the HealthMap project for People With HIV, (PWHIV) designers employed a collaborative rapid 'persona-building' workshop with health researchers to develop patient personas that embodied patient-centred design goals and contextual awareness from a variety of qualitative and quantitative data. On reflection, this collaborative rapid workshop was a process for drawing together the divergent user research insights and expertise of stakeholders into focus for a chronic disease self-management design. This paper discusses, (i) an analysis of the transcript of the workshop and, (ii) interviews with five practising senior designers, in order to reflect on how the persona-building process was enacted and its role in the HealthMap design evolution. The collaborative rapid persona-building methodology supported: embedding user research insights, eliciting domain expertise, introducing design thinking, facilitating stakeholder collaboration and defining early design requirements. The contribution of this paper is to model the process of collaborative rapid persona-building and to introduce the collaborative rapid persona-building framework as a method to generate design priorities from domain expertise and user research data.

Keywords: Chronic Disease Self-Management, Health IT, Personas, User-Centred Design

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INTRODUCTION

In the health care domain it is critical to involve the deep expertise of a variety of health and clinical experts in design conversations, so that designs will be well grounded in the realities of healthcare provision. This paper is concerned with effective ways to involve domain experts in the design process and to effectively draw their deep expertise into the design. Simonsen and Robertson (2012) have called for the development of processes and tools that support an exchange of knowledge and perspectives between designers and non-designer stakeholders. Similarly Brandt, Binder and Sanders (2013) suggest that being aware of what is accomplished through the application of various tools and techniques, and ‘sensitivity to the coherence of making, telling and enacting’ enables the development of procedures that facilitate collaboration and co-ownership of design (Brandt, Binder & Sanders, 2013, p. 147).

The method that we focus upon in this paper is that of persona building and we explore its use in particular as a collaborative means to engage health experts and elicit their knowledge in the service of design. Personas as a tool for design has a long and contentious history and many researchers and practitioners have firm prejudices, either positive or negative, regarding their value as a design tool. Miaskiewicz and Kozar (2011) call for research that can lead to a more rigorous understanding of the personas method.

As we witness the evolution of technology into a ubiquitous and pervasive phenomenon there are many unanswered questions around the efficacy and desirability of a pervasive health experience for many patient groups, especially highly stigmatized special user groups. Slavin (2012) describes the current experiences of stigma for PWHIV in Australia and points out that the healthcare system continues to be a significant source of discriminatory and stigmatizing experiences. Understanding the complex psychosocial factors that influence a patient’s willingness to engage with healthcare technologies is a vital ingredient for their suc-

cessful design and implementation. Any tool that can effectively integrate relevant knowledge of patient experiences, attitudes and behaviours is worthy of investigation and dissemination. For HealthMap, building patient personas was the process that incorporated user research findings and engaged health domain experts into forming the project design.

The purpose of this paper is to reflect on the use of the persona building workshop in the context of the HealthMap project and to evaluate the efficacy of collaborative rapid persona-building as a methodology, particularly for the health design context. By offering this case-study the paper directly addresses the lack of transparency into successful persona application. It also addresses Brereton and Buur’s (2008) call for a “move towards iterative, experimental design explorations to provide... understanding of today’s complex contexts and practices” (Brereton and Buur, 2008, p.101). By working as an exemplar of participatory design in a complex context, making a pragmatic contribution to knowledge construction. This paper reflects on the workshop methodology in order to understand the ‘active ingredients’ that contributed to its productivity.

The HealthMap Project

HealthMap is an Australian National Health and Medical Research Council funded technology project followed by a clinical trial to investigate how to support people living with HIV, PWHIV in self-management of cardiovascular disease and the chronic diseases of ageing. HealthMap explores the potential for mobile and Internet based technologies to support people living with HIV to support self-management of chronic disease.

Technologies explored were: (i) a tablet web application for use during the HIV health-care provider consultation to enrich and support a collaborative patient/provider conversation around chronic disease risk and lifestyle factors and offer a chronic disease management plan, (ii) an online service for PWHIV to introduce rich information, personal self-management plans

and possibly opportunities for social interaction and phone-based health coaching, (iii) a patient mobile application that offers opportunity to explore health and wellbeing issues and 'triage' them for a scheduled consultation.

These technology platforms emerged from early qualitative data and preliminary design work that included a collaborative rapid persona-building workshop.

This paper will describe the HealthMap design research participants and activities before the workshop, the participants and activities during the workshop and the impact of the persona-building workshop on the subsequent design activities.

A transcript of the audio recording of the persona-building workshop formed the basis for analysis. A framework for understanding the collaborative persona discussion is introduced and applied to the persona-building workshop transcript excerpts. The analysis findings are then compared with current industry practice and related literature.

The following sections will include: a literature review of the adoption of personas in HCI and User-Centred Design practice, a description of the action research process for the HealthMap design research activities, analysis of the data derived from the workshop transcripts, discussion of the analysis findings in the light of a framework for collaborative persona creation and against current industry practice and then conclusions on the effectiveness of the collaborative rapid persona-building workshop.

LITERATURE REVIEW

Simonsen and Robertson (2012) call for the development of processes and tools that support an exchange of knowledge and perspectives between designers and non-designer stakeholders. This paper aims to reflect on the HealthMap experience with a view to evaluating the suitability of collaborative rapid persona-building as a process particularly for the health design

context, thereby refining our understanding of the collaborative rapid persona-building process as a methodology. We are on a quest to discover the 'active ingredients' of the HealthMap collaborative rapid persona-building workshop and their potential for replication and application. One may ask, why another personas paper? Personas are of particular interest in their role as a 'lightweight' artefact for communicating 'heavyweight' insights. We agree with Mattelmäki, Brandt and Vaajakallio's (2011) point that given thick user research reports are unlikely to achieve much for the cause of stakeholder engagement, and surely nothing in regards to co-analysis and co-design, designers are faced with the challenge of discovering the 'learning potentials inherent in the ways in which we choose to communicate and use results from field studies in design' (Mattelmäki, Brandt & Vaajakallio, 2011, p.92).

When looking at the history of HCI we can see that user profiles and scenarios have been used in software development since the mid-1980s, Pruitt and Grudin (2003). Personas for design were introduced to HCI by Cooper (1999) as a hypothetical archetype of an actual user, describing that person's goals, aptitudes and interests. The key role of personas is to allow data from user research and other sources to shape design, rather than a designer's own preferences and assumptions. In this way personas can facilitate expressing design aims and features that are defined by the end users' mental models and their behavior.

Since Cooper, personas for design have undergone evolution: Chang, Lim and Stoltzman (2008) observed that designers reflect on and modify their techniques for creating and applying personas, that they adapt these 'tools' to suit their own style of working. Nielsen (2012) describes how although personas are a common design tool there is a lack of consensus among design researchers about their definition and application. Similarly, Floyd, Jones and Twidale (2008) point out that debates about the usefulness of Persona Based Design often treat it as

a single design method, whereas in fact there is a diversity of activity that is labelled Persona Based Design in both research and practice.

This diversity of practice notwithstanding there are still some basic principles commonly described in persona literature that support successful persona adoption and application:

- **Empirical evidence:** The sources and types of empirical data can be various, but clearly qualitative data plays an important role. The quality and breadth of data will impact on the quality of the persona. Pruitt and Adlin (2006) observe that the use of personas failed when they were not seen as credible and associated with methodological rigor and data. Additionally, Moser, Fuchsberger, Neureiter, Sellner and Tscheligi (2012) suggest that personas based on different data types, such as qualitative and quantitative and in different project contexts suit some projects better. While Sinha (2003) advocated a ‘tighter coupling’ between user research and persona development by using quantitative methods to identify information needs. Faily and Flechais (2011) offer a framework for grounding persona characteristics in data with verifiable links;
- **Particularity:** This is the level of detail expressed to portray a single-person user, rather than an average representation. Particularity works by inducing empathy and stimulating thinking around specific user characteristics and behaviour. It also supports design scoping by identifying constraints and opportunities (Cooper, 1999);
- **Team-based persona building:** Ideally personas are built through the participation of a core team, involving as wide a representation as possible of stakeholders. Both Pruitt and Adlin (2006) and Barlow-Busch (2010) describe a number of benefits from a collaborative approach, not least of which is that ‘discussion and debate are critical activities’ in the persona creation process.

It is also clear from the literature, and from industry case studies, that personas are not a

substitute for user research or for direct contact with users for testing and other investigations; on the contrary, according to Grudin and Pruitt (2002) successful personas should augment existing User-Centred Design processes and enhance user focus.

Despite the plethora of literature advocating for Personas as a UCD tool, Mathews, Judge and Whittaker (2012) point out that ‘We lack actual data about how experienced UCD practitioners use personas as part of their jobs.’ (Mathews, Judge & Whittaker 2012, p.1219) This paper seeks to directly address that deficit by revealing the workshop discussion and dynamics that occurred in the HealthMap design.

The Criticisms of Personas

While it is not the purpose of this paper to re-iterate existing debate on the value of personas it is clear that as a design tool personas have a contentious history. We have already alluded to the diversity of practice that can lead to confusion and misunderstanding in the debate around personas. Blomquist and Arvola (2002) recount case-studies where personas lacked efficacy due to lack of exposure to user research and designers’ lack of familiarity with personas as a tool. Chapman and Milham (2006) allude to a number of problems, from a lack of verifiability to political conflicts resistant to claims of empirical support.

Mathews, Judge and Whittaker (2012) summarize the criticism against personas as follows: Abstraction: “...Personas are abstract – it is hard to understand the abstraction process from user data to persona, so personas come across as lacking critical detail...” Impersonal: “...Personas are impersonal – the personifying details in personas fail to provide a sense of empathy...” Misleading: “...Personifying details mislead – it is difficult to select personal details that do not create false constraints on the design problem...” Distracting: “...Personifying details distract – personifying details make it hard to focus on the aspects of a persona that are critical...” (Mathews, Judge and Whittaker, 2012, p.1224)

Nielsen (2007a) identified an inherent tension in personas when she posed the question: 'Personas: communication or process?' She questioned the emphasis on evaluating personas as documentation and observed that much of the criticism personas attract is due to the shortcomings in persona campaigns to communicate user research to internal and external stakeholders. When a campaign audience has not been exposed to the foundational user research data, and the process of persona creation, they often fail to adopt personas.

Nielsen (2007a) advocates valuing the persona creation method as a process for moving stakeholders towards a user-centred design and offers a 10 Step Process Model as a framework for collaborative persona creation. How this 10 Step Model may or may not apply to the HealthMap experience of building personas is a point of interest and forms part of the reflection and evaluation.

Personas in Health

For those working in design for healthcare and health information technology, the value of evidence-based personas is often recognized. For example, Jones (2013) advocates for personas because in the context of health the specificities of life's complexities and life's emotional issues determine people's ability to engage with care services. Personas have the potential to holistically capture the lived experiences of people, not merely the 'patient-needs' at a particular juncture. They are an appropriate contribution to 'a care-centred design orientation, that can span the different needs of patient, professional and service, and help us define priorities for intervention and redesign (Jones, 2013, p.15). The number of studies directly relating to developing and employing design personas in a health context is limited.

Personas are sometimes alluded to in passing without much discussion or detail, because the focus of the enquiry is elsewhere (E.g. Henry (2007) and Nijlan (2011)). Personas are often linked to a scenario-based methodology, in line with the original Cooperian approach.

Personas as a precursor to health design scenario development are discussed a number of studies (Calde, Goodwin, & Reimann, 2002; Kälviäinen, 2012; Lerouge, Ma, Sneha, & Tolle, 2011; Reeder & Turner, 2011; Schulz & Fuglerud, 2012; Sutcliffe, 2010; van Velsen, van Gemert-Pijnen, Nijland, Beaujean, & van Steenbergen, 2012; and in van Velsen, Wentzel, & van Gemert-Pijnen, 2013). These studies also report the value of personas as a tool for eliciting design requirements from early research data, (both qualitative and quantitative) and for engaging stakeholders. Indeed, for health design 'engaging stakeholders' takes on extra significance when project stakeholders include special user groups with vulnerable and sensitive characteristics. For this reason Moser et al. (2012) employ a decision diagram to guide appropriate methodology to collect data when building personas. Children, people living with disabilities, the elderly, the cognitively impaired and their carers have all engaged with design via personas (Wärnestål, Svedberg, & Nygren, 2014; Henry, 2007; Schulz & Fuglerud, 2012; Kälviäinen, 2012; Wöckl et al., 2012).

Only a small number of papers offer examples on how to develop personas specifically in the context of health IT. This paucity reflects the rarity of explicit personas methodology in the wider literature when discussing design personas. Lerouge et al (2011), Schulz and Fuglerud (2012), Nunes and Silva (2010) and Moser et al (2012) offer methodological case studies. Of these Lerouge et al (2011) and Schulz and Fuglerud (2012) are notable for providing a detailed explanation of the mechanisms of the persona creation process. Lerouge et al (2011) collect data from field research and describe a formal data coding exercise to generate themes and key characteristics. These are then used to create user profiles. These user profiles are subjected to research team revision before iterating to design personas. They provide the evidence trail used to support the example personas in their appendices. Schulz and Fuglerud (2012) describe a persona development process that draws on fieldwork and also participatory workshops with end users and domain ex-

perts. Their focus is on recruitment, workshop preparation and workshop inclusion of people with disabilities and domain experts in design activities. Their description of a workshop to create ‘persona skeletons’ most closely relates to the HealthMap collaborative rapid persona-building workshop which is the focus taken in this paper.

In the light of the related literature this paper makes a contribution by offering a collaborative rapid persona-building methodology as valuable to design distinct from the deployment of personas in scenario building. It also supports the claim others have made of the personas value to stakeholder engagement by giving more detailed insight into the dynamics of a collaborative workshop via the Framework for a Collaborative Persona-building Workshop.

OBJECTIVE

This paper reflects on the methodology for the HealthMap personas and evaluates the contribution to the HealthMap design that the collaborative rapid persona-building process made: specifically for understanding HIV patients, the team’s ability to design for patients’ specificities, shaping research insights into a product design framework and founding a cohesive, design-focused team.

Therefore our aim is to reveal the persona-building workshop methodology with a view to understanding the elements that contributed to its success. We then seek to understand the HealthMap persona-building experience in the light of current design practice and related literature. In describing and evaluating the collaborative persona-building workshop methodology we provide a model for further testing and refinement.

RESEARCH METHOD

As action researchers we took a grounded theory approach when reflecting on the data generated from our immersion as designers for HealthMap. We informed our inquiry from the qualitative

data and artefacts that captured the HealthMap project methodology and gathered additional data through interviews to inform our analysis of the HealthMap design methodology. As practising designers we employed lightweight, agile methodologies: incorporating quick, tangible tools for data gathering, data analysis and idea generation. Affinity mapping with sticky notes, sketched mapping on whiteboards and simple matrices for thematic grouping were employed to analyse data and synthesise insights.

In this paper we explain the HealthMap design process as a whole and where in that process the collaborative rapid persona-building workshop occurred. Next we analyze the internal dynamics of the workshop via an audio transcript of the 90-minute workshop, giving two excerpts as representative samples. These excerpts are analysed using the Framework for a Collaborative Persona-building Process.

We compare the HealthMap design experiences with contemporary design practice through semi-structured interviews with five experienced designers and against the related literature. The interviewed designers were recruited through Designer 2’s network of industry contacts. They are all principal partners of user experience design agencies and senior designers with many years experience of engaging stakeholders in practical design processes. Four of the five designers had experience in building personas. One designer’s special field did not expose her to persona-building methodology but as a senior figure in the Australian user experience design community she had come across instances of persona deployment. Interviews took place in person or via skype. They were between 30 and 60 minutes. Some interviews were followed up with questions via email.

These results are then discussed against a number of evaluative questions in the Discussion.

The Healthmap Design Phases

Initially the HealthMap design team comprised: a social researcher with many years experience in HIV research, a hospital-based HIV

treatment provider / clinical researcher and an occupational therapy postgraduate researcher with special interest in HIV and chronic disease self-management. This domain expertise combined represents over 40 years of research and work with people living with HIV. In addition HealthMap has twelve chief investigators who receive reports and contribute to project decisions. Three designers were engaged on the project at different times. Designer 1 provided high-level design strategy advice but was not co-located with the team. Designer 1 is a design researcher specializing in participatory design and interaction design and was known to the clinical researcher. Designer 2 was a user experience design practitioner employed by the team; this was her first healthcare project. Designer 3 is an interaction designer with over ten years experience designing for healthcare in the USA and was known to the clinical researcher via shared health technology networks. The HealthMap intervention will be evaluated in a two year Cluster-randomised Trial that commenced July, 2014.

Phase 1

During this early phase of the project the team conducted a number of research activities to generate data in order to inform design. These were planned with input from Designer 1. These data were: a report from Concept Mapping workshops conducted with people living with HIV and Key Informants, KI, e.g. peer support workers, practice nurses, transcripts from semi-structured interviews with 33 PWHIV and 14 KIs, and a systematic review of literature for technology-based interventions to support chronic disease self-management. Project documents such as the original NHMRC grant application were later made available to designers.

Phase 2

The HealthMap technology design activities were scheduled to commence with an eight week Design Intensive mid-2012. Designer 2 joined the team eight weeks prior to the Design

Intensive in order to conduct a second phase of design preparation.

When Designer 2 joined the team she was immersed in the Phase 1 data and began the process of internalizing an understanding of the domains of HIV and of chronic disease self-management. Designer 2's role was to evaluate what preparation was necessary to ensure the Design Intensive could be productive and properly resourced. She investigated how to scope the design focus by evaluating what data were available to inform the Design Intensive, and by identifying gaps in data. This led to planning and implementing design activities with the HealthMap team to create as full a data set as possible to support the Design Intensive, given the ethical and timetable constraints. Her approach was to employ rapid and lean service design tools; these included team workshops to provide a PWHIV Existing Service Map and a HIV Clinician Empathy Map. Designer 2 also created affinity maps for the existing chronic disease self-management programs, and a PWHIV social journey map. She facilitated the technology-use survey creation and distribution and wrote ethics approval applications for forthcoming Design Intensive activities.

She was also immersed in the PWHIV interview data by listening to the audio recordings. The interview questions addressed such topics as: the impact of HIV, interactions with healthcare providers, use of technology, approaches to self-management of health and wellbeing and psychosocial factors. Designer 2's analysis was to identify themes emerging from these topics, especially with regards to motivation, behaviours and potential design touchpoints.

The Phase 2 design research outcomes suggested that a set of personas would be useful and necessary to inform the Design Intensive. At the end of Phase 2 a 90-minute collaborative rapid persona-building workshop was conducted with the HealthMap team, facilitated by Designer 1.

Designer 2 drafted rough personas as an exercise in initial data analysis from her data immersion to prepare for the workshop. This be-

gan a framework of understanding and to attain some clarity around the boundaries between the different patterns that were emerging from the data. These outlines were not presented to the workshop but served as personal internalizing of insights for Designer 2 and enabled her to participate in the workshop from a position of familiarity with the qualitative data.

The 90 minute workshop was facilitated by Designer 1 with the intended outcome of the meeting defined as the ‘Who’ and the ‘Why’ of the design. It was posed that knowing the ‘Who’ and the ‘Why’ would prepare for thinking about the ‘What’ in later design activities. There was a follow-up persona refinement and approval meeting several days later.

The initial concept of personas was introduced to the stakeholders as a means to filter the body of data and their extensive domain knowledge in order to reveal those characteristics, behaviours and contextual features that were most relevant to design. During the course of the workshop the patterns identified from research were grouped into draft personas. Each persona contained a set of user characteristics that reflected the data that are relevant to design. The underlying assumption was that factors that influenced a person’s ability to improve their diet, exercise, self-care or self-efficacy were relevant. In particular these were the data for contextual and personal particularities that shape HIV patients’ attitudes, knowledge and behavior towards chronic disease self-management.

Phase 3

Designer 3 led the Design Intensive. He was co-located with the team during the Design Intensive. The personas were drafted after the workshop and then refined at the beginning of the Design Intensive to allow Designer 3 to participate in their construction and to address any remaining queries. During the Design Intensive Designers 2 and 3 were immersed in the design project as design practitioners and action researchers: exploring the domain and iterating ideas for data gathering and idea generation in

response to the emerging practical needs of the project. Designer 1 participated remotely and co-located on a part-time basis.

During the Design Intensive health research team members participated in design-led activities supporting idea generation and design critiques. Designers synthesized the results of team activities into wireframes and concepts that were then tested with patients and HIV treatment providers.

Direct participation from patients early in the Design Intensive was problematic because of time constraints and ethics approval constraints. Patients were recruited at the later stages of the initial Design Intensive for concept critiquing. Patients were also recruited for a round of usability testing twelve months later.

Results

An early challenge for the HealthMap designers was to harness the domain expertise of clinicians and health researchers directly into design decisions and to build consensus for product development, particularly in regards to introducing academic and clinical researchers to design thinking and design activities. Design practice is very different to formal research disciplines, the modes of discourse and domain values are different, and thus it can be a challenge for designers to demonstrate methodological rigor to stakeholders unfamiliar with design methodology and aims. Although all three designers agreed personas would be appropriate and useful the health researchers were initially uncomfortable with a technique that employed a fictitious and stereotypical treatment of the carefully collected qualitative and other data.

On reflection it became clear that the collaborative rapid persona-building workshop played a key strategic role in bridging the domains of health research and design practice, facilitating the participation of key stakeholders and scoping the HealthMap design. The persona-building workshop had a significant impact on stimulating health researchers’ engagement with the design process and translating the user research

insights into shared, co-created design priorities. It was particularly striking that the workshop only took 90 minutes, yet it was very productive, both for delivering collaboration between health researchers and practising designers and for design project scoping.

The Collaborative Rapid Persona-Building Workshop Transcript

When analysing the transcript data certain patterns were observed revealing the behaviour of workshop participants around individual ‘sense-making’ and collaborative group ‘sense-making’ between team members. Most of these occurred synchronously during the workshop. These behaviours are presented in Table 1 as a Framework for a Collaborative Persona-building Workshop.

In the following discussion we will use the Collaborative Persona-building Workshop framework to analyze the audio transcription excerpts from the workshop. Framework identifying letters will follow the descriptions that contain those behaviours.

Excerpt 1 below shows Designer 2 reflecting on her understanding of the qualitative data and how it relates to a need for a change in health priorities for a type of patient. (A, B,

C) She posits a hypothesis describing a set of patient characteristics. (D, F, G, H) This is to check with domain experts if her individual analysis is valid. (E, F, G) The domain experts recognize the type of patient she describes and map it to their own understanding. (I, J, N, O) They validate and contribute to her description by sharing evidence that validates the patient type and adds detail for motivation and behaviour. (G, H, I, J, L, M, N, O)

Excerpt 1

Designer 2, D2: From the interviews to me there’s a persona who’s reaching retirement age, say 60, recently diagnosed and is not in that financial, *hesitates* is not poor, because they’ve been working, or had their own business or something, they’ve built up their capital, and they’re very high functioning;

Provider, P: That’s a bit like [persona] three, but just older;

Social Researcher, SR: Yeah, yeah

D2: Um, so they’re sort of still living the life of a semi-retired businessman, but they happen to be positive. But, need, because they haven’t been unwell and haven’t had

Table 1. Framework for a collaborative persona-building workshop

Individual Designer Sense-Making (Process of Personal Design Thinking)		Shared Team Sense-Making (Process of Design Thinking Alignment between Team Members)	
A	Pre-workshop analysis of qualitative data to prepare for personas	G	Discussing designers’ assumptions / inferences from data
B	Pre-workshop analysis from tacit knowledge, from data immersion	H	Identifying priorities from the data
C	Filtering data for design work	I	Compiling a shared understanding of the data
D	Synthesis from data and tacit knowledge	J	Articulating the shared understanding of the data
E	Exploring design scope	K	Capturing design values and priorities
F	Seeking further data / testing assumptions	L	Exploring the boundaries of knowledge and scope
		M	Building a framework to guide future design work
		N	Probing assumptions, inferences and conclusions collaboratively.
		O	Initiating project stakeholders to aspects of design thinking.

all those co-morbidities, probably need to be thinking about exercising and what they're eating.

P: You could, I don't know if this comes through, but thinking of that guy he can be a bit obsessive actually, he's quite anxious

D2: OK?

P: Quite anxious, I think of someone like that who's actually been diagnosed for a fair while, but HIV's not, maybe six or seven years or something, but not fifteen or twenty

D2: Yeah, yeah...

SR: post HAART [*Highly Active Anti Retroviral Treatment*]...

P: Yeah, the guy I'm thinking about broke up with his long term partner because his partner just wouldn't stop smoking

Occupational therapist, OT: Oh wow

By exploring these data through the framework for a collaborative rapid persona-building workshop there is a process where highly relevant user characteristics: anxiety, high functioning, disposable income, are able to position the design in relation to project priorities. This Excerpt 1 discussion evolved into the realization that, from the point-of-view of design opportunity, this particular persona was a 'low hanging fruit' for potential behaviour change. However he became a design 'anti-persona' because he was likely to respond to existing health promotion information for lowering cardiovascular disease and the project goals were to reach those patients less likely to engage with mainstream health promotion. (K, M, N, O)

Excerpt 1 is an example of the collaborative sense-making activities: discussing designers' inferences from data, capturing, probing inferences and making collaborative conclusions and initiating stakeholders to design thinking. (F, G, I, J, N, O) In Excerpt 1 we can see the domain experts naturally using storytelling methods, sharing anecdotes to compare and validate Designer 2's suggested persona type. The comments from the Social Researcher and Occupational Therapist support the discussion with affirmation and contribute more knowledge. The tone of the conversation invites

participation and enquiry. (D, F, G, J, N, O) We can see how the affective, social, storytelling mode of persona-building nurtures an open style of conversation. In other parts of the workshop, humour and shared personal experiences of the participants built a rapport within the team. Building personas allowed the designers to share their inferences from qualitative data and reveal to domain experts the designers' grasp of the complexities and realities of life for PWHIV. Through hypothesizing for persona types the designer's empathic understanding was revealed. This empathic understanding gave designers a level of credence that allowed them to enter 'the domain'. This sharing of domain knowledge is also revealed by the designers' comfort and familiarity with the informal ebb and flow of the conversation. Apart from the main substance of the conversation there are the small comments and affirmations that refine the topic and help the team to reiterate together areas of agreement and the direction of decisions. This sharing of domain understanding is a critical component of the collaborative dynamic in building a functional design team.

In Excerpt 2, the conversation is around how the characteristics, behaviours and motivations of users should be clustered and expressed in the personas.

Excerpt 2

D2: I still think from the interviews there's room for another middle-aged to older [*persona*]

P: Older?

D2: yeah, so, [*persona*] number Five, can we define his age a bit more?

OT: We said he has adult kids, he's divorced, so he'd be again in his 60s

P: No, 50s

D2: So before 65, [*persona*] Five is? So [*persona*] Four is 65, [*persona*] Five is?

P: 50

SR: 50? 55?

P: or 50? I just think...

D2: So, kids, divorced, recently diagnosed, so this one here, what's his mental health and social?

P: Do you want us to give you a bit more on social through all of them?

SR: So [*persona*] Three's socially connected

P: Yeah

D2: Yeah

SR: And at some point we need to separate out the socially connected to community connected...

P:...Yeah but we haven't defined, we haven't described that in these personas...So [*persona*] Four is um, I mean clearly [*persona*] Six is not socially connected don't you think?

SR: Hmm, yeah.

D2: Socially isolated.

The health researchers are fully engaged with the process of prioritizing and selecting which examples are accurate and relevant. They are also directing the particularities and nuances that are important and that distinguish one user type from another. E.g., in Excerpt 2 we see the importance attached to a patient's age. For those supporting the health of PWHIV, age (and history of diagnosis) has a number of connotations. It can suggest that a person may have been an activist in the AIDS campaigns of the 80s and 90s, it can suggest that they may have had experiences of close 'positive community' connections, it can suggest that they may have suffered bereavement, it can suggest that they are entering a higher risk group for cardiovascular and other diseases, it can suggest increasing co-morbidities. (C, D, E, F, G, H, I, J, K, L, M, N, O) By directly compiling the personas health researchers are able to process their knowledge into a conduit for design. This is design scoping and requirements gathering in action. The thinking that frames the persona building is: 'What is relevant to design?' For HealthMap this was partly expressed by 'Where are the opportunities for change?' When health researchers apply the framework of building personas, under the guidance of experienced designers, they are able to evolve their understanding of what impacts on design and what are the valuable characteristics of their target user group from a design point-of-view.

Social isolation is an example from Excerpt 2 illustrating how a psychosocial characteristic could impact a user's access to technology. As a team the health researchers and HealthMap designers understand that a simplistic solution like 'let's use Facebook' is not going to be appropriate for users whose social isolation includes an aversion to social media, because they understand the complexity of stigmas and personal experiences that can cause such aversion. This decision making about what technological features may not be acceptable to patients is another example of the persona building process as health researchers participating in design scoping and requirements gathering. This role of health researchers as design decision-makers is a key contribution to constructive collaboration.

During the workshop Designer 1 and Designer 2 were populating matrices drawn on whiteboards outlining the emerging patterns and clusters into specific personas as directed by the participants. This gave a visual representation of the co-analysis and enabled the co-creation of persona features, laying a tangible foundation and creating a persistent artefact for mutual understanding and trust between health researchers and designers in future design activities (See Figure 1).

Industry Experiences

In evaluating the collaborative rapid persona-building workshop as a successful and efficient process for co-analysis and early co-design we need to question how applicable this process is to other projects and other domains. Can the success for HealthMap be predicted for other projects? If so, which projects? Our interviews with five senior practising designers enabled us to compare the HealthMap experience with experiences of other design projects. The designers we interviewed echoed the advice from current literature on the importance of stakeholder participation in initial user research data collection and co-analysis. There were a variety of approaches to using personas, but some points of unanimity.

Figure 1. Collaborative persona drafting

1. Ahmed	African	Straight	40	Entrepreneur	5 years	Works at small shop	Married	Non smoker	Connected to network	Not very well	Can speak up for Kenya. Dismissed several times of migration. But he is in touch with his network. Good connections apart from his network. Trying to get to stage. Not very well interested. He is going always on.
2. Clare	Woman		42	Suburban (wings suburbs)	14 years diagnosed at first pregnancy	Works part-time at local cafe	Looking for children.	Non smoker	Socially connected	Little more with common sense to day	Speaks really during the scene but looking to transition. Grander, husband, poor, web cases.
3. Dom	Gay		45	Urban South West	Recently diagnosed	Working full time	Seeking sex, looking for love, then partner.	Ex-smoker	Very identified social network	Not much money. Not back interested.	
4. Frank	Gay		65	Regional	Long term diagnosed	Retired pensioner					
5. Steve	Not gay		50	Rural		Mini Truck Driver					Mobile phone, but that's about it.
6. John	Gay		55	Suburban			Not in relationship				Not very well, in hospital a bit. Online to connect to have sex occasionally, trying to develop a relationship with partner.
7. Brian	Gay		60			Small business owner		Non smoker			HIV is in the way not part of my relationship. Cyclist. Organic diet. Anxious. Lots of dental work. worried. well. IT guy. Very tech savvy. (Not apps). Elong.

Smokes drugs use 6 medications, not over 1000 per day

In particular opinions on ‘when not to use personas’ were strongly held. These were categorized as not building personas where user research sample sizes were small enough for data analysis to be manageable, and also selecting for the ‘type’ of stakeholder appropriate to persona building. This was defined as either stakeholders who commonly have direct contact with end users, such as customer support staff, or stakeholders who had directly participated in user research or been exposed to the raw user research data. The stakeholder types for whom persona-building is not appropriate were stakeholders who have minimal contact with end users and stakeholders who have not been exposed to project user research.

All designers interviewed were clear that personas were not a substitute for user research or user testing, but rather a ‘container’ for capturing and presenting the insights and priorities achieved through research analysis. They were described as more useful for stakeholder engagement and empathy building than for guiding

design work, although they were seen as useful for eliciting stakeholder priorities. They kept stakeholders focused on the end users during design activities.

All designers developed some sort of artefact to represent the target audience. These often used aspects of fictional character descriptions without comprising a ‘full-blown’ persona, for example, titles describing behaviour. Personas were seen as potentially most useful for projects where a large body of research data was generated.

One designer who works on projects with sensitive user-groups commonly used personas. She employs a very participatory approach to her practice and sometimes engages users in building personas as a design provocation for eliciting their descriptions of lived experiences without it being framed as personal disclosure.

From these results HealthMap as a design project appeared a likely candidate for successful persona building due to the volume of user research data and the complexities of designing

for chronic disease self-management for the HIV positive population and a cluster-randomized trial intervention.

4. How does the HealthMap experience of persona creation compare with experienced industry practitioners?

DISCUSSION

In evaluating the collaborative rapid persona-building workshop four questions will be asked:

1. How does the HealthMap process of persona creation compare with Nielsen’s 10 Step persona creation model?
2. What were the workshop outcomes and impact?
3. How applicable is the collaborative rapid persona-building methodology to other projects and other contexts?

Table 2 is adapted from a poster explaining Nielsen’s 10 Step Process:

How Does the HealthMap Process of Persona Creation Compare with Nielsen’s 10 Step Persona Creation Model?

In using Nielsen’s 10 Step Process as a guide it is apparent that much of the work covered in the early steps occurred during Phase 1 and Phase 2 of the HealthMap design over several months. It is also clear that these steps took place at times concurrently and at times were

Table 2. Nielsen’s 10 step process for persona creation

	Questions	Methods	Documentation
Step 1: Finding the Users	Who? How many?	Qualitative data collection	Report
Step 2: Building a Hypothesis	What are the differences among users?	Analysis, user grouping, identifying, naming user groups	Draft description of target groups
Step 3: Verification	Likes/dislikes, inner needs, values, area of work, work conditions, work strategies and goals, information strategies and goals	Qualitative data collection	Report
Step 4: Finding Patterns	Does the initial grouping hold? Are there other groups to consider? Who are the most important?	Categorisation	Description of categories
Step 5: Constructing Personas	What are the needs and situations?	Categorisation	Description of categories
Step 6: Defining Situations	Questions: Who? How many?	Analysing data for situations and needs	Catalogue of needs and situations
Step 7: Validation and Buy-in	Do you know someone like this?	People who know of the personas critique the descriptions	-
Step 8: Dissemination of Knowledge	How can we share the personas with the organisation?	Posters, meetings, emails, events, campaigns	-
Step 9: Creating Scenarios	In a given situation, with a given goal, what happens when the persona uses the technology?	Narrative scenario	Scenarios, use cases, requirements specifications.
Step 10: Ongoing Development	Does new information alter the personas?	Usability tests, new data collection, feedback	Foundation document, reports from Steps 1-3

Adapted from Nielsen, (2007b) 10 Steps to Personas’ based on the method “Engaging Personas and Narrative Scenarios” by Ph.D. Lene Nielsen. © Snitker & Co. 2007

directly derived from HealthMap domain expertise and the intervention constraints. For example, interviews with PWHIV and KI and the concept mapping workshops with PWHIV and KI incorporated steps 1, 2 and 3. For step 6 the the evaluation points of the future cluster-randomised trial dictated groups with regards to age and cardiovascular disease risk factors. This meant the design personas were going to have to include gay men over 50 and include at least one smoker. Designer 2 employed lean analysis methods to address the questions posed in steps 2 – 6 for her workshop preparation. It is worth observing the value of listening to raw audio data rather than only reading reports or transcripts for data to impact a designer in a meaningful and evocative way. Thereby supporting the designer to internalize the experiences they hear.

The collaborative rapid persona-building workshop included activities from steps 2-7. Two of the participants had been exposed to all the PWHIV audio data, the social researcher who conducted the interviews and Designer 2, while Designer 1 sampled a small number of the interview transcripts. The other participants were drawing on their own domain knowledge derived from many years direct contact with PWHIV, insight into their lives and familiarity with the medical and social research findings in the field of HIV.

The HealthMap stakeholders conducted steps 7 and 8 during the workshop and in the later persona-refining meeting. At times this took the form of Designer 2 posing hypotheses on user types and the participants testing and refining those ideas, at other times participants discussed their views on boundaries between user types and authentic characteristics and behaviours. As co-creators of the personas the HealthMap design team internalized the foundational understanding and construction logic for the personas. For the Design Intensive everyone relevant to design decisions had participated in building personas.

Importantly, for Step 8 the persona artefacts were included in documentation supplied to external vendors, but were not directly discussed.

Step 9 was addressed by the HealthMap team early in the Design Intensive. Idea generating workshop activities identified key opportunity areas and journey touchpoints for PWHIV and healthcare providers. Persona artefacts were present during these workshops and were referred to on an ad hoc basis, mainly by Designer 2, but were not central to discussions.

Step 10, the personas themselves are not commonly employed as artefacts in HealthMap discussions, especially as the design is built into a platform and usability testing becomes a priority. However they have proved a valuable reference, described in ‘Workshop outcomes’ below.

What Were the Workshop Outcomes and Impact?

The outcomes from the personas workshop were to build a shared understanding and agreement around the ‘Who’ and the ‘Why’ for HealthMap design. The ‘What’ was further explored later in the Design Intensive. This ‘Who’ and ‘Why’ were captured in the personas where they continue to provide a useful reminder of the patients’ needs, desires, fears and barriers to successful chronic disease self-management. In this way specific design requirements are founded on the discussion and decisions employed to build personas. This early evidence-based requirements capture is a very useful precursor to functional requirements specifications.

The personas also provide an efficient ‘short-hand’ for discussing further findings and nuances in user research, As user research evolves in the design team personas can provide a reference point for ‘mapping’ new thoughts and discoveries to existing knowledge and priorities. E.g., new observations around the psychosocial effects of HIV on people over time. This effect was expressed as ‘The Retreat’, a phenomenon where small, incremental ‘dying off’ of connections and emotional engagement with the external world lead to a diminishing of trust, connectedness and quality of life. For the designers it was clear that one persona in particular embodied this phenomenon, so while

we were reminded to place strong emphasis on sensitivities around ‘The Retreat’ we knew from the original co-analysis during persona-building that the design had prioritised how people experience this decline into social isolation. See Figure 2 for a sample from a final persona.

How Applicable is the Collaborative Rapid Persona-Building Methodology to Other Projects and Other Contexts?

In our evaluation of the activities and patterns of conversation that comprised the workshop several themes became apparent: a broad pattern of funnelling divergent, distributed information and knowledge into a consensus around the ‘Who’ and the ‘Why’ for design; the emergence of project design values and principles; building rapport, relationships and consensus which produced a team-based ‘ownership’ of the HealthMap design.

The transformation from divergent to convergent understanding is well described in design research literature. The British Design Council, (n.d.) describes this as a process that moves from discovery and definition to development and delivery.

We place the persona-building exercise in the ‘define’, ‘Who’ and ‘Why’ phase, which would lead to the ‘develop’, ‘What’ phase. In reflecting on the workshop dialogue we use the perspective of the designers’ role to describe emerging from the discovery phase, user research into the define phase. We pay particular attention to the transformation of distributed health researcher knowledge and designers’ working assumptions into a shared set of explicit design values and decisions.

Kouprie and Visser’s (2009) four stages of empathy can also be applied to the persona-building workshop. They define the four stages as: discovery, immersion, connection and detachment. The original user research,

Figure 2. HealthMap persona extract

	<p>Clive, 65, Gay – Support Seeker</p> <p>Pensioner / Casual Book-keeper, \$30,000/year, lives in East Benteigh</p> <p>“If I could find a local gay fitness group I could join that, but I’m not sure how to find one.”</p> <p>Goals – Do some voluntary work, I’m tired of focussing on me, I’d like to get involved in something worthwhile and meet people – Find a local gay fitness group, I need discipline to exercise</p> <p>Fear – Becoming elderly and frail and having no-one to support me</p>
<p>HEALTH ISSUES Diagnosed mid-80s</p> <p>High cholesterol High blood pressure Chronic back pain Chronic joint pain Poor sleep patterns Depression</p> <p>MEDICAL TREATMENT</p> <p>ARVs - good adherence Anti-inflammatory - good adherence Anti-depressants</p>	<p>Clive’s History</p> <p>In 1994 Clive’s partner died after being together for twelve years. Clive was devastated and his life fell apart. He couldn’t work, he got ill and he lost most of his friends because of his extreme grief. It was hard for others to be with him. He got his life back together with the help of HIV positive support organisations.</p> <p>Technology Habits</p> <p>Clive mainly uses the internet for sports news. He follows hockey and cycling, and he loved the Olympics. Clive wants to participate in group fitness, but is stuck for lack of information. He doesn’t trust the internet for social or gay news. “I tried one of those chat sites once, it was horrible. Never again”. He doesn’t trust the internet for HIV information. He checks his email regularly in case of work, but that’s its only purpose.</p> <p>Exercise and Wellbeing</p> <p>Clive’s two fox terriers are his constant companions. He talks to them and loves their</p>

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data gathering and analysis comprise the first three stages with ‘detachment’ matching the reflective and idea generating activities of the persona-building workshop.

The Framework for a Collaborative Persona-building Workshop derived from the workshop transcript data captures the dynamics of the workshop. This framework and the observations made from the transcript excerpts echo Faily and Flechais’ (2011) Persona Cases Technique based on Grounded Theory. Their assertion that collaborative argument is the tool by which validity of personas is tested and verified is demonstrated in the HealthMap experience.

How Does the Healthmap Experience of Persona Creation Compare with Experienced Industry Practitioners?

It was clear that the HealthMap design project did not equate to the ‘typical’ design project usually tackled by small to medium-sized user experience design agencies. The volume of highly complex data, the highly specialized domain and the requirement to build an intervention for a cluster-randomized trial were distinguishing factors that set HealthMap apart from many design projects. However it was also clear that the large volume of data, the highly specialized domain and the need to induct health researchers into design practice were project elements that suggested building personas was an appropriate and effective design tool. In particular the suitability of the HealthMap health researchers’ close and lengthy relationships with the PWHIV population made them suitable persona-building workshop participants.

It is not clear from these comparisons how the collaborative rapid persona-building workshop would have performed with a larger and more heterogeneous design team.

Limitations

HealthMap is only one case-study, the workshop success may have been a product of successful personal dynamics, the small number of participants, the volume of user data and the skills level

of the two designers. The collaborative rapid persona-building workshop will need reiterating and testing by the HealthMap designers with other domain experts to validate its methods.

Persona creation has been described as more art than science (Schulz & Fuglerud, 2012). Like all design tools it is only as sound as the maturity and skills of the designers employing it. Personas therefore are vulnerable to flimsy construction and inappropriate deployment. It is recommended that small scale practice of persona building be exercised before attempting to implement them in large projects. This also applies to the process of collaborative rapid persona-building.

Recommendations

We recommend further exploration of collaborative rapid persona building as a methodology for early, foundational stages of health design projects distinct from the later dissemination of persona artefacts in scenarios and stakeholder communication.

CONCLUSION

It is evident that the HealthMap design benefitted greatly from the processes and discussions that comprised the collaborative rapid persona-building workshop. This methodology provided an efficient and comprehensive vehicle for reaching an agreed understanding around the details and experiences that directly affect PWHIV with regards to their ability to manage the chronic diseases of ageing.

The workshop also allowed the team to collaborate on setting the design scope and early design goals, creating shared values around how the design was envisioned to support patients and establishing a collaborative and productive team dynamic.

Several factors known to be necessary for successful personas were at play: specifically the volume and richness of the user research data and the ‘assumption testing’ nature of the workshop conversation. Health researcher

engagement was supported through the storytelling nature of the workshop conversation.

As industry and research practice move towards low fidelity ‘lean’ and ‘agile’ methodologies we suggest collaborative rapid persona-building as an appropriate process for user research analysis and design collaboration. As healthcare systems seek to harness broad sociotechnological ecosystems in delivering healthcare, and as we seek to support patient and healthcare staff engagement, reliable processes are needed to identify and address potential barriers and opportunities.

More case-studies are needed to understand how feasible this methodology is and how it can be adapted by designers to fit with their chosen tools.

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