Justice-Oriented Ecologies: Working to Design Digital Technologies With Sex Work Support Services

Newcastle University

Angelika Strohmayer

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Abstract

Sex Work Support Services and Charities are turning towards the use of digital technologies to support their work. At the same time, researchers in HCI and associated fields are starting to work more closely with Third Sector Organisations (TSOs) and grassroots communities to design digital technologies for service delivery and activism. In this dissertation, I provide work that sits alongside other justice-oriented research in HCI, to address the need for more meaningful and useful digital interventions in this space by developing a conceptual framework called Justice-Oriented Ecologies. This framework brings together Fraser's ideas of multidimensional justice and Nardi and O'Days Information Ecologies; where technologies are seen as part of the ecology of service delivery, rather than solutions to socio-technically, socio-culturally, and socio-ethically complex issues.

I apply this framework to two UK-based sex work support services. After a pilot study to develop implications for design, I carried out three projects that explore (1) the development of an improved version of an asynchronous peer-alerting tool; (2) the crafting of the Red Umbrella Archive, a living archive of service users' experiences of a day of commemoration; and (3) the collaborative sewing of The Partnership Quilt, an interactive hybrid-craft artefact to support service user wellbeing.

By using Participatory Action Research and Research through Design methodologies, I was able to participate in the projects alongside other researchers, developers, as well as service users, staff, and volunteers. Together, we explored the processes involved to produce these novel interventions through workshops, interviews, and a variety of creative and craft-based activities. These varied pieces of information were analysed through the development of booklets, quilts, and pieces of writing that ultimately transform into thick descriptions of each of the projects in this dissertation.

Through the use of Justice-Oriented Ecologies, I was able to conceptualise the use and development of these digital interventions from a holistic perspective – in a way where the digital was interwoven with service delivery, political and ethical standpoints, as well as notions of care and wellbeing. In

this way, I develop vocabulary for HCI researchers to better articulate the ways in which they work with sex work support services and other TSOs, and to better understand the ways in which design processes and digital artefacts sit within the ecologies that we as researchers join when working collaboratively with partners.

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Chapter 1

Introduction

In Chateauvert (2013)'s Introduction to *Sex Workers Unite: A History of the Movement from Stonewall to SlutWalk*, she presents a shrewd description of the activist sex worker identity, an individual who fights for the rights to engage in sex work:

> Sex workers are fierce fighters because their jobs demand perspicacity, persistence, and a kind of emotional ruthlessness in order to succeed. These skills have also made them canny political activists, contrary to the stereotype of disempowered victims in need of moral rescue.

While the popular focus of sex worker rights activism may be on the decriminalisation of the industry, the day-to-day activities of this work may often look different. For example, these might include more defensive and reactive types of activism aiming to achieve modest goals (Aimee et al. 2015). Adding to this, some sex workers say that "they'd rather be respected than legal" (Chateauvert 2013). Working alongside these activists, there are a number of support organisations who engage in everyday activities to support and sustain this activism. Some of these services are led by non-sex workers, but some are peer-led organisations. Organisational strategies in these grassroots communities or more formalised organisations include aims to reduce the risks of doing sex work (Aimee et al. 2015, Neame & Heenan 2003). This may include creative approaches to public advocacy in challenging whorephobia (the oppression of sex workers) and slut-shaming (criticizing individuals, often women, for their sexual activities) (Chateauvert 2013), or services that are more directly linked to harm reduction (Aimee et al. 2015).

Alongside these grassroots groups, statutory organisations and charities can also provide different services for sex workers. For example sexual or

mental health care is provided through the National Health Service (NHS) in the UK. In the UK specifically, there has been a focus on multi-agency working which has resulted in safer work environments, for example in Wales (Sagar 2007). While statutory services are public organisations, charities commonly work independently, but also alongside, governmental and private services (Hansmann 1980, Salamon & Anheier 1992). These services focus their work in highly specialised spaces that have previously been left unattended by state and private sector organisations (Hansmann 1980), deliver diverse types of specialised services, and are heterogeneous in organisational structure and nature (Salamon & Anheier 1992). They are generally seen to play an important role in society (Marshall et al. 2018), and their "very existence indicates a substantial need for [their] model of service delivery" (ibid.). HCI research has a history of working with charities and other non-profit organisations (see e.g. Clark et al. (2013), Dimond et al. (2013), Le Dantec & Fox (2015)), as well as with the engagement of marginalised communities (see e.g. Le Dantec & Edwards (2008*a*), Woelfer & Hendry (2011*a*)). This has developed in recent years to include digital civics (Corbett & Le Dantec 2018) and working with grassroots organisations as research partners (Erete & Burrell 2017). In 2018 colleagues and I brought together researchers working in this space in a workshop titled 'Untold Stories: Working with Third Sector Organisations' (Strohmayer, Marshall, Verma, Bopp, McNaney, Voida, Kirk & Bidwell 2018) to better understand the existing project and literary landscape, to develop a more unified understanding of charities across HCI, and to support and encourage the growth of a community of practice. One of the things that we learnt in the workshop, and that also became clear as I was exploring the literature of this growing body of work, is that there seems to be a lack of understanding of the relationship between charities and social justice, as well as methodological, ethical, and practical considerations for designing technologies in the space.

Exploring this work beyond HCI literatures allows me to begin to bridge these gaps in HCI. Through the use of literatures related to multidimensional justice (Fraser 2008) or nuanced understandings of sex work and service delivery (see eg.Laing et al. (2018) or Roberts et al. (2013)), I am able to build a deeper understanding of these spaces and the ways in which they interact. For example, through research (and service delivery), all the involved actors portray a certain kind of work and theoretical-political perspective that is tied to experiences, political standpoints, relationships to others, among a variety of different factors. Throughout this dissertation, I aim to explore the ways in which interdisciplinary literatures can support HCI's understanding of working and designing with third sector organisations by looking specifically at the ways in which service delivery and research can support sex work

support services in the UK.

Particularly in sex work support services, the research landscape is often linked to moralities of the work the organisations do, the types of services they provide, or the funding streams through which they are able to do their work. Since charities function in a space where neither the for-profit nor governmental organisations provide services (Salamon & Anheier 1992), their service delivery is intrinsically tied to the politics the charity promotes. Particularly when working with sex workers, a highly politicised community, providing certain types of services can then become a political act (Chateauvert 2013). On one hand this can be seen as the development of a prefigurative politic (Strohmayer et al. 2019) where justice is enacted, but may on the other hand also lead to media backlash in spaces where sex work is stigmatised. The former-CEO of National Ugly Mugs (a national sex work support service), addresses this in his 2015 Huffington Post Article titled *Why the Third Sector Must be Political* (Feis-Bryce 2015):

> In our area of work, ending violence against sex workers, most politicians are blinded by either ideology or ignorance or both. The work we do makes us an authority on the issue and with that comes a responsibility to advocate for change. If our mission is to improve the safety of sex workers how can we remain silent when policies are introduced that will harm them?

Following this, I explore the kinds of services that can be designed by researchers, designers, or other HCI practitioners with sex work support services to work within this political space; to support the mission to improve safety for sex workers, or perhaps more widely to support the fight for the right of existence, protection, and labour of sex workers.

Looking towards sex work research literatures, any service delivery (digital or non-digital) should as such be designed in accordance with evidence-based public health approaches, and therefore should centre the agency of sex workers (Grenfell et al. 2016). One way of doing this can be through the provision of harm reduction services. These types of services can be seen as "the practice of human rights philosophy" (Chateauvert 2013), and as such engender and implement human rights politics of sex work. Rekart (2005) provides a high-level description of the ways in which harm reduction services can transform risky environments, harm, diminished quality of life, and vulnerability of sex workers into supportive environments with reduced harm. In these harm reduced spaces for sex workers, this can lead to improved life quality as well as the subsequent empowerment for sex workers. For Rekart, this involves sex workers leaving the industry, but when taking a sex worker positive feminist and social justice-oriented approach (see

Chateauvert (2013), Nagle (2010) and chapter 2 for further details), I would argue that this kind of 'harm reduced' (Rekart 2005) space would also enable sex workers to continue to earn money through this job in a safer way – where social, political, and legal safety nets are in place in case something goes wrong. On top of these immediate harms, sex workers are also subject to judgement and stigmatisation (Cunningham 2015). Large research projects, such as The Student Sex Work Project (Sagar & Jones 2015) for example, include elements of anti-stigma work as part of their core work. Researchers have done this in a variety of ways, such as through training and policy work, engagement with activist marches (O'Neill 2012), or other forms of awareness raising. Policy advocacy and policy change can lead to more legal protection of sex workers or semi-systematic approaches to improving sex workers' safety through anti-stigma work.

On top of these institutional or semi-systematic approaches to improving sex worker safety through anti-stigma work, the importance of self-care can also play an important role. Audre Lorde, civil rights activist and poet stated that: "caring for myself is not self-indulgence, it is self-preservation, and that is an act of political warfare." (Lorde 2017, 130) Particularly in sex work, a job that encompasses so much emotional labour (Sanders 2005) self-care becomes invaluable and an element of harm reduction. On top of this, the emotional work involved in activism is well documented, making self-care an important aspect also for sex workers rights activists and allies (Brown 2009).

In this manuscript, I bring together all of these aspects of harm reduction, stigma busting, and self-care related work through participatory action research (PAR) projects. By exploring the processes involved in developing these digitally supported spaces of service delivery, advocacy and activism, as well as promotion of self-care and emotional wellbeing, I am able to develop implications for HCI. These implications relate to PAR projects working collaboratively with politically motivated, or implicitly political organisations who make use of digital technologies. Below, I provide information on the research questions before providing a brief overview of the methodology, contribution, and structure of the rest of the dissertation.

1.1 Research Questions

This work relates to the following overarching research question: *How can digital technologies be collaboratively designed, developed, and appropriated with and within sex work support services to promote multidimensional justice for their service users?* To answer this question more precisely, I will

answer the following sub-research questions (SRQ) in different chapters of this manuscript:

1. What conceptual framings help us better understand the role of 'sex work support services' in the promotion of multidimensional justice?

2. In what ways can research methods in and of themselves support service providers and users to move towards a space that is more just?

3. What ethical and methodological considerations do we have to take into account as HCI researchers when working to design, develop, or appropriate digital technologies with, in, or for sex work support services?

I understand the 'design' of digital technologies as the process involved in the production of the idea of this technology. It includes the research to understand the context I design within, as well as the processes to develop the ideas, create sketches, diagrams, or in some cases early prototypes. This is described through thick descriptions in the ways in which the new Digital Ugly Mugs system was developed (see chapter 6), as well as some elements within The Red Umbrella Archive (see chapter 7), and The Partnership Quilt (see chapter 8) projects.

With the 'development' of digital technologies with charities, I mean the process involved from having an idea to implementing this. This involves activities such as making the technologies, coding, and testing. In my broad view of 'development', this also includes things that may not traditionally be seen as part of the technical development, but that become incredibly important when working to design digital technologies with and for charities to use beyond the lifespan of my involvement in the project. These include things such as discussions on Intellectual Property or Service Agreements (see chapter 6), as well as more practical things such as the storage of physical and digital artefacts.

Finally, I define 'appropriation' as the use of existing technologies in novel contexts. This includes research involved in understanding the ways in which NUM have appropriated the use of readily available, off-the-shelf technologies to facilitate their organisational goals (see chapter 4), as well as the ways in which novel technologies developed by other researchers can be appropriated for different uses in novel context (see chapter 7 and 8).

Based on interdisciplinary literatures and motivations, I argue that digital technologies can be used in diverse ways to support existing service delivery, facilitate novel interactions with the service itself, and to promote the services' advocacy work for sex worker rights. In this dissertation, I want to

explore different ways this could be done. To do this, I worked on a pilot study and three explorations within two organisations to design, develop, and appropriate digital technologies with, in, and for their organisations. I reflect on the research processes involved in these to develop vocabulary for HCI researchers in similar spaces.

I answer the first of my SRQs directly in chapter 2, where I build a theoretical framing for the work described throughout this manuscript. First, I try to better understand the role of justice-oriented digital technologies in third sector organisations and sex work support services specifically by applying Bonnie Nardi and Vicky O'Day's framework of Information Ecologies (Nardi & O'Day 1999) to the relevant literature in HCI. Second, I apply Nancy Fraser's ideas of multidimensional justice (Fraser 2008) to historied and contemporary understandings of sex work. Third, I directly answer SRQ1 by bringing these disparate theories and application areas together to develop the conceptual framework I have called Justice-Oriented Ecologies (Strohmayer, Laing & Comber 2018) where digital technologies are part of the wider ecology that is moving towards a more just world.

The second SRQ will be answered in several places throughout the dissertation. First, it will be addressed in chapter 3, where I go into detail of the ways in which Participatory Action Research (PAR) and Research through Design (RtD) can be helpful in understanding how research methods can support service providers and users directly. The four chapters that follow (4, 5, 6, and 7) will provide detailed descriptions of the ways in which I applied these methods to my pilot study and three explorations to design, develop, or appropriate digital technologies in two different organisations delivering services to sex workers.

In chapter 8, I will provide an answer to the third SRQ by reflecting on the research processes presented previously. In this way, I develop vocabulary for HCI researchers to better be able to discuss our work within the framework of Justice-Oriented Ecologies. Discussions on the ways in which the framework can help us understand the work taking place within the ecology can also assist us in learning more about the ecology as a whole. Through this, I discuss various ethical and methodological considerations HCI researchers should consider when working in such spaces.

The stories of the use of digital technologies are exploratory in nature and do not aim to evaluate the effects of digital technologies as solutions to societal, legal, and cultural justice issues. Rather, they function as a starting point for qualitative explorations into potentialities for digital technologies to support the building of novel interactions to interpret, record, and reflect on existing structures. As such, this dissertation does not set out to solve a problem. Instead, it sets out to develop a model for reciprocal and

participatory research design when designing technologies with sex work support services specifically, and charitable and third sector organisations more broadly.

To explore various different ways in which digital technologies can function in sex work support services, I first dive deeply into the service delivery of a national sex work support service in the UK to develop implications for technology design in the space. After this, I explore the ways in which digital technologies could support three different types of service delivery in detail: Ugly Mugs Schemes, International Day to End Violence Against Sex Workers, and the archiving of service delivery. With these individual explorations, I hope to provide detailed accounts of the ways in which digital technologies were either designed or used in these three different types of service delivery. By looking in detail at these three exemplary (and very different) types of service delivery, I will develop an over-arching discussion, extrapolating this into wider debates of research ethics and methodology.

1.2 Methodology

Below, I provide a brief overview of the methodology I have applied throughout the dissertation. I expand on this in chapter 3, where I address the ways in which this fits within the conceptual framing of Justice-Oriented Ecologies, as well as detailed descriptions of the data collection, action processes, and data analysis.

Puig de la Bellacasa (2011) says that "ways of studying and representing things can have world-making effects". Based on this, I believe that research processes can, and do, have effect on the spaces they are being carried out in. Especially when working with charities, this should not be taken lightly. Based on this, instead of designing projects that aim to study in detail what is happening to understand existing processes, I designed projects that actively embrace the possibility of having these 'world-making effects' Puig de la Bellacasa talks about. As such, Participatory Action Research (PAR) became an integral element of the research.

Beyond this, I also focused on the tangible design of digital technologies in and with sex work support services. Particularly in the three explorations, the work described functions as RtD, where the design process in and of itself is seen as the research process. The design processes helped my understanding of different types of service delivery in sex work support services. The design work encompassed various forms of data and data collection, and the active participation in the design processes and events surrounding these processes was as much a method for the building of understanding as transcripts

from interviews and audio recordings, field notes, pictures, or survey data.

I engaged in collaboration with two charities: National Ugly Mugs (NUM), and Changing Lives' Girls Are Proud and Male Action Project (GAP/MAP). I carried out a pilot study with NUM, who are a national charity whose aim is to end violence against sex workers. Following this I carried out one exploration with them, and the two other explorations with GAP/MAP, a local project that supports sex workers, people who have been sexually exploited, and those engaging in survival sex, within a national charity. I developed varied research projects with both of these charities, that resulted in the implementation of digitally supported projects that were embedded in their service delivery.

This dissertation is deeply qualitative and generative by nature. It aims to understand through designing, and to design through understanding; developing a dialogue between design work and participant and researcher-participant action that is underpinned in contextualised knowledges of sex worker rights and justice for sex workers. While not directly addressing justice debates surrounding sex worker rights in the explorations, this entire dissertation is based in supporting the fight for sex worker rights; to support sex workers in carrying out their work in a way where they are protected by labour laws, have the ability to report crimes committed against them, to be believed when making these reports, and to the right to personal emotional wellbeing. While not necessarily explicitly stated, each of my case studies addresses one of these concerns implicitly in designing technologies to support services that either directly advocate for sex worker rights and the decriminalisation of the industry (eg. the red umbrella march), by designing digital technologies to support personal wellbeing and the archiving of experiences of service delivery (eg. the partnership quilt), or that deliver safety information to reduce harm for sex workers (eg. digital ugly mugs).

To work in this way, I foreground collaboration as an integral part of the research process in itself. This is achieved by promoting the importance of multiplicity and reflexivity in research practice, and presenting tangible actions and design work that developed from and through this collaborative and reflexive design process. This methodological framework manifests in a collaboration with two charities in the UK and is based on the embeddedness of myself, the technologies, and the research in existing service delivery.

The projects were developed collaboratively between charity staff, service users, volunteers, board members, colleagues in Open Lab, and myself. Throughout the work described in this dissertation, I have worked alongside sex workers, sex worker rights advocates, and support services that deliver services to further criminal and social justice processes and outcomes with and for sex workers. Since this work is located in an inherently political

space, the methodologies I have applied become politically meaningful and privilege imagery and symbolism used by sex workers and their allies.

1.3 Contributions

Due to the collaborative and interdisciplinary nature of this dissertation, the work presented contributes both to academic debates and direct service provision of charities. Subsequently some of the work will have had, and in some cases will continue to have a lasting impact in peoples' lives. As such, my contributions of this work are threefold: (1) I have developed a conceptual framework for HCI researchers working to design digital technologies with and in third sector organisations; (2) I have developed vocabulary to be able to better communicate the kinds of work researchers engage in when working with charities and to better understand the conceptual framing; and (3) I have supported existing service delivery and developed novel interventions with two UK charities, directly impacting on the lives of their staff, volunteers, and service users.

While this novel understanding of the research space has academic implications for researchers working in and across various disciplines related to sex work research such as criminology, sociology, or social work, the focus and main contribution of this work relates to HCI and design research. By bringing together Fraser (2008)'s ideas of multidimensional justice and Nardi & O'Day (1999)'s Information Ecologies (IEs) I develop a novel conceptual framework for working with, in, and for Third Sector Organisations (TSOs), called Justice-Oriented Ecologies (J-OEs). In this conceptual framework, it is the relationships between people, values, and tools that are of importance. After providing three explorations of projects in which technologies were either designed, developed, or appropriated to make change in the J-OEs they were developed in, I also provide a reflection on the ways in which this framework was useful for these projects. In doing this, I develop vocabulary to understand the different ways in which we work within the J-OE, as well as different ways in which we are working to learn about these to better design more meaningful digital technologies.

The pilot study and three explorations outlined in this dissertation not only contribute to academic debates, but also facilitated activities in, with, or for service delivery of collaborators and their networks. Outcomes of the projects not only have direct outcomes such as improved wellbeing of service users (see Appendix A.4), but also more indirect outcomes such as the continued impact in the lives of sex workers who are members of NUM and those who receive alerts of dangerous perpetrators and situations from and

through NUM. Another invisible outcome is, for example, that service users of the GAP/MAP project have learnt a new skill for emotional wellbeing, and have begun to document their histories through archival practices of International Day to End Violence Against Sex Workers and their involvement with service delivery through The Partnership Quilt. On top of this, staff and volunteers of these organisations who engaged with the projects have been up-skilled by learning more about their services and the ways in which they can better use digital technologies in the future.

1.4 Dissertation Structure

The rest of this manuscript is dedicated to answering the research question and sub-research questions as outlined above. While the structure of the dissertation may allude to a linear research process, I want to make clear that the work that is described below did not occur chronologically. The understanding of the research space was not a distinct phase of research, but rather was part of the design process. The process of designing technologies was also not always linear with clear distinctions between the different phases of design. While I strove for authenticity and candid reporting in my articulations of this work, I have also re-structured the chronology of activities to provide a process that is more easily followed and cleaner to discuss.

In Chapter two, I provide a theoretical framing for this dissertation by developing the concept of Justice-Oriented Ecologies (J-OEs). I do this by bringing together Fraser (2008)'s ideas of multidimensional justice and Nardi & O'Day (1999)'s IEs. Contextualising this theory with interdisciplinary literatures related to justice-oriented HCI, technologies in TSOs, and sex work, provides a grounding for the rest of the disertation.

In Chapter three, I address methodological consideration I have taken into account while carrying out the research. This is structured in a way that describes the PAR and RtD process I went through to understand and design within J-OEs.

Chapter four provides an analytical account of my pilot study. Here, I provide findings from the holistic evaluation of services I carried out with NUM in 2016 as a grounding for the three explorations that followed. Using this empirical work, I develop three implications for design when working with sex work support services in the UK.

Chapter five addresses the findings from the first exploration. Here I provide a thick description of the design process involved in developing the new administrative systems for NUM. In this chapter, I foreground the importance of developing a shared language to be able to develop meaningful

technologies.

In Chapter six, I provide an analytical account of International Day to End Violence Against Sex Workers in Newcastle in 2016 and 2017. I first provide analysis of the ways in which technologies and artefacts were used by GAP/MAP during the activist march. In the second part of the chapter, I address the living activist archive we developed together: The Red Umbrella Archive. I particularly address the ways in which both of these activities developed between 2016 and 2017.

Chapter seven provides findings from the last of the three explorations: The Partnership Quilt. I develop a detailed account of the process involved in making the quilt, particularly addressing some of the invisible organisational work that was needed, as well as the ways in which the quilt facilitated discussions on sex work in new spaces.

In Chapter eight, I bring together the findings across the pilot study and the three explorations. In doing this, I reflect on what I learnt about working within the J-OEs, and what I was able to learn about these J-OEs by doing so. Here, I reflect on the literature and methodological considerations I developed at the beginning of the manuscript, and the findings from the empirical research. In doing this, I develop novel vocabulary to be able to better articulate methodological concerns when working in collaborative and participatory ways to design digital technologies with sex work support services, and TSOs more widely.

I conclude this manuscript in Chapter nine. Here, I re-articulate the research questions outlined above, and provide an overall answer to the main question. After this, I also address the different kinds of outcomes and impacts the work described in this manuscript has had, as well as some of the limitations of this work. I end the chapter with a look into the future, by addressing some research areas I would like to further investigate.

Chapter 2

Background and Related Work

> It is not a statement that is controversial to me because as a trans woman of color who grew up in low-income communities and who advocates, resists, dreams and writes alongside these communities, I know that underground economies are essential parts of the lived realities of women and folk, [...] I know sex work to be work. It's not something I need to tiptoe around. It's not a radical statement. It's a fact.
>
> Mock (2017)

2.1 Introduction

In this chapter I answer sub-research question 1: *What conceptual framings help us better understand the role of 'sex work support services' in the promotion of multidimensional justice?* I do this, by providing a conceptual framework for the design of digital technologies with sex work support services. First, I define sex work and provide an overview of some of the most prominent theoretical and legal debates surrounding this work. As part of this, I also provide a more localised understanding of the ways in which sex work is understood in the UK. With this section, I hope to provide context about sex work and sex work in the UK, to better understand the reasoning behind some of my political, ethical, and methodological choices throughout the dissertation. After this, I begin to build a conceptual framework by going into more detail on the ways in which HCI has worked with Third Sector Organisations (TSOs) before addressing ideas of justice in and for this space. Following on from this, I provide an overview of literatures relating to TSOs and HCI, focusing on sex work support services specifically. While there

are many different ways in which 'justice' can be made manifest with and for sex workers (eg. policy work, reduction of stigma, or improved working conditions, only to name a few), in this manuscript I will focus on the ways in which improved service delivery can facilitate positive outcomes for sex workers. To do this, I provide a reading of what some have called 'justice in practice' (Chateauvert 2013) – harm reduction – before providing some examples of how service delivery can take place among and for sex workers. Keeping this in mind, I see these TSOs as Information Ecologies (Nardi & O'Day 1999) and address some of the ways in which they move towards a more just world through their actions.

The final section of this chapter brings together the two previous sections to build the conceptual framework I referred to in the introduction, and base the rest of this dissertation in. I combine Fraser (2007*b*, 2008)'s theories of justice and Nardi & O'Day (1999)'s theory of Information Ecologies to develop the concept of Justice-Oriented Ecologies (J-OEs) . After an introduction to this framework that details the ways in which charities function as J-OEs, I address the ways in which using them allows us to engage in meaningful design processes, where the focus is not on the outcome but rather where the process is seen as equally (if not more) meaningful.

A Caveat: Defining Sex Work

While acknowledging academic and social debates related to sex work, I do not aim to engage in the debate of the morality of sex work in this dissertation. I also make a point in the kinds of literatures I choose to engage with throughout the dissertation: focusing on sex worker positive literatures (though this does not necessarily equate with sex work positive literatures), justice oriented sex worker literatures, as well as academic and non-academic literatures written by sex workers. I do this because abolitionist literatures often use moralist arguments of sex work that frames this occupation only as violence against women. From a justice-oriented perspective on sex work however, this abolitionist stance dehumanises and objectifies sex workers, creates an unrealistic dichotomy of the female sex worker and male client rather than acknowledging that people of all genders buy and sell sexual services, and diverts attention away from human rights, labour rights, and ultimately violence prevention.

Sex work is typically understood to be the exchange of a sexual service for pay between consenting adults. The kind of work can be carried out in different contexts, and can relate to different types of labour. This might include full-service sex work (the exchange of sexual intercourse for pay), but may also include other types of body work (e.g. intimate massage), the

provision of particular intimate encounters (e.g. the girlfriend experience, where money is exchanged for the experience of having a 'girlfriend' which may or may not include sex or bodily contact), non-contact sexual services (e.g. virtual sexual encounters such as phone sex, chat, or web-camming), or other erotic experiences such as stripping, fetish work, or domination.

The term 'sex work' was coined in 1987 by Carol Leigh (2010), who was also known as 'Scarlot Harlot'. In her 2010 book chapter titled *Inventing Sex Work*, she tells the story of the creation of her contribution to feminist language:

> The usage of the term 'sex work' marks the beginning of a movement. It acknowledges the work we do rather than defines us by our status. After many years of activism as a prostitute, struggling with increasing stigma and ostracism from within the mainstream feminist movement, I remember the term 'sex work', and how powerful it felt to, at least, have a word for this work that is not a euphemism. 'Sex work' has no shame, and neither do I.

With this term, she not only started a movement, but also offered a viable alternative to the commonly used 'prostitute'. This term stems from the Latin word meaning "to offer publicly" (Leigh 2010) rather than referring to the purchase and sale of sexual services, and carries a variety of stereotypes and stigmas.

The purpose of this section is to show the complexity of the academic space, and again, to provide context rather than theoretical analysis. From a reductionist point of view, sex work can be seen simultaneously as a "deviant activity and sexual slavery" (O'Neill 2001). O'Neill has brought together varying viewpoints of feminists in relation to sex work and sex worker rights in her monograph titled *Prostitution & Feminism.* As part of her analysis she developed a dichotomy of feminist perspectives on sex work ranging from one that sees sex workers as victims of exploitation, to the other where sex workers should have the same rights as other workers.

These are only two out of a myriad of positions on sex work. Often, standpoints of individuals, groups, and communities are much more complex and varied. For example, from a different theoretical perspective, sex work has also been seen to be a response to socio-economic needs that is both understandable and reasonable. Alexander (2010) provides a detailed history of sex work and human rights, bringing forward the distinction of what is seen as a human rights violation by different communities: she claims that for antiprostitution feminists prostitution in and of itself is a violation of

human rights – focusing only on women. This is contrasted with the point of view of those in the sex worker rights movement: where it is the state repression of sex workers that is seen as a human rights violation (ibid.). These perspectives are further complicated, for example, in the candidly written *Revolting Prostitutes: The Fight for Sex Workers' Rights* by Juno Mac and Molly Smith (Mac & Smith 2018).

To further explore the links between feminism and sex worker rights, I look at Laurie Bell's introduction to *Good Girls / Bad Girls: Feminists and Sex Trade Workers Face to Face* which came out of the Canadian conference titled *Challenging Our Images: The Politics of Pornography and Prostitution* that was organised by sex worker and non-sex worker feminists at the height of the 'sex wars' in 1985 (as seen in Nagle (2010)):

> Sex workers "maintain that it is the definition of feminism that must change in order to include both good girls and bad girls, not they who must conform to a good-girl image so as to be considered feminist. Sex trade workers claim, in effect, to be feminists in exile; excluded from a rightful place in the feminist movement, they demand to be recognized as members of the women's community. As one prostitute remarked, 'Feminism is incomplete without us.'

Following this publication, Pheterson (1993)'s *A Vindication of the Rights of Whores* was published in 1989 to represent a more global and historical perspective on sex worker rights activism where sex workers were seen as "insiders to feminism" (ibid.) as opposed to the 'guests' as they were seen in Bell's book from the Canadian conference mentioned above (Nagle 2010). Many publications have been written by sex workers since in the form of academic and non-academic books, blogs, academic articles, and others (see eg. Aimee et al. (2015), Mac & Smith (2018), Nagle (2010)), which continue to develop more nuanced understandings of the complexity of experiences sex workers have, as well as more nuanced and dialectic debates of various different feminist perspectives on sex work.

For the purpose of this dissertation I define sex work as the work carried out by an adult who is over the age of 18 who is engaging in the consensual exchange of sexual labour for things of monetary value (which may or may not be only money). As such, sex work is the consensual exchange of sexual labour for compensation between consenting adults. As I wrote in 2017, "Sex workers' rights are human rights, and as such are an issue inherently based in social, criminal, and political justice debates" (Strohmayer et al. 2017). Sex workers may have other jobs alongside their exchange of sexual

services (Bowen 2015), or may also be students (Sagar & Jones 2015). What I mean to say with this, is that sex workers will, like all people, have multiple intersecting identities and will navigate these carefully in online as well as offline spaces.

2.2 Third Sector HCI

HCI is currently questioning its role in discussing what is 'good' (Pal 2017). Alongside literature that is addressing questions as to whether there is such a thing as 'CHI for Good' (ibid.), others say HCI is in a state of existential crisis (Light et al. 2017). These meta-conversations about the discipline as a whole sit alongside developments relating to the process of engendering social change (Dombrowski 2017), designing with marginalised populations (Björgvinsson et al. 2012) and justice-oriented HCI more broadly (Dombrowski et al. 2016, Fox et al. 2016). As part of this, as well as other research foci, researchers are engaging with charities and others who support people through civic (Asad & Le Dantec 2015) storytelling (Wånggren 2016), and other technologies. Based on this shift, HCI researchers are acknowledging the necessity of addressing the needs of people and organisations (Le Dantec & Fox 2015) as a community. This has manifested in some calling to take responsibility for researcher participation in studies (Suchman 2002), while others forefront the recognition of both the visible and invisible work needed to produce technical systems (Akama & Light 2012, Borning & Muller 2012, Le Dantec & Edwards 2008*a*, Suchman 2002, Vines et al. 2013). Often however, the focus of this invisible work is on researchers rather than those with whom we work and/or support. This can be seen to remove the agency and contributions of other stakeholders in research processes, which are particularly important to recognise in justice-oriented work (and perhaps particularly when framing justice as multidimensional (Fraser 2008)). While the involvement of partners is often acknowledged (see eg. Le Dantec & Edwards (2008*b*), Thieme et al. (2013), Vines et al. (2013)), the relationships between researchers, participants, and gatekeepers are rarely studied in depth (Maudet et al. 2017). I address this issue below through the use of Information Ecologies (Nardi & O'Day 1999).

2.2.1 Third Sector Organisations as Information Ecologies

Nardi and O'Days framework of Information Ecologies (IEs), claims to use technologies "with heart" (Nardi & O'Day 1999). In their description of

IEs, they draw similarities between, but also make very clear distinctions to, biological 'ecologies'. Using this framework, the digital tools, values, and people who make up the ecology become actors in the system to develop change. They argue that seeing these technologies as tools (things made to be used by an individual), text (a form of communication where its meaning can be reinterpreted in different different social situations), or systems (a complex systemic perspective of the pervasive influence of technologies in our lives) separately is inadequate as none of these metaphors provide an understanding of the transformational change that is possible with the support of digital technologies. Instead, bringing these different metaphors together (and merging their particular benefits into the metaphor of an ecology) is powerful because it includes the importance of local differences, while also capturing the strong interrelationships of the social, economic, and political contexts in which technologies are used and invented (Nardi & O'Day 1999).

An IE is defined as "a system of people, practices, values, and technologies in a particular local environment" where "the spotlight is not on technology, but on human activities that are served by technology" (Nardi & O'Day 1999, 49). Further to this, the authors provide five key elements that characterise an ecology: system, diversity, coevolution, keystone species, and locality (ibid.). There is a strong interrelationship between the different moving parts that make up the ecology, making any change that occurs systemic (ibid). This means that when a change is made in one aspect of the ecology, this will impact on the different ways in which the ecology functions as a whole. Furthermore, there is a diversity of people and tools that make up these ever-changing systems. In a healthy IE these diverse sets of actors complement one another to support an on-going coevolution of the ecology. This means there are dynamics at work within an IE that constantly evolves "as new ideas, tools, activities, and forms of expertise arise in them" (Nardi & O'Day 1999, 52). This relates directly to how charities and academia may change when working together.

For this kind of ecology to work however, Nardi & O'Day (1999) argue that people within it must be prepared to participate in its development. Looking at the ways in which digital technologies are developed when TSOs and academia work together however, I would also argue that it is not only the people who must be prepared to participate in this development, but that resources, funders, policies, and wider contextual information available also need to be part of this evolution.

Despite the importance of diversity and everyone's involvement in the coevolution of the system, Nardi & O'Day (1999) also place value on a mediator, whom they call the keystone species. This is a person whose contributions are often "unofficial, unrecognized, and seemingly peripheral" when relating

them to the most obviously 'productive' aspects of an ecology. In a way these keystone species often perform invisible work in organisations and research projects (eg. organising events or providing peer support). The introduction of new tools however becomes a success through their support (ibid). While the work this person carries out may be unrecognised, they must still make up part of the locality that is within the ecology as "only participants of an information ecology can establish the identity and place of the technologies that are found there." (ibid.) As such, the habitation of the technology (and arguably the keystone species) relies on an understanding of the complex network of relationships of actors, values, and practices that are localised in a particular space and/or context.

Seeing research spaces where we design digital technologies as IEs suggests "people act locally in a committed, reflective way that acknowledges technique [...] to respond with initiative that is grounded in local understanding and values" (Nardi & O'Day 1999, 56). Nardi and O'Day give various examples of spaces that function as IEs in their book, providing a novel perspective on the work that is carried out in spaces such as libraries, online, or among gardeners. Their focus on the often-unseen aspects of the work carried out in these spaces has also inspired work in TSOs. For example, Woelfer has explored the IE of a homeless shelter for young people (Woelfer et al. 2009). In this work, she has carried out an analysis of the digital and non-digital artefacts and information services such as leaflets and maps, providing a discussion on the ways in which information is shared and produced in this community. What is missing in this short piece of work however, is an in-depth exploration of the IE and the ways in which novel artefacts or information services could not only be implemented but co-designed with the community. While she does provide information on the ways in which maps were drawn by and for the young people in the centre, a more in-depth analysis of technologies in ecologies beyond implications for design would be useful. Bødker et al. (2017) do this, and provide an in-depth analysis of an artefact ecology in volunteer organisations, leading to reflections on methodological concerns of understanding the dynamics in artefact ecologies and how they are shaped by social interactions surrounding these technological artifacts, particularly in everyday situations.

As can be seen in both of these examples and as anyone who has worked in or with a TSO will know, TSOs are made up of a multitude of information services. As outlined by Woelfer (Woelfer et al. 2009), they bring together information that is useful for service users about the service of the organisation, but also of services that are provided by other organisations in the area. Looking more at organisational practice, Bødker et al. (2017) provide an overview of the ways in which the ecologies in which volunteer organisa-

tions operate and evolve over time, showing the variety of information and work that is incorporated into the IEs of such organisations.

In both of these examples, information is used sustainably, constantly, and in a multitude of different ways. Some technologies however, while they may be initially requested by an organisation, may not be adapted for long-term use (Dow et al. 2017). Within an IE however, we should strive to be coevolving (Nardi & O'Day 1999). On top of this, Dombrowski et al. (2016) postulate that when working with justice-oriented interaction design, we should strive to design for just sustainabilities. This relates to justice-oriented technologies being sustainable in their use within the organisation. I wonder however, whether seeing the technologies we design with organisations as IEs can help us in designing these kinds of sustainable projects? Can we work to first understand, become part of, and ultimately design in the IE to incorporate meaningful technologies into TSOs? To answer some of these and other questions of how we have worked with TSOs in HCI, colleagues and I organised a workshop at CHI 2018 (Strohmayer, Marshall, Verma, Bopp, McNaney, Voida, Kirk & Bidwell 2018). In this workshop, we discussed three areas of working with TSOs: (1) the ways in which this kind of work impacts the third sector; (2) the ways in which it impacts the research itself; and (3) the ways in which it impacts us as researchers and people.

Collaborating with charities has been a useful endeavour for HCI researchers working in sensitive spaces. Working with homelessness charities, researchers have explored young people's experiences of and relationships to digital technologies (Rice et al. 2012, Woelfer & Hendry 2011*b*) and social media (Rice & Barman-Adhikari 2014), informal learning networks that support adults experiencing homelessness (Strohmayer & Comber 2015) or have attempted to improve the communication between staff and service users at a shelter (Le Dantec 2010, Le Dantec & Edwards 2008*b*). Other examples where HCI researchers have developed relationships with charities include the development of personal digital artefacts with women who have experienced domestic violence (Clarke et al. 2013), the participatory mapping of domestic violence services (Bellini et al. 2019), or explorations into how digital technologies can support people through the Alcoholics Anonymous programmes in the US to support their sobriety (Yarosh 2013). Often the aims of these, and other projects in HCI relate to the design of digital technologies. However either directly or indirectly the goal of the collaboration is often to reach service users of collaborator-gatekeepers. Detailed descriptions of the processes involved in these projects may be complex, but are rarely described in papers.

There are however also examples of HCI projects where researchers collaborate with charities to engage with organisational practices rather than

to develop tools for service delivery. For example, open data from charities has been used to construct narratives to build cases to support charities with grant applications (Erete et al. 2016). Others have worked to explore volunteering support within organisations (Voida et al. 2015) or the development and use of feedback systems (Dow et al. 2016, 2017). Another aspect of HCI working with TSOs has explored more infrastructural requirements of charities (Voida & Amy 2011, Voida et al. 2012) as well as opportunities for accountability and transparency (Fox et al. 2016), or infrastructural requirements of charities (Light et al. 2017, Marshall et al. 2016).

What is interesting in all of these projects however, is that the political nature of this kind of HCI research is rarely directly expressed. This lack of discussion of politics when working with charities can lead to the underdevelopment of technologies for advocacy in TSOs. Of course, there are some papers that explore the use of digital technologies for activism and advocacy (for example Asad & Le Dantec (2015)), community-driven work, or social justice-related issues (for example Dombrowski et al. (2016)). There are however only few papers that describe work where researchers have supported charities in their advocacy work directly, and therefore recognise the need for the Third Sector to be political (Feis-Bryce 2015). There may be many reasons for this, but it may relate to the aforementioned assumption that a charity is apolitical, and simply 'fills a gap' in service delivery (Frumkin 2009, Hansmann 1980). Having said this, there is a growing body of work related to overtly political research spaces within a variety of contexts such as street (Dimond et al. 2013, Wånggren 2016) or workplace (Bellini et al. 2018) harassment, the thematic of genocide awareness (Durrant et al. 2014), or domestic violence service provision (Bellini et al. 2019, Clarke et al. 2013). I believe my work with Sex Work Support Services sits alongside these politically oriented projects, while also expanding the space to include more explicitly political standpoints when working with stigmatised communities.

Particularly when considering sex work support service delivery, and looking at the use of digital technologies beyond HCI literatures, we can see some different uses of technologies to the traditional design-oriented HCI work. For example, the Student Sex Work Project (Sagar & Jones 2015) can shed some light on the ways in which service delivery and research can come together, and how technologies can help facilitate this. In this research project, it was part of the programme to deliver services such as online counselling with a sexologist or through Netreach (online outreach services). Even though the researchers that led this project worked not only with TSOs but also public bodies, there are many things that I can learn from them. For example, we can see that with appropriate resource-allocation, research can become meaningful beyond its research-purpose; it can become a tool for community-

building, advocacy work, policy change, or direct service delivery (Sagar & Jones 2015).

Working with IEs provides us with many opportunities of engaging in meaningful and useful work with TSOs, but it also provides us with risks that are arguably bigger than if we framed technologies in simpler ways. As mentioned above, making a change to one part of an ecology has a systemic effect on the rest of the ecology (Nardi & O'Day 1999). This means that when implementing a digital technology within an ecology, this will also have effects throughout the entire IE, not just with those with whom we are designing, deploying, or appropriating digital technologies directly. This opens a number of practical and ethical questions. In this manuscript, I will tackle some of these concerns implicitly throughout the exploratory chapters (4, 5, 6 and 7) and more explicitly in chapter 8.

Using IEs provides us as researchers, staff and volunteers of TSOs, activists, or service users with the opportunity of discussing and implementing the incorporation of digital technologies beyond traditional HCI techniques and implications for design. Instead, working in this way allows us to work towards deeper understandings of the meaning of technologies in service delivery. When designing technologies (or producing implications for design), this kind of work allows us to work towards just sustainabilities (Dombrowski et al. 2016) and systematic organisational change. Working with a nuanced understanding of organisations that we develop by exploring TSOs as IEs, also supports the building of meaningful and useful technologies rather than technologies that succumb to technological solutionism.

2.2.2 Service Delivery for Sex Work Support Services

In this section, I focus on the ways in which service delivery for sex workers has integrated the use of digital technologies. After a brief overview, I provide more detailed information on two kinds of service delivery: peer alerting services and activist archives. Service delivery such as this provides an aspect of harm reduction related to empowerment.

Looking to HCI literatures, we learn that researchers have developed a phone broadcasting system for urban sex workers in Bangalore, India, to improve the outreach work of Non-Governmental Organisations (Sambasivan et al. 2011). Another example from Zambia shows technologies were used to collect fingerprints of sex workers to simplify access to personal health records (Wall et al. 2015). Instances when technology design was considered in support services such as these, show that technologies are seen as tools to inform sex workers about health concerns or even to track them for personal health-related reasons. Seeing service providers as agents of justice however,

means that this is not enough. Instead digital technologies designed in these spaces should strive to support sex workers in diverse ways; they should promote justice, autonomy, and rights (Strohmayer et al. 2017). Thinking of technologies in these interconnecting ways has the potential to produce fertile grounds for innovation. This is shown, for example, in the ways in which digital technologies are being applied by sex workers and allies in the fight for the recognition of their rights. For example, intercultural activism, storytelling, public performance art, and other forms of visual art have been used to raise awareness about issues faced by sex workers, but also to publicly fight stereotypes associated with sex work and sex workers (Chateauvert 2013). Seeing technologies as part of these creative uses could be useful. Here, I focus on two particular forms of service delivery that also engage in rights-focused work: systems that alert sex workers about potentially dangerous people and situations; and activist archives. By looking at these two different areas of service delivery, I address two different but connected facets of violence: (1) in-situ prevention of physical violence and the challenging of false narratives and (2) normative understanding of sex work as related to systematic state violence.

One example of a peer-led service that has been incredibly successful through the dedication and energy that the movement exudes, are 'ugly mugs' lists or schemes. Allegedly, these originated in Australia in the 1980s when the Prostitutes Collective began writing notes that outlined details of 'ugly mugs' or dangerous people they encountered while working[1]. Arguably though, they were developed by many groups of sex workers in different ways to inform one another in different context specific ways across the globe (Strohmayer et al. 2019). These 'ugly mugs' notes developed into lists, booklets, or hand-outs utilised by sex worker led, and non-sex worker led support and harm reduction organisations. As technologies developed, sex workers also began building online communities and used social media to inform one another about these 'ugly mugs'.

While these types of peer-exchange leaflets are common across the world, the name for these may vary in different countries or organisations. For example, 'dodgy punters boards' are a common occurrence in the UK where 'ugly mugs' reports are printed out and pinned to a board that is accessible to sex workers in drop-in centres. In Montreal these are known as a Bad Client and Aggressor List (Strohmayer et al. 2019). In the UK, there is a particularly unique service for sex workers that utilises digital technologies to facilitate the sharing of, not only localised information on potentially dangerous people and situations, but also to share information on a national scale. After years

[1]As described on the National Ugly Mugs website: https://uknswp.org/um/about/

of organising by the UK Network of Sex Work Projects (UKNSWP) the National Ugly Mugs Scheme (NUM) was launched in 2012. In 2016, this scheme turned into a charity in its own right which now employs multiple full-time and part-time member of staff. They make use of digital technologies to not only share locally important and life-saving information about potentially dangerous individuals, but also archive reports sent to them, support sex workers in going through the criminal justice system if they choose to make a police complaint about their situation, anonymously share information on these incidents with police (when they have consent from the reportee), and carry out training. Perhaps most importantly however, their use of digital technologies allows them to share information about travelling perpetrators. By archiving their reports, they are also able to discover patterns of perpetrators, and would be able to research the ways in which violence committed against sex workers would be affected if there were to be changes to the laws.

Technologies can also be used for less direct services, such as the reduction of stigma (Strohmayer et al. 2017), and the process of archiving can support rights movements. For example, one way of storing and acknowledging different types of activism and support work, is to archive this information. There are only very few official sex work-specific archiving projects, but sex work support services and sex worker rights advocates are very active researchers, authors, bloggers, and website developers. An example of an international archiving project led by sex workers is the website of the Global Network of Sex Work Projects[2], where sex work projects from around the world share resources, information, and publications. Another example of an online archive in this space is the map of global events that take place to commemorate International Day to End Violence Against Sex Workers (IDEVASW) hosted by the Sex Work Outreach Project. One of their aims is to sustain a unified presence for the commemoration, and a way of doing this is to develop a crowd sourced archive of events held on (or around) the day. As mentioned previously, archiving also relates to ugly mugs reports, and NUM in the UK in particular.

Freeman (2007) states that "people who possess a written history in our society are accorded a different level of respect from those who lack one." Following on from this point, recording and archiving these written (but also oral) histories become acts of resistance, community (Sellie et al. 2015), and sharing of lived experiences. While there are examples of written and oral histories of sex work, as well as archives (for example SPREAD Magazine or the UKNSWP specialist collection), these are rarely funded or supported by official bodies and instead rely on donations, volunteers, and dedicated

[2]See here for more information: https://www.nswp.org/

teams of sex workers and allies. There is however a growing community of researchers and charities who engage in activities surrounding the development of good practice guidance or carrying out research projects to work with and alongside existing sex worker organisations (for example Sanders et al. (2018)). In the UK, this information is stored in a specialist collection housed at the University of the West of Scotland[3]. Furthermore National Ugly Mugs are partners on a number of different research projects in the UK, and in Canada the Sex Work Database (Ferris & Allard 2016) collects and collates documents surrounding sex work from across the country within an anti-violence and sex worker positive framework, and use collaborative methods.

2.3 Justice

Looking at service delivery in as much detail as above allows us to reflect more deeply on its meaning, as well as its role in relation to wider debates of justice. There are many theories of justice that address different aspects and frameworks for exploring not only what justice can look like for different communities, but also what this justice means and how it can come about. In this chapter, and ultimately this manuscript however, I focus on Nancy Fraser's framework of justice. I do this, because her framework provides a "perspectival dualism between recognition and redistribution as two conceptual axes of justice" (Lara & Fine 2007), meaning it offers the unique opportunity to question (1) what justice looks like and (2) who it is for - which is a particularly useful way of looking at justice when considering marginalised, stigmatised, and criminalised communities. In later works she re-visited her theories to add a third layer to the framework to develop her multidimensional post-keynesian frame of justice (Fraser 2007*a*). With this addition to her conceptualisation, researchers are also encouraged to ask (3) who gets to decide on the frame-setting for the two previous layers. Again, when working with stigmatised communities, and particularly when seeing TSOs who support them as constantly evolving IEs (Nardi & O'Day 1999), this is invaluable as it allows us researchers to question our own perceptions of 'justice' and to instead listen to and learn from our participants. In my projects in particular, it provides me with a frame where I am able to conceptualise justice in an applied way, with insights and learning from those who are affected by justice debates. On top of this, it also becomes helpful when analysing data and the kinds of research methodologies I employ (see chapter 3 for more details on this).

[3]See here for more information: http://www.specialcollections.uws.ac.uk/uknswp.asp

Fraser (2008) postulates that movements struggling for recognition in localized settings increasingly look for collaborations and partnerships beyond the 'territorial state'. This correlates to how sex worker rights activism works: sex worker rights advocates throughout the world are linking their struggles against local oppression under the umbrella of 'sex worker's rights are human rights' (among others) to campaign for reform in international (rather than only national) law (Chateauvert 2013). To be able to link up their work, sex workers use creative forms of public advocacy (Aimee et al. 2015) and make use of a variety of metaphors and symbols.

For example, the Red Umbrella is an international symbol for sex workers' rights that is often included in the actions taken on IDEVASW. It was initiated at the 49th Venice Biennale of Art in 2001, as a symbol of resistance to discrimination for sex workers. The Red Umbrella was recognised as such by the International Committee on the Rights of Sex Workers in Europe (ICRSE) in 2005 after its previous unveiling in Venice. It was used by Tadej Pogacar, a Slovenian artist who collaborated with sex workers, to create the "Prostitute Pavillion" and CODE: RED art installation in 2001. As part of this installation, sex workers marched along the geography of a social history of sex workers in the city, using red umbrellas and megaphones to draw attention to the bad working conditions and human rights abuses they continue to face (International Committee on the Rights of Sex Workers in Europe (ICRSE) 2015).

The International Committee on the Rights of Sex Workers in Europe (ICRSE) (2015) explains the choice of symbolism in a blog post on their website:

> Red is a color of beauty and an umbrella is the resistance to sky's and humans' attacks. It symbolizes protection from the abuse and discrimination faced by sex workers everywhere but it is also a symbol of our strength. Continuing this tradition and in honour of all sex workers who dare to resist oppression everywhere, the ICRSE adopts the red umbrella as a symbol of sex worker rights.

Since then, the red umbrella has been used by various organisations, charities, and groups to symbolise their sex worker friendliness and/or to express their support of the fight for sex workers to live free from harassment. One event in particular however makes use not only of the symbolism of the red umbrella, but also the way it was introduced to the world: the red umbrella march. This march is often used as part of the commemorations on December 17th. This day marks IDEVASW. It was initiated by Annie Sprinkle and

her colleagues at the Sex Workers Outreach Project USA (SWOP-USA), an American sex worker rights organisation. The march was initiated in 2003 as a response to the Green River Killer, Gary Ridgeway, who confessed to having murdered 90 women in the Seattle area in the US in the space of 27 years. In a public letter, Annie (Sprinkle n.d.) writes:

> When Ridgeway was finally caught, I felt a need to memorialize my whore sisters that had died so horribly and needlessly. I cared, and I knew other people cared too. So I got together with Robyn Few, Founder of the Sex Worker Outreach Project, and SWOP members Stacey Swimme and Michael Fowley, and we claimed Dec. 17th as the International Day to End violence Against Sex Workers.

At the end of the same blog post where the ICRSE describe the symbolism of the red umbrella, they ask us to share the imagery of the red umbrella publicly. In her public letter, Sprinkle (n.d.) calls on us all to "Start organizing now!" because "we will be glad if we do", signing off "In whore pride solidarity" (ibid.).

These calls have been heard and are acted upon every year on December 17th as well as various other days of remembrance and action throughout the year by various different international, national, and local rights organisations, groups, and allies. On top of this, partnerships for campaigning were created not only across territorial borders, but also across different movements (eg. women's, LGBT+, or labour movements (Chateauvert 2013)).

As there are changes in territorial and campaigning spaces, arguments about justice also change and may "assume a double guise" (Fraser 2007*a*). On one hand, justice continues to concern itself with *first-order* questions of substance: e.g. How much economic inequality does justice permit, how much redistribution is required, and according to which principle of distributive justice? What constitutes equal respect, which kinds of difference merit public recognition, and by which means? On the other hand however, in today's globalized world, different questions also start to become important. These *second-order*, or meta-level questions (Fraser 2007*b*) relate to: e.g. What is the proper frame within which to consider first-order questions for justice? Who are the relevant subjects entitled to a just distribution or reciprocal recognition in the given case?

Because of this shift in justice debates, the ways in which we explore justice theories also needs to change (Fraser 2007*a*,*b*) – theories must become three-dimensional (Fraser 2008): to incorporate (1) political dimensions of representation; (2) economic dimensions of distribution; and (3) cultural

dimensions of recognition. This means we need to explore different aspects of how we define and enact justice – to explore (1) what justice looks like; (2) who it is for; and (3) who defines the answers for the first two questions.

2.3.1 Sex Work and Abnormal Justice

Fraser's three-dimensionality of justice is particularly important in relation to sex work, as this is a space that is politically, economically, and socially stigmatised; not to mention partially criminalised in the UK. As such, it could be seen as 'abnormal justice' as Fraser (2008) describes in her book titled *Scales of Justice*. This aspect of justice is one where what can be seen as just, may not be the mainstream understanding of justice. In other words, where the political dimensions of representation and economic dimensions of redistribution do not line up with the cultural dimension of recognition. In relation to sex work, this means that the institutional understanding of justice (as represented by laws and policies) is different to the ways in which those who are affected by these laws and policies (sex workers) understand justice. As such, legal (institutional) frameworks of what *justice* is are not accepted by sex workers. For example, there are political debates surrounding the *best* way of creating laws and policies related to sex work. These focus on laws and policies, particularly surrounding which legal frameworks would 'work best' in particular countries. Regardless of which legal framework sex workers are working in however, the focus of governments and support services should be to make the lives of those who work in the industry safer. Currently however, many countries are in a state of *abnormal justice* where laws and policies do not act in the way that those who are affected by them see as just. For example, in England and Wales sex work is legal within certain constraints. It is legal to sell and purchase sexual services, but some aspects of the work carried out by people in the industry are prohibited.

In England and Wales, legal frameworks relating to sex work are gender neutral and follow a regulationist system. This means it is legal for individual consenting adults to both provide and pay for sexual services in private spaces (Hubbard 2011). Despite it being legal however, there are many regulations in place that make the industry invisible or that make it difficult for sex workers to work safely. For example, the exchange of sex for money is only legal in 'private spaces', which implies that the exchange must occur away from public view (Hubbard & Sanders 2003). This can result in a number of constraints for sex workers. For example, 'soliciting for the purposes of prostitution' and 'loitering' are illegal and may make sex workers working in this way vulnerable to Behaviour Orders or fines (Release 2017). Furthermore, working alongside others or having support from other

staff (such as maids, security, or receptionists) also violates the law (ibid.). This regulationary system has been evidenced to be harmful for sex workers (Pitcher & Wijers 2014) as it forces them to choose between breaking the law or working in what have been found to be safer modes of work. For example, working together or with other staff that may be able to protect sex workers from potentially violent people posing as clients, or indoors where sex workers are safer from verbal and physical abuse from passers-by and weather. Further to these sex work specific laws however, abnormal justice is exacerbated through a number of other laws that also affect sex workers. For example, immigration laws play a large role in sex worker rights movements (SWARM 2018). Particularly in the uncertain times of the Brexit negotiations in the UK, the rights of EU migrants are put into question, making migrants engaged in sex work even more vulnerable to deportation than they have previously been. While I do not have space to go into intricate detail of the ways in which immigration and other laws affect sex workers, I wanted to make it clear that when exploring legal debates surrounding sex work, we must look beyond the implications of the laws that directly affect sex workers, and explore intersectional approaches to legal justice.

What I hope to show with this description of England and Wales' legal systems is that what is institutionally seen as *just* is perhaps not seen as such by those who are affected by these laws. Even though the criminal justice system may see it as *just* to regulate sex work in this way, sex workers advocate for a different frame-setting for sex work. Alexander (2010) states that, just like in other hazardous work sites such as coal mines or textile and garment industry factories, regulations should be put in place that brings prostitution and sexual labour "above ground." Further to this, sex worker activists have been working towards improved working conditions, and to oppose all forms of coercion for people entering, or already in, the industry for decades (Nagle 2010). In a recent UK survey answered by 218 sex workers in the UK, 96.2% responded that the purchase of sexual services from consenting adults should not be criminalised. 67.3% stated they would prefer a system in which sex work is decriminalised, and only 2.4% of the sex workers wanted to see demand-side prohibition where the client of sex workers is criminalised (Laing 2016*a*).

In a system where sex work is decriminalised, workers are seen as labourers that have the same rights and responsibilities as other workers. This mirrors Alexander (2010)'s interpretation of the sex worker rights movement as seeing state repression of sex workers as a human rights violation. On top of this, sex worker led rights organisations as well as a number of internationally renowned human rights groups have collated various pieces of evidence to advocate for the decriminalisation of the sex industry (see eg. Amnesty

International (2015), Laing (2016*b*)).

In January 2015, an inquiry into prostitution law was launched through a Home Affairs Select Committee (HASC) in England and Wales. After consultations from various stakeholders, including sex workers and former sex workers, as well as NUM and academic researchers, the interim report was published in July 2016[4]. This report recommended that soliciting should be decriminalised and that any previous convictions or cautions should be removed from sex workers' records. Furthermore, the report also supported the notion that sex workers should be able to work together and in off-street spaces to improve their safety. Following the report and its welcomed reception from sex workers, sex worker rights advocates, and allies, there have been calls for full decriminalisation of the sex industry in England and Wales. This was lauded as a move in the right direction to reforming abnormally just (or in this case, they were seen as unjust) systems by sex worker rights activists and allies.

From a different point of view, working within this frame of abnormal justice means that it is not only sex workers that are affected, but also those who work to support them, such as Public Health bodies or TSOs. Often however, TSOs are seen as apolitical. Their existence as service providers who fill the gap left by both the public and private sector (Hansmann 1980) however makes them political in and of themselves – in a way, they perform a kind of 'tacit activism' or prefigurative politic (Strohmayer et al. 2019). Similar to this, Rekart (2005)'s framework of Harm Reduction, Dombrowski et al. (2016)'s ideas of justice-oriented interaction design and Fraser (2008)'s multidimensional justice also bring to the forefront the importance of justice-oriented work when collaborating, working with, for, or in communities that are oppressed in different ways.

Dombrowski et al. (2016) focus in particular on the ways in which we design technologies to work towards more socially just worlds. They write:

> The recent growing interest in research related to large scale social issues underscores the imperative to heed more general calls for HCI researchers and designers to ask not only what is technologically possible, but also how to design ethically, responsibly, and with accountability - and to thoughtfully consider whether design is even an appropriate intervention in a given situation.

In this paper, they address important aspects of what it means to design in social-justice oriented ways, and draw out three specific things HCI

[4]Information on this as well as the interim and final report of the inquiry can be found here: https://www.parliament.uk/business/committees/committees-a-z/commons-select/home-affairs-committee/inquiries/parliament-2015/prostitution/

researchers working in this space should commit to: "a commitment to conflict, a commitment to reflexivity, and a commitment to personal ethics and politics" (ibid.). Several years later, I build on their conceptualisations of justice when designing digital technologies. I do this by reflecting on the ways in which a sex worker led rights organisation in Canada, Stella, l'amie de Maimie, use digital and non-digital technologies to facilitate aspects of restorative justice, and to work towards rectifying the 'abnormal justice' (which can be seen as injustice) through "tacit activism" (Strohmayer et al. 2019) in their service delivery, and when contesting legal structures (for example *Canada (Attorney General) v. Bedford Bill* (2013)). From this project, I developed three implications for design: (1) that we need to meaningfully and holistically contextualise digital technologies in historical, legal, and cultural contexts; (2) that there need to be multiple ways of accessing specific kinds of information, and that digital access is only one of these; and (3) lastly that technologies should not be seen as solutions to complex issues.

Despite the historically strained relationships between sex workers, criminal justice systems, and enforcement services of these systems, individuals and sex worker collectives have developed methods of enhancing their safety and wellbeing. For example, they use peer-to-peer reporting systems, screening processes of clients through, for example, sex worker only groups online, or the sharing of information about potentially dangerous clients. Despite recent political shifts in some services towards the support of 'exiting' the sex industry, changes in policing, and funding cuts to services, some specialist services continue to work towards systems of integrated care and provide case management for this "marginalised and dynamic" group of people (Grenfell et al. 2016).

2.3.2 Justice in Action: Harm Reduction

Another way of putting into practice some of the learning related to justice-oriented service delivery for sex workers is to work in a way that is harm reduction-focused, which has been called a 'human rights approach in action' (Chateauvert 2013). Originally stemming from drugs services where there is an understanding that reducing harm from drug use rather than eliminating drug use altogether (Marlatt 1996) is of importance, harm reduction is beginning to move into other types of services such as sex work support. The crux of harm reduction relates to the reduction of harm to an individual who is engaging in what can be seen as 'harmful' behaviours, with the goal of changing this behaviour. It is not only a type of service delivery, but also a moral ethos of care (Rekart 2005). This framework has been adopted by sex work support services across the UK and internationally.

Rekart (2005) details a framework for service delivery for sex workers, which he calls *Sex Work Harm Reduction*. In this framework he outlines a multitude of harms that sex workers are subject to such as drug use, disease, violence, debt, criminalisation, or exploitation. Across these harms, he focuses on the ways in which they relate to HIV/AIDS to later outline a framework for the reduction in harm. In the paper however, he also provides a list of personal coping strategies of sex workers that are "based on personal knowledge, tradition and culture, experience, and future plans" (ibid) where he talks about strategies such as "prioritise positive roles, such as motherhood", "dissociate emotionally and physically from work and clients" or "use antibiotics before and after sex", among others (ibid). This last point in particular shows the forward looking attitude that comes along with harm reduction service delivery as in 2019, there are still discussions surrounding the human rights aspects of access to Pre- and Post-exposure prophylaxis (PrEp and Pep) for sex workers and other communities at 'high risk' of HIV infection despite its evidenced success (Youle & Wainberg 2003). Furthermore, Rekart (2005) outlines key principles for "effective HIV interventions in diverse sex work settings". These include, among others, principles such as respecting sex workers' rights to privacy, basic dignity, and life experiences, or the recognition that "sex workers are usually highly motivated to improve their health and wellbeing, and that sex workers are part of the solution" (ibid).

As part of the acknowledgement of personal coping strategies and the importance for the rights of sex workers and non-judgemental approaches to service delivery, Rekart (2005) provides seven strategies for sex worker harm reduction: education, empowerment, prevention, care, occupational health and safety, decriminalisation of sex workers, and human-rights-based approaches (ibid). As can be seen from this list, and as I will expand on below, there is a strong relationship between harm reduction and rights, which ultimately is part of the fight for justice for sex workers. In Rekart (2005)'s model, harm reduction service delivery provides an opportunity for sex workers to move away from what he calls the 'predisposed' state of sex workers where they work in risky environments that lead to harm, which ultimately can lead to a diminished quality of life and vulnerability. He draws this as a cycle that leads to the amplification of each of these aspects of the framework. Through harm reduction techniques however, he argues that a different amplifying cycle can be achieved: where sex workers can operate in supportive environments, that lead to reduced harm, improved quality of life, and empowerment. Working within this positive cycle will enable sex workers to work and live healthier lives. Arguably, this is applicable beyond HIV/AIDS and could relate to other non-sex-related physical and mental

health concerns as well as personal wellbeing, creating a more holistically healthy space for sex workers.

Rekart (2005) also adds that this cycle of positive reinforcement can enable sex workers to eventually leave 'prostitution', making this the ultimate goal of harm reduction for his framework. While his framework is very useful for the design, deployment, and evaluation of digital technologies in service delivery with sex work support services, I would argue that based on my contextualisation of sex work and sex worker rights previously, the ultimate goal of these technologies should not be for sex workers to leave the industry. While many sex workers have 'exit strategies' (Ham & Gilmour 2017), these should not be imposed on them by service providers or anybody else. Instead, technologies should reinforce the positive cycle of improved quality of life, empowerment, supportive environments, and harm reduction (Rekart 2005) while also acknowledging their right to work and the importance of improved working conditions (Connelly 2014). They should lead to a world where sex workers are able to carry out their work without the threat of violence.

Similar to Rekart (2005), HCI research has often focused on healthcare-related research when working to design digital technologies for sex work service delivery. Despite Rekart's focus on harm reduction for HIV related health concerns and the focus on healthcare service delivery for sex workers in HCI, this framework is also applicable in other aspects of service delivery. For example, outcomes of large research projects surrounding sex work aim to develop resources for sex workers or sex work support services to provide tools for harm reduction. For example, the Beyond the Gaze (Sanders et al. 2018) project focuses on internet sex work, developing guidelines for sex work support services and other service providers on how to best incorporate services for this particular aspect of the sex industry, as well as information for sex workers directly on how to stay safe online. Another project, called TransActions, focuses on the experiences of service provision in the UK from the point of view of sex workers who have a trans history or identify as non-binary (Laing et al. 2018); and the intersection of whore- and transphobia that they have called Transwhorephobia (Jones et al. 2017). This project aims to draw from these experiences to educate service providers in how they can make their trans healthcare service provision more accessible to sex workers and how sex work support services can make their service delivery more accessible to trans people. Both of these projects aim to improve services with and for sex workers, focusing on two very specific groups in the sex industry (online workers and trans workers, respectively). In a way then, they aim to deliver ways of reducing harm caused to sex workers, even if this is not necessarily explicitly stated in their project aims.

2.4 Justice-Oriented Ecologies

Working in TSOs, particularly sex work support services that function in a socio-politically complex space, the importance and value of justice-oriented service delivery (such as harm reduction) and advocacy (as providing policy recommendations) become intermingled. Service delivery in and of itself becomes a form of advocacy, becoming a kind of justice-in-action. If charity service delivery is inherently part of justice advocacy, then care work is inherently part of this kind of work as well. After all, services that work in politically or socially stigmatised spaces (as sex work support services do), are doing work that is inherently justice-oriented, or following a pre-figurative politic. Ultimately, what I am asking is: what does a justice-oriented approach to HCI mean when taking into account a complex understanding of justice, injustice, and abnormal justice?

As such, the development of (or even simply discussing the development of) technologies within these IEs becomes an act of justice advocacy and action. This brings about particular implications of what a technology should *do*, as well as a variety of concerns about *how* it should do this. To unpick some of the concerns raised in the last two sections of this chapter, I bring together justice theory (Fraser 2008) and Information Ecologies (Nardi & O'Day 1999) to build a new framework called Justice-Oriented Ecologies.

Working in a justice-oriented framework for design also requires us to look at technologies and how they interact with people and their political points of views. This becomes particularly important when understanding that design-oriented research can work towards a particular future envisioned by the designer(s) and their partners (Puig de la Bellacasa 2017). Nardi & O'Day (1999) state that the "worst thing we can do is to ask too little of the future – and too little of ourselves in determining the future" when discussing the reasoning for the importance of ecologies. Looking back at the definition of IEs, systematic change and construction within the ecology is necessary. When I bring Fraser (2007*b*, 2008)'s ideas of multidimensional justice into this space of ecologies, we need to not only enact change within the ecologies we inhabit, but also in wider contexts that cross borders and boundaries with these ecologies. In a way, justice works towards a goal, to create a better future (Dombrowski et al. 2016), not only in how or why we design and use technologies, but also the wider worlds in which the ecology within which we operate sits - this relates to (1) what this future can look like; (2) how we can get there; and (3) who gets to decide this.

Dombrowski et al. (2016) have introduced the idea of 'just sustainabilities' into HCI research. This idea becomes particularly important when we want to introduce new technologies into service delivery in useful ways that do

not reinforce existing power imbalance or amplify exclusion (Toyama 2011), but instead design in ways where justice-oriented, sustainable ideas are incorporated and attention is paid to systemic rather than individual concerns to ensure that technologies are accessible for all. Looking at technologies holistically (as is done through the use of IEs) we can shift away from simplistic understandings of technologies, and instead shift towards seeing the humanity in (digital) service delivery (Strohmayer et al. 2019). This also allows us to see charities as providers of services, and agents of social and criminal justice (Feis-Bryce 2015, Kam 2014, Strohmayer et al. 2017). Furthermore, it would help evaluate and design technologies and interventions that look beyond direct impacts (e.g. cost-savings in service delivery) and towards wider justice implications of the digitally supported work charities do e.g. the reduction of stigma (Strohmayer et al. 2017). What I mean here is that when looking beyond the most obvious spaces of innovation or digital implementation, researchers can begin to look for places where the implementation of these technologies become "much less obvious but ultimately the most useful" (Nardi & O'Day 1999, 67) for the sex work support service, their organisational (infra)structures, and their service users. In this manuscript I see such a process or technology as useful if it promotes and supports the sex work support service provider in their service delivery as well as the direct or indirect promotion of sex worker rights.

In relation to service delivery in sex work support services, this may result in designing or implementing digital technologies that may not be the most digitally innovative, or even the most obviously useful for service delivery, but rather technologies that lie more in the background, that help get the hidden work done that is necessary to be able to carry out the core service delivery. This means we begin working with existing expertise and resources (Strohmayer, Laing & Comber 2018), and towards genuinely useful support of third sector organisation that recognise invisible work as valuable and necessary.

Designing within J-OEs also does not always lead towards technologies that are directly useful for justice advocacy or harm reduction service delivery as outlined above, but instead may also include smaller, more intimately activist tasks. Ferris & Allard (2016), for example, have explored the activism involved in tagging pieces of information in post-apology archives. Their archive collects documents and publications produced by sex workers and allies to promote sex worker rights, and to remember murdered and missing women and sex workers in Canada. This 'Sex Work Database' is an archive that is overtly activist and political, as recognised by the authors: "an anti-colonial feminist argument that highlights marginalized voices, and embraces principles of social justice and reciprocity" (ibid.). At the same time however,

it also promotes smaller, more intimate, aspects of activism, for example through the involvement of community volunteers who 'tag' artefacts in the archive to build part of the archival infrastructure – Ferris & Allard (2016) see this as activism for sex worker rights.

Ultimately, when seeing TSOs as agents of justice (Feis-Bryce 2015, Kam 2014), the space for innovation opens up to explore spaces where digital technologies can facilitate a holistic change in charity services, processes, or actions. In such a justice-oriented ecology individuals, services, policies, and technologies work together to establish IEs of service delivery and advocacy that work towards a "more just world." (Dombrowski et al. 2016). I see sex work support services as these holistic ecologies providing pathways towards justice for sex workers throughout this dissertation. The work is underlined by a strong belief in social justice, an attempt to engage in projects that reframe 'technologies in charities' into justice-oriented ecologies that aim to facilitate movements towards more socially just research spaces and ultimately worlds (Dombrowski et al. 2016, Fraser 2008).

2.4.1 Technologies, Charities, and Times of Austerity

Over a decade of austerity in the UK has resulted in a reduction of funding in the charity sector. At the same time budgets of local authorities have also dwindled, meaning that there is more of a reliance on charities to deliver services. This means there are more people relying on the services of charities, who themselves have less funding to be able to deliver these services. These funding cuts, alongside the Neoliberal policies of successive governments, have not only brought about changes in service delivery, but also advanced the ways in which digital technologies are discussed. Arguably, there has been a push towards the digitalization of services and charity infrastructure, with the availability of funding to develop technologies; opening up a space for designers and researchers wanting to work with and for charities. This development however, is also matched with a reduction in funding in the charity sector to sustain existing technologies, up-skill charity staff, or to support the purchase of hardware and software. This has resulted in significant gaps between the promise of digital innovation and immediate needs of organisations (Strohmayer, Laing & Comber 2018).

One specific challenge this produces is a lack of mutual understanding regarding the design of technologies and what the work involved in this can look like and mean. A mismatch in knowledge among charity staff and technologists can lead to simplistic conceptualisations of technology for service delivery where technologies may be seen as a simple solution to complex socio-technical or socio-cultural developments or even as the easy replacements of

often vital human interactions. This 'technological solutionism' is problematic as it over-simplifies problems that are (nearly) impossible to solve, or may have incomplete, constantly changing, or contradictory requirements. These kinds of complex societal problems have been called wicked problems (Buchanan 1992). Looking at TSOs, technologies that can be seen to engage in technological solutionism may be the result of design processes where assumptions are made that either all beneficiaries have technology skills and digital literacy as well as access to technologies such as smart phones, or none of these. In sex work research these assumptions are often related to stereotypes of workplaces and class associated with these – for example escorts and street based workers (respective to the above two points) (Strohmayer et al. 2019).

Seeing the spaces in which we operate as IEs helps us avoid this kind of thinking, as we look into and become aware of aspects of work that are usually invisible (Nardi & O'Day 1999). Appreciating the five elements of an IE (system, diversity, co-evolution, keystone species, and locality) also helps us to understand when we are attempting to design simple solutions to complex concerns, and are then able to look beyond this simplistic model of design. Instead, we can explore the complexities of TSOs with, within, or for which we design. This means we are able to appreciate the social meanings that particular tools members of the ecology already make use of embody (Nardi & O'Day 1999). This social understanding then becomes an integral aspect of the new technology we are attempting to design, develop, or appropriate to support the organisations with which we work as researchers and designers.

In this way, J-OEs help me begin to explore the complexity of sex work support services and expand the opportunities to develop digital technologies. With this, I can move beyond the trend of e-services aimed at replacing human interaction, and instead support existing infrastructures for harm reduction (Marlatt 1996, Rekart 2005) and humanity in service delivery (Strohmayer et al. 2019). When I engage in this kind of thinking, I look beyond designing for direct service delivery and instead begin to explore the ways in which digital technologies are already integrated. In turn I can then better understand how new interventions can fit into existing ecologies. This provides windows for innovation as well as its sustainable implementation.

As organisational and sex worker practice has developed alongside digital technologies, the questions organisations are asking do not relate to *whether technologies can, could, or should support the service delivery of TSOs, and sex work support services specifically*, but rather to *what kinds of technologies, and why those kinds of technologies?* (Strohmayer et al. 2019). Further to this, and contrary to some digital developments, Nardi & O'Day (1999)

set out a challenge for researchers to see technologies with heart and "to introduce some critical sensibilities into our evaluation and use of technology, and beyond that, to make a real impact on the kinds of technology that will be available to us in the future" (Nardi & O'Day 1999, 22).

What makes J-OEs useful is the deep understanding that technologies and people have co-dependent values. Furthermore, these values are applied to the development of and practices involved in the use of the digital technology within the ecology (Nardi & O'Day 1999). Taking this as a starting point, we begin to see that technologies are embedded and part of the wider ecology – inseparable from justice-oriented actions and work within it.

As part of this understanding of values in technologies, the "human intentionality and accountability behind the use of technological tools" (Nardi & O'Day 1999, 15) also need to be addressed. Coming back to the original description of IEs above, it is the humans and interactions with technologies that are in the focus when using J-OEs as a framework, not the technologies (or values of technologies) themselves. This point of view also lends itself well to the critique of technological solutionism because of its trust in human expertise, judgement, and creativity. When designing technologies with, in, or for TSOs digital innovation should not replace, but rather support this human expertise, as well as the multitude of invisible and hidden care work that is carried out in these organisations.

2.4.2 Care Work

Using J-OEs as a framework of understanding TSOs also provides us with the opportunity of fully embracing the value and importance of care work that is carried out by staff and volunteers at TSOs as part of their service delivery. Puig de la Bellacasa (2017) addresses the value of invisible and care work. Similarly, Nardi and O'Day state that there "is no basis other than human caring and love for deploying technology humanely" (Nardi & O'Day 1999, 67). Projects such as The Student Sex Work Project (Sagar 2007) mentioned previously make care in research particularly clear and relevant. Even though Jones et al. did not explicitly make use of IEs as a framework for their research, many elements of their work incorporate aspects that are implicit in an IE (eg. the importance of co-evolution of the project alongside project partners, or the understanding of the importance of keystone species by incorporating peer-researchers). Furthermore, Nardi & O'Day (1999) make it clear in their book not only through the subtitle *Technologies with Heart* but also through the case studies they portray that invisible work and care work are important elements of an IE. Looking particularly at their example of librarians, the mini-interview involved in determining what books or infor-

mation clients are looking for in the library was, at least in part, care work carried out by staff.

Further to this, when looking specifically at sex work support services, the importance of care work is often discussed in literatures surrounding service delivery. Kam (2014) refers to it as the 'social in social work' where the inter-human aspects of service delivery come to the forefront. When looking at HCI research, sometimes technologies are designed to improve communication between service users and staff (Le Dantec & Edwards 2008*b*), though at other times technologies are used to reduce human interaction, or even to avoid human interaction as a whole. Grenfell et al. (2016), as well as Rekart (2005)'s framework of harm reduction, however make it directly clear that human interaction is invaluable to service delivery, and I have carried out research in Canada that showed the necessity of people and communication for service delivery for sex workers (Strohmayer et al. 2019). Working with J-OEs provides us with the opportunity of incorporating the importance of care work, of seeing it as an integral part to the information ecology that is carried out by the keystone species, and necessary for the hyper-contextualised evolution of relationships between service provider and user that ultimately lead to more socially just worlds.

2.5 Summary

As outlined above, there is a continued need for accessible, creative, and innovative approaches to sex worker rights activism in the shape of harm reduction strategies and services. While this need is beginning to be met by peer-led organisations, charities, and in some cases research projects, there is space for explorations of novel ways of delivering and designing these services, particularly with a nod towards digital technologies. With this dissertation, I provide an investigation into the ways in which digital technologies can be collaboratively designed and used to develop potential strategies, and improve existing structures, to support harm reduction service delivery in sex work support services. In this manuscript, I will do this by focusing on three areas, all of which have been addressed above: International Day to End Violence Against Sex Workers, Ugly Mugs schemes, and Archiving experiences. This work is grounded in the terminologies, histories, imagery, and activities as outlined above.

While this dissertation focuses on the use of digital technologies in this space, this is only one perspective on a multi-faceted, complex, and intrinsically heterogeneous space. As such, this research lies at the intersection of various academic disciplines as well as at the nexus of research and practice.

It addresses only one element – academic explorations into the ways in which digital technologies can facilitate and support services – within the endless potentialities of service delivery in sex work support services. It does not aim to replace existing projects or ideas, but rather supports the service delivery of two particular charities based in the UK.

In this chapter I looked beyond digital technologies that are employed in sex work support services (and charities more broadly) as solutions to complex socio-cultural, socio-ethical, and socio-technical problems. Instead I draw on interdisciplinary literatures to provide a different way of exploring technologies. Through the analysis of interdisciplinary literatures, I have answered one of the sub-research questions as outlined in chapter 1: *What conceptual framings help us better understand the role of 'sex work support services' in the promotion of multidimensional justice?* In answering this question, I developed a novel conceptual framework which I have called *Justice-Oriented Ecologies (J-OEs)* by bringing together Fraser (2008)'s theory of multidimensional justice and Nardi & O'Day (1999)'s Information Ecologies. I will deepen the discussion of and use this conceptual framework throughout the rest of this manuscript methodologically (chapter 3) and empirically (chapters 4-7). In the discussion, I unpick some of the vocabulary that the application of this framework to a pilot study and three explorations has helped develop.

I believe this framework is useful to help avoid building technologies that fall into the trap of technological solutionism, and instead facilitate holistic potentials for digital interventions in charities. Throughout the dissertation I learn about and describe new ways in which the seemingly disparate spaces of sex work and HCI research can intersect to create more inclusive and holistic pictures of 'service delivery' with and for sex work support services. Future research and engagements that explore (digital) interventions in sex work support services should regard charities as justice-oriented ecologies. The collaborations that are built as part of this framing can then be constructed as "effective alliances" (Ferris & Allard 2016, 192) between academia, charities, their service users, and other allies. In turn, this would hopefully continue to support and contribute to efforts of sex worker rights advocates to eliminate whore stigma, violence against, and the underlying marginalization of sex workers. In sum, anything placed in these J-OEs should strive to work alongside diverse stakeholders to make meaningful contributions to those involved in the projects and their wider communities.

When relating Fraser's three-dimensional justice not only to sex work and sex worker rights, but also to the ways in which we carry out research, the axes of representation, distribution, and recognition become important. What I mean with this is that we, as researchers, actors, or service providers,

can enact justice not only in the kinds of work we study or the kinds of outcomes we hope to achieve with our work (be this policy change, service delivery, or a more nuanced understanding of theories of justice), but also in the ways in which we carry out the research and work in and of itself – as a kind of prefigurative politic (Strohmayer et al. 2019).

The rest of this dissertation will attempt to untangle the methodological and practical implications of working with charities as J-OEs. The next chapter provides a detailed description of the ways in which we can meaningfully and ethically engage with TSOs to work with them as partners in the continued (co-)evolution of the J-OE through Participatory Action Research and Research through Design methodologies. After this discussion of methods, I provide in-depth descriptions of work that was carried out with(in) two organisations before taking a step back and reflecting on this work as J-OEs in participatory and design-oriented projects in the discussion.

Chapter 3

Methodological Considerations

3.1 Introduction

In this chapter I provide details on how I have put the conceptual framework of J-OEs into practice, and address the ways in which I have engaged in research that works towards building futures in two charities. To do this, I provide details on the ways in which I interpret 'data collection', 'action processes', and 'data analysis'. Ultimately, this chapter provides a description and analysis of the ways in which I have carried out the work to answer sub research question two: *In what ways can research methods in and of themselves support service providers and users to move towards a space that is more just?*

As detailed in the previous chapter, HCI researchers have started to work with charities to design digital technologies for various aspects of their service delivery. In this chapter, I continue the discussions of the previous chapter about working in J-OEs by providing a more pragmatic look at how this can be done. It is here that I tackle the third of Fraser (2008)'s three first-order questions: 'Who decides what 'justice' looks like?' In her framework, this relates to socio-legal policies, but when engaging in justice-oriented design (Dombrowski et al. 2016) or research, I would argue we also need to consider this within research projects. This means that not only do our research methods and ethos need to be justice-oriented, but that this definition of 'justice' should relate to and be congruent with those with whom we wish to work. This however does not mean that research partners, participants and researchers' opinions and positionalities always need to be the same. Instead, this means that we should be honest about our own standpoints, and address similarities and differences among all those participating in the research. This is possible in PAR processes, particularly those that consider feminist ideas

of researcher self-disclosure (Gatenby & Humphries 2000) and collaborative planning and decision-making. While feminist and social justice oriented research are becoming more integrated in mainstream HCI discourse, there is still little exploration into the ethics, practicalities, or more broadly the methodology of doing work like this in HCI (but see Bardzell (2010), Bardzell & Bardzell (2011), Rode (2011)).

HCI is seeing a *practical turn* (Kuutti et al. 2014) in research and has begun to study technologies *in-the-wild* (Chamberlain et al. 2012). This means designers and researchers have begun to work outside the confines of research labs and instead place their digital technologies, prototypes, or probes into various types of settings. Not without criticisms of the choice of language, there have been explorations of how this can be done (Taylor & Cheverst 2010). Little work has however addressed the specific needs of TSOs (Strohmayer, Marshall, Verma, Bopp, McNaney, Voida, Kirk & Bidwell 2018) when doing this kind of in-the-wild research. Even fewer HCI projects have placed these kinds of explorations into politically charged settings or sex work related spaces. Further to this, the work that is carried out in the 'wild' often continues to rely on the study of the technological artefacts and tools themselves rather than broadening out the search into the contextualised understanding of their use (as is the case when using IEs). Even though Information Ecologies (Nardi & O'Day 1999) have been used by some researchers to explore ways in which novel interactions with information can be facilitated within particular contexts (Bødker et al. 2017, Woelfer et al. 2009), not all research that is carried out in the 'wild' fully contextualises the research space. With J-OEs I am methodologically broadening the contextualisation of the world by working with others to put into practice learning through Participatory Action Research (PAR) cycles, while simultaneously also broadening the conceptualisation of technologies through reflexive Research through Design (RtD) practice where artefacts become participatory artefacts within the ecologies.

Seeing this as a starting point, I explore how I can look beyond 'the wild' in my research and instead move towards an understanding of the research space that is politically contextualised (within a justice framework), and that is locally situated within existing practice (and as such within an existing ecology). To do this, I have reflected on the framing of what justice is in relation to sex work (see chapter 2), who is institutionally able to access this, and how deciding these two can lead towards potential awareness for improvement. To be able to answer these questions, I use the concept of "participatory parity" (Fraser 2008) – where those participating in the framing of justice are as much part of the movement towards justice than those who have institutional power. This allows me to look beyond the *wild* and

instead to look at the reality of the ecology within which collaborators and I are designing, developing, or appropriating digital technologies. This puts the focus on the social, political, and contextual use of the technology (Nardi & O'Day 1999) to answer questions of justice (Fraser 2008) rather than on the technicalities of the digital artefacts themselves. This means I no longer see myself as *looking out* into the wild to explore phenomena of interaction, but instead *looking around* the spaces in which I, collaborators, technologies, and these interactions exist. In this way, I consider the implications of the work for the lives of others (Light et al. 2017, Pal 2017), as well as myself. In turn, hopefully this supports the movement towards more socially just environments. As only by becoming "reflexive can one grasp the question of the 'who' *as* a question of justice" (Fraser 2008), I constantly reflect on the multidimensionality of context, ecology, and justice (Strohmayer, Laing & Comber 2018).

Using the framing of J-OEs allows me to develop methods to not only understand how to engage in the designing of digital technologies (Nardi & O'Day 1999), but it also helps move towards more just spaces by engaging in the ecologies. Following this idea, and embracing Puig de la Bellacasa (2011)'s idea that research can have "world-making effects", I use PAR as a way of framing the world and the research spaces. There is diverse writing on PAR and its processes across various disciplines, but I am approaching it as a design researcher here. PAR aims to understand the world by interacting and 'taking action' within it in various cycles of planning, acting, and reflecting. In HCI and design-focused research in particular, PAR goes beyond the production of knowledge and engages with communities to co-design and co-conduct research that is oriented towards making a change. These actions may be made up of multiple research methods or types of activities, but ultimately help us better understand the spaces in which we act. Further to this, the PAR cycles also help us contribute towards the development of the ecology where design (processes) is (are) seen not only as an outcome, but part of the work involved in becoming part of the ecology.

PAR brings about possibilities both in relation to participatory parity, and answering of justice questions (Fraser 2008). It provides me with an opportunity to explore the role of research in the process of designing, developing, or appropriating technologies through this action as part of HCI enquiry (Hayes 2011), while simultaneously addressing the importance of reflection, participation, and inclusion of diverse voices (Gatenby & Humphries 2000, Maguire 1987, 2008). To involve not only the action cycle, but also the literal *making* process involved in world-making research into the work, I also integrate ideas from Research through Design (RtD) (Durrant et al. 2017, Zimmerman & Forlizzi 2014) into the methodology. In an RtD process, the

end of a project is usually an artefact, though importance is placed on the various iterations that are created throughout the design process. Further to this, in RtD studies knowledge is built throughout the design process. The combination of process and analysis reflect the process of continuously creating and curating knowledges and artefacts within an ecology – ultimately feeding its evolution.

RtD is a practice-based methodology that allows me to look more closely at the material participation in the projects, where design processes are in and of themselves research practice. PAR provides me with the opportunity to study artefacts within the J-OE, but RtD provides collaborators and myself the chance to take into consideration the ways in which specific design choices made throughout the making of artefacts impact on the ecologies within which we work

While this research certainly contains elements of understanding existing organisational processes, the focus of this work is on "creating what might be" (Gaver & William 2012), and on making the "right thing at the right time" (Zimmerman et al. 2007), where artefacts are intended to "transform the world from the current state to a preferred state." (ibid.). Based on this understanding of research in Art and Design (Frayling 1993), and ultimately RtD (Gaver & William 2012, Zimmerman et al. 2007), this kind of work provides me with a tool to develop technologies in and with sex work support services to support service delivery that also supports some of their wider organisational goals of justice and human rights. Through the RtD process, I am able to make artefacts and concept-things (Pierce 2014) as well as provide feedback on the process of the project to collaborators. Furthermore, these artefacts function to help understand the ecology. Often, these 'things' collaborators and/or I created also folded into organisational practice or fed into the practices of staff; and concept-things are a useful way of framing the meaning of these artefacts. Seeing them as concept-things, means that they make sense only when conceptually framed (Pierce 2014).

Bringing together PAR and RtD allows me to see the research process rather than its outcomes as the focal point of my analysis; to see the justice-oriented actions that are made throughout the processes as ways of developing the ecology. Furthermore, it allows me to see the artefacts that are created throughout this process as a way of understanding while simultaneously using them as a way of enacting and moving forward more pragmatic aspects of the work needed to move towards more just spaces.

To be able to work in this way, reflection and reflexivity are integral to the success of my projects (Reid 2006). Working in J-OEs means not only do I need to reflect on the research process, but also on questions of justice (Fraser 2008) (see chapter 2) and how they interact and affect these

research processes and outcomes. This reflexivity is however not the solution to 'abnormal justice', so I also actively work towards potential supporters and facilitators of justice to question and clarify the 'what, who, and how' of justice (Fraser 2008).

I involve people at the community level (staff and sex workers) (Sanders 2006, Sanders & Campbell 2007*a*), to see the research as a co-learning process (Israel et al. 1998) between researchers and partners. In this way, a balance between research and action (Reid 2006) can take place, reflecting what Israel et al. (1998) call the profound belief of 'partnership synergy'. Working in this way means we are able to decide on 'actions' together (Reid 2006), while finding balance between theory and practice (Williams & Lykes 2003).

The way I have chosen to engage in this kind of work is to become embedded in the justice-oriented ecologies within which I hope to innovate alongside my research partners. This will allow us (my partners and I) to work within processes, structures, and politically nuanced languages that already exist in the world. In doing this, the research itself becomes part of the ecology, supporting the coevolution of the local system through the engagement with and through diverse information technologies. With this I mean that working within these spaces to design, develop, or appropriate technologies in and of itself facilitates change in the ecology (Nardi & O'Day 1999); taking away the focus from the technological solution, and refocusing it on the 'action' to develop it (Reid 2006). Taking the justice-oriented standpoint described in chapter 2, this then ultimately means that we would be working towards a change that promotes movements towards more socially just ecologies, design spaces, and ultimately worlds (Dombrowski et al. 2016, Puig de la Bellacasa 2011, 2017, Reid 2006).

3.1.1 Meaningful Design Processes

Technologies in charities do not work independently of service delivery, but rather are part of an emerging J-OE: technologies are introduced, adapted into, and developed within existing practices of the charities. Taking justice-oriented ecologies and the importance of just sustainabilities (Dombrowski et al. 2016) within this into account allows us to ask questions not only about the ways in which charities themselves work within this framework, but also to change the ways in which we look at digital service delivery and research processes. Research that is conducted as detailed above and that answers, or at least attempts to answer questions related to justice and abnormal justice (Fraser 2008) should ultimately not only result in novel interactions with technologies that are meaningful to those involved in the process. Rather, these processes should also demand "new ways of accounting

for difference in inequity at the societal scale" (Dombrowski et al. 2016) – that the technologies become just, or truly, sustainable designs (ibid.). Diversity, co-evolution and systems are necessary for sustainable change in IEs (Nardi & O'Day 1999), and adding a justice orientation to this work can result in more than the addition of innovative technologies. When seeing the process of initially understanding the system as a way of beginning 'habitation' in (genuine understanding and being 'a part' of) the IE , we also begin to see that the process of designing in these ecologies is incredibly important. What I mean here, is that this would allow researchers to engage in what Nardi & O'Day (1999) call an "ongoing construction" of the IE.

Similar to the way Fraser (2008) encourages us to ask ourselves three questions when attempting to determine 'justice' (what is justice? How is justice determined? And who is setting the frame for this justice?), Nardi & O'Day (1999) also urge us to ask questions when designing technologies in IEs: How should we use technologies? When are these appropriate? And why should we choose this particular technology? In a similar vein to Fraser and Nardi & O'Day, I also provide some questions that accompanied me throughout my research and that help better understand research in J-OEs. These are framed as open questions that I do not claim to have definitive answers to here (an earlier version can be seen in (Strohmayer, Laing & Comber 2018)). While I will address these concerns intrinsically throughout the thick descriptions and discussion in subsequent chapters, I do not claim to provide complete or even direct answers to these anywhere in this manuscript. Instead, they are a way of reflecting on the subsequent explorations and guide how I wrote chapters 4, 5, 6 and 7.

- What role do we as researchers and designers play in facilitating digital skills development for charity staff and volunteers? And how does this role change as projects progress from ideation, through to the invisible work of being able to carry out the field work, the field work itself, analysis, dissemination, and continued potential outcomes of these projects?

- How genuinely meaningful and useful is the digital intervention for the service provider and their beneficiaries? And how does it fit in with their existing digital and non-digital practices so it can continue to be useful to the charities once we as researchers and designers have left the field?

- How do we ensure sustainability of the project we are working on with charities? And does every project need to be sustainable in its own right? If not, what does sustainability mean here?

The above questions embody some of the concerns of care addressed in chapter 2. Building on these, I am able to provide a multifaceted, albeit not complete, response to my overarching research question: *How can digital technologies be collaboratively designed, developed, and appropriated with and within sex work support services to promote multidimensional justice for their service users?* Before going on to discuss the methodology and methods to expand on how I believe researchers can work within this conceptual framework (and how I have worked to carry out my research), I provide some information on the Justice-Oriented Ecologies within which I worked to design, develop, and evaluate technologies.

3.2 Research Approach

To build on not only the conceptual framing outlined in chapter two and the methodological framing described above, but also the contextualisation of sex work and the history of sex worker rights I foreground political language and imagery in this dissertation. As such, I do not claim to take an objective standpoint to my research, but rather make clear my personal standpoint (Gatenby & Humphries 2000, Sanders & Campbell 2007*b*) in the politics involved in each of the explorations independently (see specific chapters detailing the explorations), as well as the dissertation as a whole. As such, I use and foreground political language (for example the use of the term 'sex work' as opposed to other terminologies used in some academic writings), imagery and symbolism (for example the use of the red umbrella throughout different elements of the dissertation), as well as politicised meanings through the choice in data, action, and analysis (for example the inclusion of the invisible labour carried out by all stakeholders of the research).

Throughout the process of producing the research and writing of this manuscript, I have worked within a web of stakeholders made up of people involved in the charity sector, academic researchers, and craftspeople. Working with two organisations, I collaborated with various members of staff such as direct support workers, but have also engaged with outreach volunteers, administrators, fundraisers, and members of the communications teams. On top of this, I have engaged with different groups of service users of the organisations such as street based sex workers, escorts, or non-contact sex workers. The engagement with this diverse group of people provided me with the ability to develop types of data that allow for dialogue and polyvocality in the sector, as well as the representation of varied politics and service delivery. It has also helped me build up networks to explore ways in which relationships across the sector can facilitate sustainable partnerships and better under-

stand multi-agency working in the UK (Sagar 2007), though I do not address this directly in this dissertation.

Below, I provide a description of the two charities I worked within to be able to carry out the work that is described and analyzed throughout this manuscript. First, I provide an overview of what National Ugly Mugs (NUM) do, what their aims are, and how they have previously been involved in research. Second, I provide a similar overview of Changing Lives' Girls Are Proud and Male Action Project (GAP/MAP).

3.2.1 National Ugly Mugs

National Ugly Mugs (NUM) are an organisation that works on a national scale in the UK. Their core service delivery involves the collecting and sharing of information about dangerous people and situations that sex workers encounter. They also carry out case work, and support sex workers throughout the court progress if they wish to make official reports about the crimes that have been committed against them. The overarching goal of the organisation is to end violence against sex workers, alongside a series of other aims as found on their website[1]:

- To improve the safety of sex workers
- To prevent crime
- To bring to justice more offenders who target sex workers.
- To support sex workers in accessing frontline services
- To increase the number of crimes against sex workers reported to the police
- To enhance the levels of intelligence that exist throughout the UK about dangerous criminals

NUM were established in 2012 as part of the UK Network of Sex Work Projects (UKNSWP) and became a charity in their own right in 2016. Since their inception, they have been involved in research. For example, they have carried out work to explore job satisfaction of sex workers (Connelly 2014) or the different ways in which sex workers use the internet (Cunningham & Kendall 2011, Sanders et al. 2018). They are also regularly approached by academics to be part of large research projects such as The Student Sex

[1]See here for more information: https://uknswp.org/um/

Work Project (Sagar & Jones 2015) or the Beyond The Gaze project (Sanders et al. 2018). They have also provided evidence based on their services for governmental inquiries (see eg. Laing (2016*b*)).

3.2.2 Changing Lives - Girls are Proud and Male Action Project

One of the organisational members of NUM is Changing Lives, which administers many projects and services across the country for people with multiple and often intersecting complex needs. Two of their projects are called Girls are Proud, and Male Action Project (GAP/MAP) – these support female and male sex workers respectively. They provide services to support people engaged in sex work, survival sex, or experiencing sexual exploitation. GAP/MAP work across a large conurbation in the North East of England, focusing on Newcastle. They use a people-focused approach to support men and women involved in sex work, and those exposed to survival sex and/or sexual exploitation. They do outreach and drop-in work, but also provide more structured support for individuals and groups. They follow a three-stage plan with their service users based on 'being, becoming, and belonging' to support their immediate needs, validate trauma, encourage the learning of new skills, and to foster healthy relationships[2]. On top of carrying out their service delivery, GAP/MAP have also been involved in some research projects, such as the PEER project to document experiences of street based sex workers in Newcastle (Laing & Irving 2013) or the more recent work carried out with Professor Maggie O'Neil titled 'Peer Talk' a PAR project to provide a platform for the hidden stories of women who 'sell or swap sex' in Teesside in the North East of England (O'Neill et al. 2017).

3.2.3 Self-Disclosure

To better understand my own politics and self-disclosure I have also engaged in reflexive practice with other researchers at Open Lab. In some cases this occurred directly such as my collaborations with Janis Meissner in the explorations with GAP/MAP. In other cases however, this occurred more indirectly through various tea-breaks or chats over lunch with individuals, or with groups of people at events and meetings. On top of this journey to reflexive practice, I also engaged with others in the lab to support the design and development of some of the technologies. For example, I worked with

[2]See here for more information: https://www.changing-lives.org.uk/services/women-children/

Tom Nappey to design the new look of NUM's website. Rob Anderson, and Edward Jenkins developed the code that NUM's new site is built on, Alexander Wilson was the inventor of JigsAudio, which I appropriated to build The Red Umbrella Archive, and Janis Meissner invented the sensors used as the basis for those we used in the Partnership Quilt project (Meissner 2015). For The Partnership Quilt project, I also worked with a duo of professional quilters, who were invited by GAP/MAP to support the project because of their expertise in quilting and facilitating quilting lessons and sessions.

While I understand that I need to make clear what my own contribution is throughout this dissertation, I also need to ensure I acknowledge that this document is not the result of solely my own work. It is the result of many hours of invisible work, from a diverse group of people. Each of the projects would not have been possible without the hard work put into them by each individual that was involved. Simple things such as responses to my surveys to understand how members of NUM see the organisations, as well as more involved pieces of work like the organisation of meetings and collection of quilting materials for The Partnership Quilt are what made this dissertation possible. The thick descriptions that have been produced for this manuscript were written by me, but are only one of the many outcomes of each of the projects. Similarly, the meanings that are described in this dissertation are only one of the multitude of meanings that each of these projects have. Furthermore, the text written here is only one manifestation of the projects that do not capture all the nuances of the planning, production, and use of the artefacts. For example, the charity partners themselves have made multiple uses of the artefacts and research processes, I personally have used the projects in different ways, and those who took part in the projects as service users and volunteers have used the projects in their own unique ways as well. What I mean to say is that this manuscript does not provide a complete account of the learning involved in the projects, as the artefacts and other outcomes continue to live on in organisational and individual practices. While the ways in which I write about all of this work and the meaning-making here is my own, the words that are in this document are built on collaborative research, action processes, data collection, and analysis.

3.3 Action Processes

Light & Akama (2012, 2014) have written about the importance of flexibility in research processes, and have even stated this flexibility to engage in evolving circumstances may be more important than to have an action plan. In their later collaboration they write about attuning where the designers'

"embodied knowing shifts from moment to moment, often in response to the intersubjective nuances of the group" (Akama & Light 2018), which is based on "invisible, subtle and complex dynamics, and how these are shaped and conditioned" by things such as our upbringing, culture, or society as a whole (ibid.). When working to design in J-OEs with a framework related to PAR and RtD as outlined above, the 'readiness' and flexibility Light and Akama talk about is incredibly important. It is also vital to the understanding of many of the in-situ decisions I have made throughout the research. I go into detail of these discussions in the corresponding chapters, but below provide an overview of each research project.

In my first year of the PhD, I carried out a holistic evaluation of NUM services and appropriation of digital technologies. From this detailed look at the use of existing technologies of a national sex work support service, I was able to develop implications for design that the subsequent three explorations are built on. For this pilot study, I carried out a survey with sex workers (n=50) and organisations (n=28) who were all NUM members. These were analysed thematically, and findings were shared with NUM staff to improve their services. I also carried out 6 phone-interviews with sex workers across the UK to better understand the context. These were not analysed and instead functioned as a sensitising activity. Working with staff, I carried out a 1-month secondment to the office where I supported staff in their daily activities. In this time, I interviewed each member of staff about their roles. I also planned a drop-in session with a smaller service provider for sex workers to better understand experiences of street sex workers. On top of this, I carried out observations and informal conversations with NUM staff.

Following this work, I continued to work with NUM to work towards the launch of a new website. Throughout that project, it became clear that their website meant more to them than a window into their organisation – it is how they organise large chunks of their administrative work related to membership and peer-alerts. I continued my informal conversations and observations with NUM staff and collected many field notes. These were analysed in a participatory fashion with staff by developing requirements documents, website skeletons, and design documents that were inspired by the notes and implicit understanding of the space. I reflected on the process as a whole in the production of a small quilt (see Appendix A.12) and describe the process in more detail in chapter 5.

I also worked with GAP/MAP to develop the Red Umbrella Archive – this was a project that supported their existing commemoration of IDEVASW in the North East of England. We used JigsAudio, a digital tool developed by Alexander Wilson, to record peoples' experiences of the day, and to create a hybrid archive where physical objects (small wooden umbrellas) and a

website come together to facilitate online and offline interactions. In 2016, 14 umbrellas were made, while 7 were made in 2017. In 2016, Janis and I recorded a reflexive conversation of our experiences (which I later transcribed and loosely analysed using thematic analysis) and in 2017, I wrote reflexive field notes of the day. To reflect on the entire process, I made a small quilt (see Appendix A.13) and also collaboratively wrote a project report with Janis Meissner and a member of staff from GAP/MAP (see Appendix A.5)

Lastly, I worked alongside various members of staff and service users from GAP/MAP, Six Penny Memories (SPM), and Janis Meissner to make The Partnership Quilt. We worked together to sew pieces of fabric together to collectively craft a blanket, and later overlaid this on self-made capacitive touch sensors to embed snippets from an audio-recorded group reflection on the process of the quilt's production. Throughout the process of making the quilt, I took field notes. Together, service users, staff, the two quilters from Six Penny Memories, Janis, and I audio-recorded a reflection on the quilt, it's process, and what both of those mean to us. I later curated this into 12 snippets to be used on the quilt - which I also transribed, printed out and analysed thematically in a sewn-together booklet. I also sewed a small quilt to reflect on the project overall (see Appendix A.11). Janis, Kirsty Donaldson (the member of staff who championed this project in the organisation), and I also wrote a project report to reflect on our experiences (see Appendix A.4).

One version of the outcomes of each of these research processes are described in the four following chapters. Below, I provide a description of the data collection and data analysis of the research processes to produce the dissertation. I describe how I used various other outputs of the work as a way of exploring various facets and nuances involved in the projects.

3.4 Data Collection

Working within a messy web of research collaborators, projects, and service providers, requires a messy web of contextualised and interconnected research methods. While the methods were different for each of my explorations, the data that were collected and developed throughout these processes were similar. Due to the sensitive nature of some of the events I attended (eg. the commemoration service of International Day To End Violence Against Sex Workers), I sometimes did not feel comfortable taking pictures or field notes while at an event and instead opted to write reflective field notes after the event. Other times, the learning that took place was not immediately clear to me and was only developed through discussions with others, the writing of reports, or creation of artefacts for reflection. While important within the

context of each of the projects, I address this process in the section below called 'Data Analysis' as these processes were not necessarily unique to each of the projects, but again, were similar across all of them.

Different kinds of data were collected to represent how different people participated in the projects. In turn, this resulted in the involvement of different people in the production of various artefacts, each producing different elements of knowledge. While it may be difficult to express the different ways in which individuals contributed to the PAR and RtD processes, their involvement in tending to and producing the artefacts and technologies was what was important in achieving the outcomes we were able to produce in the projects. Even though the explorations in this dissertation are based in different contexts, used digital technologies in different ways, and ultimately aimed to explore different elements of service delivery, the kinds of data that were collected were very similar. The heterogeneity of the data implies complex processes of production and collection. As such, I focused on informal approaches that allowed me to be more reflexive, while also enabling me to be more responsive to the changes in the J-OEs within which I worked. The kinds of data used for the analysis are made up of audio files, transcripts, field notes, photographs, and artefacts.

3.4.1 Audio Files

Audio files were recorded at different venues and events throughout each of the explorations. For example, I audio recorded interviews and focus groups, as well as group reflections. While these were usually transcribed to be analysed, in the case of the partnership quilt and the red umbrella archive, the audio-files themselves were important. The use of peoples' intonation, regional accents, as well as emotion that is conveyed through the voice were important in reflecting on the ways in which the artefacts facilitated certain kinds of interactions.

3.4.2 Transcribed Text

In the case of most interviews and focus groups the audio files were transcribed. In these cases, the transcripts themselves became pieces of data to be analysed. In some cases, the transcripts were physically cut up and presented in more colourful and contextually appropriate formats to represent the project. For example, I created a booklet of some of the transcribed conversation about The Partnership Quilt (see Appendix A.1 for an indication of what this looked like). In cases where I used the transcripts to develop novel forms of representing the data, these different representation become

pieces of data in themselves. With this I mean that, for example, a printed out and annotated transcript (see Appendix A.2 for an example of this from the Red Umbrella Archive project) is aesthetically and materially different to the hand-stitched booklet.

3.4.3 Field Notes

I also collected handwritten notes in many different formats. These included things such as minutes from meetings with my collaborators, but also included personal reflections, and ethnographically inspired field notes. Sometimes these notes included early design sketches and diagrams to help me think about theoretical framings of my work, or as a way to sketch out connections between stakeholders. See Appendix A.3 for some examples of this. These notes were stored in a series of different notebooks. Some of these notes were later typed up into vignettes, meeting minutes that were sent around to collaborators, as to-do lists, or into sections of papers and parts of this dissertation. At other times, I also took notes digitally. This was particularly often the case in the Digital Ugly Mugs project where many of my notes were related to system requirements, bug reports, and documents that were passed between myself and NUM staff. In this case, the notes also sometimes turned into simple as well as stylized documents – I will go into this in more detail in the following sections on 'Booklets'.

3.4.4 Photographs

I also took and collected photographs of the research projects: pictures of sketches, artefacts, or diagrams that were produced as part of the research process. Sometimes these were created as a way for me to reflect on and understand some of the processes and theories involved in the projects that ultimately made up this dissertation, but the majority of these were developed in collaboration among the stakeholders of the different projects.

On top of these kinds of diagram-pictures, I also took pictures of craft processes. For example, each of the members of staff from NUM created cards to represent themselves in various contexts in the initial interviews in early 2016. The process of the production of The Partnership Quilt and The Red Umbrella Archive were also documented photographically (see the corresponding chapters - 4, 5, 6, and 7 - for examples of these pictures).

These pictures were taken with intent. With each picture, I either hoped to capture a particular experience (eg. the feelings of walking down a busy shopping street with red umbrellas), or wanted to document a particular

process (eg. the act of placing a decorated umbrella on the plastic box to illustrate the recording of an audio-message in the Red Umbrella Archive).

Other participants also took pictures throughout the process. Just like myself, they will have had their own reasons for taking these particular pictures. Some of these were shared with me at later stages in the research to use in this dissertation and other accompanying documentation of the projects. As part of this exchange, I also shared my pictures with GAP/MAP for their own records. While I am able to use these pictures in publications such as this dissertation, I can only really interpret these pictures according to my own analysis, I will not be able to fully capture the intent of the photographer.

The many different visual representations of the projects that are made manifest through the pictures taken by different people, each have different layers of meaning. While the photographer had particular intent for taking the pictures, I am able to add a different layer of meaning to these pictures as part of my own analysis. Placing these pictures in a document such as this dissertation provides yet another visual representation of the projects, ultimately creating yet another layer of meaning, which is then added to again by each reader who in turn creates their own interpretations based on my visual and textual analyses.

3.4.5 Artefacts

The artefacts that were produced in each of the three explorations can also be seen as data. Photographs of the artefacts, the artefacts themselves, but also the tacit knowledges involved in their production as well as the emotional connections of all participants are important here. While I am not able to elicit the emotional connection that all makers had towards the artefacts, I did have conversations (and in some cases audio recorded group reflections or interviews) with some of the stakeholders to better understand their feelings towards the artefacts. These were recorded as the types of data recorded above, but the tacit understandings were very hard to record. I will go into more detail of this in the 'Data Analysis' section of this chapter.

Throughout the explorations various artefacts were created by myself (eg. the booklet of transcribed conversations mentioned above), participants (eg. the diagram representing each member of staff at NUM mentioned above), or in collaboration (eg. The Partnership Quilt). Here, I want to focus on the artefacts that were developed in collaboration. Sometimes these were physical artefacts that make up elements of the design process, at other times the artefacts were made by individuals to create a bigger, collaborative whole, and other times multiple people worked on a single artefact. Other times however, for example in the case of the Digital Ugly Mugs project, the

final artefact is digital.

For example, in the exploration of the appropriation of digital technologies by NUM (see chapter 5), I created a service blueprint that detailed the various administrative processes staff go through to carry out their work. Here, I used previously collected data to create this artefact. The artefact in and of itself is a piece of data, but it also facilitated the collection of audio-recorded conversations of staff to discuss what I had collected. In this workshop, staff not only discussed, but also wrote on the blueprint itself to continue to develop it. Similarly, the individual wooden umbrellas that were decorated by individuals to make up The Red Umbrella Archive are an example of artefacts that were made by individuals to create a bigger, collaborative whole. Each person who created one of these umbrellas created their own meanings of the artefact, but when put together, the artefacts (and the associated audio recordings) create the archive.

Finally, some of the artefacts that were produced for this research were created collaboratively. The Partnership Quilt is perhaps the best example of this. All stakeholders involved in the project contributed to the final artefact (the quilt) in different physical ways. This occurred in several workshops where many of us sat together. Often however, individuals carried out the work outside these formalised settings. Sometimes, the artefacts incorporated other elements of data (eg. audio recordings that are embedded in the quilt) or were the subject of different pieces of data (eg. pictures taken of the artefacts or reflective writing about the artefacts). Overall however, the artefacts became meaningful pieces of data in and of themselves.

3.5 Data Analysis

In the chapters that provide details on the explorations (see chapters 5, 6, and 7), I provide comprehensive overviews of the design processes. To do this, I wrote a thick description of what occurred based on my interactions with the charities. These thick descriptions are based on interdisciplinary, mixed, and interdependent modes of data collection and analysis. I did not go through formalised 'data collection' and 'data analysis' phases in my research, but rather engaged in an analytical action research process where analysis, data collection, and action went hand in hand. As described above, I collected and collaboratively developed messy and multifaceted data. These interconnected and varied elements require analytical approaches that engage with each of these as equally valid. I understand that analytical processes where data can be seen as representations of actions of individualised interpretations of the world can feed into organisational practice. What I mean with this is, that

if I see research as work (and this work as 'doing' and 'acting' (Reid 2006)), images and other creative data become part of the vocabulary and grammar of this dissertation.

While for the purposes of each of the research projects, and for this dissertation, the research process carried out felt appropriate, I do not claim that every research project working to design technologies in J-OEs needs to be as messy, complex, and co-dependent as those described here. Rather, these processes have been part of my learning, as well as the organisations' grappling with digital technologies and their integration into service delivery (to a certain degree also the research process in and of itself). Working in J-OEs and within a dialogic frame of multi-layered justice however provides us with a certain 'mess' in the research process. These processes were also part of the development of what Akama & Light (2018) call 'practices of readiness' and involved a "consciousness of working with and immersing in the flow, gaps and rhythms of change" – which they refer to as punctuation.

I have been struggling with traditional ideas of 'qualitative data' as much of my research practice did not seem to fit into expectations presented through my readings of traditional formats of qualitative data collection and analysis. PAR and RtD offered an element of security to me due to its focus on 'research as process' (Durrant et al. 2017, Zimmerman et al. 2007), placement of value on 'workbooks' (Gaver 2011) or artefacts (Pierce 2014), and other potentials for more creative processes and frameworks for analysis (Clarke et al. 2014). This dissertation explores the development of technologies in charities (which can be seen as design and as such would be likened to RtD), my analysis of these are on a more methodological or theoretical level than these frameworks intend. As outlined throughout this manuscript, many of the ideas presented in this work were not only my own, but rather the result of organic or intentional research and design choices made with and by project partners or participants. This again emphasises my belief that it is not necessarily possible to separate 'data collection' from 'data analysis' in messy projects such as the ones I have worked on.

St. Pierre & Jackson (2014)'s Special Issue on *Qualitative Data Analysis After Coding* in the Journal of *Qualitative Inquiry* provide further explorations into what can be considered data and analysis. The various articles in this issue address modes of research that felt much closer to what I was trying to achieve than previous literatures of 'creative' data collection (for example Kara (2015)). Reading articles about 'Doing Without Data' (Brinkmann 2014) and 'Collage as Analysis' (Holbrook & Pourchier 2014) helped me re-trust the methods I had developed within the methodological framework I outlined above. Further to the ideas that 'action' in itself can be a form of research (Gatenby & Humphries 2000, Kindon et al. 2007, Reid

2004). In the special issue, Freeman (2014) argues that 'thick description' (which is often used to represent research of an ethnographic nature) does not need to be only the outcome of research processes, but rather that it "can be more productively considered as an aesthetic encounter guiding the research process from beginning to end." In the case of this dissertation, I would go further than claiming that the production of the final thick descriptions that make up chapters 5-8 were in themselves analytical processes as the writing and production of project reports (eg. *The Partnership Quilt: Project Report* in Appendix A.4 or the *The Red Umbrella March Report* in Appendix A.5), and other pieces of documentation (eg. a magazine article I co-wrote with Janis Meissner about The Partnership Quilt in Appendix A.6), or even poster presentations (eg. The partnership quilt poster at CIRN in Appendix A.7), publications, and facilitation of academic workshops (see Appendix A.8 or (Strohmayer, Marshall, Verma, Bopp, McNaney, Voida, Kirk & Bidwell 2018)) also were part of my analytical process.

Throughout the time I was working on the dissertation, I engaged in analytical thought about the work in a tacit, unwritten, and sometimes undocumented way. This tacit understanding developed into tangible manifestations of the projects both in an academically- and charity-focused sense (as designs such as in the case of Digital Ugly Mugs, artefacts such as The Partnership Quilt, or written work such as publications or personal reflexive pieces). In this way, I was able to stress "characteristics of self-awareness, of being emplaced and contemplation of how one is and acts" (Akama & Light 2018) – which Akama and Light call *poise* within the *practices of readiness*. Being embedded in and proactively evolving the J-OE within which I operated, allowed me to understand the multiple objects, actors, or entities, as well as the ways in which they relate to one another. It allowed me to develop not only my *practices of readiness* but also the *poise* with which I engaged in the work with collaborators.

To support the thought-processes behind these hybrid-analyses, I carried out a number of different activities to help me think about how different types of data and action fit together. This understanding manifests in the production of two types of concept-things (Pierce 2014) and processes: the making of booklets and quilting. I see these two kinds of artefacts as concept-things, as this helps me conceptualise them in different ways of meaning-making. For example, the booklets I produced throughout the time I worked on the research projects in and of themselves can be seen as outcomes of the project – seeing them as concept-things however also allows me to write and think about them in different ways; in this case as a form of analysis. Furthermore, the documentation of the process, as well as the production of crafted outcomes has the potential to make visible the invisible labour (Puig de la

Bellacasa 2011) and care (Light & Akama 2014, Puig de la Bellacasa 2017) involved in research projects and endeavours as well as personal connection to histories (Rosner et al. 2018).

3.5.1 Booklets

Across all explorations, I made use of self-published booklets as a way of documenting and analysing the research processes (see for example Appendices 3.4 or 3.5 mentioned earlier). As discussed by Freeman (2014), similar to the production of ethnographies, the writing process in itself was a form of analysis. Similar to Fox & Rosner (2016)'s work, they also functioned as tools to feed the academic learning back to collaborators. I developed at least one booklet for each of the explorations, and developed multiple in some cases. Each of these booklets however went through various iterations and drafts: they were proofread by charity partners, and in most cases edited by them as well. In the case of The Partnership Quilt report one of the members of staff also wrote a case study based in experiences of one of the participants to be a part of the booklet.

The co-production of the publications support participation parity (Fraser 2008) as a way of articulating the process from various points of view. Linking Freeman (2014)'s ideas of writing as a form of 'productively considered' analysis, to ideas of PAR, has the potential to turn the collaborative production of these booklets into a form of collaborative analysis. With this I am not claiming to have carried out a fully participatory analysis of each of my projects, but rather I provide an example of how I have forefronted dialogue, relationships, and self-disclosure not only in the collection and production of data, but also in its analysis. This cyclical nature of data production, analysis, and re-use of these analytical tools as starting points for the development of new data are a clear example of the ways in which data production, collection, and analysis are deeply interlinked (Bardzell et al. 2016).

Further to the booklets, I also engaged in more academically-focused writing throughout the PhD to engage in analysis, some of which has resulted in publication at interdisciplinary venues (see Appendix A.17 for a complete list). Similar to the booklets, these manuscripts were read, commented on, and in some cases added to by members of the partner organisations – in one case, collaborators wrote a magazine article themselves (see Appendix A.9). These different approaches to writing-as-analysis resulted in the production of academic articles, a book chapter, a magazine article, posters (see Appendix A.7 mentioned earlier), as well as a press release (see Appendix A.10).

3.5.2 Quilting

Towards the end of the projects, and inspired by the idea of collage as research (Holbrook & Pourchier 2014), I started to integrate some of my analytical thoughts into small pieces of hand quilting. Similar to the production of The Partnership Quilt, the process as well as outcome were both integral to the meaning-making that was made possible through their production. I worked on three different small quilts, each illustrating aspects of each of the projects. As I was working however, I began to think beyond the values of 'personal research experience' and 'positionalities', and moved towards researcher reflection as analysis. This was made manifest in the choice of materials, stitches, and imagery used in the individual pieces. This personal craft process of analysis also supported my wellbeing and moved forward my analytical thinking.

I made use of materials that were available to me at the time of starting and working on the quilting projects. I used pieces of leftover fabric from other sewing projects that I had at home and that were available to me in Open Lab – I did not buy materials specifically for this analysis. Alongside the choice in base fabric, I also recycled materials for the backing fabric and wadding to turn the individual pieces of fabric into small quilts. On top of the choice of background fabric, I also chose to include other materials that were available to me from the various creative workshops I carried out throughout the research processes. Not only were the choices of materials a conscious decision, but so were the techniques used to create the pieces – the stitches in particular played an integral role to my analysis through quilting. The stitches of the small quilts function as a way of storing the tacit understanding that was developed throughout the projects. The choices in the stitches for each of the sections were deliberate – making the length and neatness (or lack thereof) representative of the mess that was inherent in the research processes outlined above. Furthermore, the repetitive nature of these stitches, supported my reflection of the process.

For example, the stitching for The Partnership Quilt patch (see Appendix A.11) was neater than that of the quilt produced to reflect on the Digital Ugly Mugs project (see Appendix A.12). At the same time however the messy back of the sewing will be hidden inside the two-sided quilt for the Digital Ugly Mugs project, while it was purposely left on the back of the piece representing The Partnership Quilt exploration. Decisions such as these were made consciously to represent various elements of mess in the research, as well as the sophistication of the technology and/or the ways in which the process and outcomes of the projects should be represented to those who were not involved. With this I mean that, for example, the Digital Ugly

Mugs system will need to look seamless and be fully functioning at the time of the launch (meaning the finished quilt will represent this). While The Partnership Quilt was very much a work-in-progress for all parties, and the technologies we used here were more experimental than those for the Digital Ugly Mugs project (which is shown in the quilt, particularly in the back).

I was able to use pieces of fabric and particular kinds of stitches in a way of representing symbols, artefacts, and words related to each of the explorations. For example, I represent the Red Umbrella Archive (see Appendix A.13) through the use of various fabrics and colours of embroidery thread to illustrate a hanging decorated umbrella. Alongside this umbrella, there are also three words hanging from the same bar at the top of the piece. The words 'share' 'listen' 'remember' are illustrative of some of the meaning-making that is involved in the production and exhibition of, as well as the interaction with, the tangible and intangible elements of the hybrid archive. In other cases, such as in the piece created to reflect on The Partnership Quilt, I used techniques similar to those used in the project. To start off this piece, I did some English Paper Piecing to build the basis of the imagery used on the final quilted patch: small hexagons that are sewn together in the same way as the rosettes on the finished Partnership Quilt. Following the appliqué of the paper pieced hexagons, I began integrating other imagery and words such as hearts, red umbrellas, and the text 'Challenging perceptions with he*art*' into the piece to begin to layer the meanings and representations present in the research process that developed around the production of The Partnership Quilt.

The quilting proved not only as a useful and valuable tool in thinking about and representing some of the research processes, but also on a more personal level. It supported my thinking and analysis, but it also supported my mental health and sense of wellbeing throughout the last year of my PhD. Not only was the stitching involved in the quilting analysis useful to represent some of the tacit learning that took place throughout the explorations, but they were also a way for me to engage in a mindful activity during a stressful time. As Burt & Atkinson (2012) points out in their research, craft and quilting in particular, have benefits for the maker in relation to personal well-being. PhDs are stressful times for the candidate, and I know that there were often times where I was very stressed not only while writing this manuscript, but also while carrying out the work necessary to be able to write about it. Throughout the years, I engaged in various craft activities such as knitting or crochet, but few stuck with me as much as quilting. The flexibility this skill provides me in relation to the choice in stitches, imagery, and meanings presented above provide me with an opportunity to create something out of the tacit learning I have been struggling to document in more traditional

ways throughout the process.

Having finished these three pieces now, I am wondering how this kind of thinking would have affected my research as a whole were I to start the projects now. How would my process of data collection and analysis have differed were I to implement the idea of 'quilting research' as an integral part of the process? For example, Jenny Hall documented her teaching processes for her EdD in the shape of a midwife quilt[3]. Quilts and arpilleras (quilt-like artefacts produced on hessian bags) have also been used for centuries to document mundane experiences as well as life under oppressive regimes (Doolan 2016, Greer 2014). Even though quilting and crafting have been used to document experiences and reflections, I do wonder about the (seemingly untapped) potential of quilting as data collection or field work diaries more specifically. I have addressed, particularly in chapter 7, the importance of craft and sewing in relation to personal wellbeing, community building, and institutional outcomes, but what role can craft, collage, or needlework play in researcher reflection?

Coming back to the theoretical and methodological framework detailed above, I ask myself: how can I as a researcher play a more active role in the production of and reflection on 'data'? And if 'the researcher' is supposed to be an active participant in the PAR process, why limit ourselves to using collaborative, creative, or artistic ways of expression with participants? How can researchers continue to embrace the existence of research in a *post-coding world* (Augustine 2014) in more creative ways?

3.5.3 Summary

As can be seen from this description of my analytical processes, I was able to integrate elements of both personal reflections and tacit understandings of the research processes and collaborative forms of meaning-making throughout the life-cycle of each of my projects. These analyses were part of the PAR cycles, as well as the overarching research that crosses the boundaries of individual projects (which I will discuss in chapter 8). The booklets and quilts therefore became physical representations of the (individual and collective) thought process, not dissimilar to Pierce (2014)'s concept-things and 'workbooks' (Gaver 2011). As such concept-things (Pierce 2014) they are simultaneously the start and end points of analysis and action. Therefore the 'doing' of the work in itself (or the design process and production of concept-things and other data) is part of the analysis in on-going and cycli-

[3]See here for more information on the quilt and the researcher-artist: http://www.midwiferyquilt.co.uk/

cal processes. The booklets and quilts particularly however are also artefacts that have an endpoint; that are finished and published at a certain point. This means they do not only represent the process of analysis, but also function as punctuation (Akama & Light 2018); as opportunities to stand back, reflect, and articulate what has occurred.

I arrive at the discussion by reflecting on the processes in which I operated, as well as the booklets and small quilts I made to better be able to reflect on these. I use language from both Fraser (2008) and Nardi & O'Day (1999) to develop vocabulary to better be able to reflect on how PAR and RtD processes can help us understand J-OEs. I work in a way that forefronts artefacts in such participatory and practice-driven ways through which I am able to learn about the ways in which those artefacts are created (i.e. the organisations in which these processes take place). At the same time, I am also able to learn about these organisations and the ways in which they use and design (new) digital interventions and services

In chapters 4 through 7 I have produced my versions of understanding these collaborative research design, data collection and production, as well as reflexive and analytical processes. Before going into detail of the learning from the processes described above however, I want to now focus my attention on some of the ethical implications of carrying out this kind of work.

3.6 Ethical Considerations

Since ethical practice is inextricably bound to the research framework and process outlined above, as well as my discussion of the politicisation of this kind of research in chapter 2, I want to now further discuss the particularities of ethics. The work described in this manuscript followed Newcastle University's guidelines and underwent the Faculty of Humanities, Arts, and Social Sciences (HASS) board of ethics. Ethical approval was sought for the collaboration with each organisation separately. While working both with NUM and GAP/MAP I was guided by staff experience and expertise.

Particularly in the case of working with GAP/MAP this influenced not only my in-situ decision-making on sticky issues, but it also impacted on the whole institutional ethics procedure. Prior to working with GAP/MAP we worked on the institutional ethics application to Newcastle University together: After conversations with some of the members of staff, I drafted the application. Before sending it to staff for comment, I also highlighted sections where I thought it would be particularly helpful to have their input and requested any official guidelines they would follow themselves as staff in the organisation. I received policies regarding safeguarding and corpo-

rate responsibility, which were also included in the formal ethics application. Following several rounds of review from Newcastle University, we obtained ethical approval six months after our initial application. This collaborative ethos was also followed as the projects were progressing.

Staff and I would discuss issues that arose throughout the research either in-situ, or in follow-up conversations. For example, I addressed the concerns of consent with participants in the first collaborative quilting session I attended to discuss the concerns not only with GAP/MAP staff (with whom I had addressed this previous to the 6-month institutional ethics process) but also with the people who's consent was the topic of discussion. The women with whom I discussed this felt that written consent would unnecessarily "formalise" a project that was "meant to be fun". They felt that signing an official university document would "take that [fun] away". Staff were also part of this conversation, and were involved in asking some follow-up questions of the service users. In this particular case (as in many others) I took the lead from GAP/MAP staff about how to proceed; given their experience, knowledge, and intricate understanding of their own organisational practice, as well as their relationships with the service users, I sought and followed their advice.

For me, the institutional approaches to research ethics at Newcastle University do not go into enough detail of hyper-contextualised and collaborative projects such as the ones I have engaged with. I would argue that these kinds of projects require more reactive, reflexive, and in-situ considerations for ethics than a formal application at the beginning of a project allow. Due to the cyclical nature of the collaborations with partners, ethical questions often arose and had to be considered and acted upon instantly. While in-situ ethical questions are a documented occurrence in many PAR projects that operate in sensitive spaces (see eg. Reid (2004)), HCI has little language to address the concerns that are related directly to the design of digital technologies in these spaces.

As such, I dedicate sections of the discussion to this, and consistently raise some of my concerns throughout the following chapters. In the discussion, I address issues related to designing for risk, hybridity, and entanglement when designing technologies in PAR and RtD projects with TSOs. I want to honestly highlight some of the ethical conundrums and concerns that I encountered throughout my explorations by reflecting on them in relation to the ways in which I have worked and designed within J-OEs. I do this by reflecting on invisible work, as well as some high-level ethical implications specifically for designing digital technologies in these spaces in chapter 8.

3.7 Summary

In this chapter, I have addressed the ways in which PAR and RtD can support the building of understandings and contextualised technologies in J-OEs. Here, I described the ways in which data, action, and analysis have come together in my pilot study and three subsequent explorations that make up the empirical sections of this dissertation. The following chapters are made up of one visual representation of putting into practice the above methodology, methods, analyses, and ethical considerations. Due to the inherently qualitative nature of the work, and since this dissertation is only one of the many outcomes of the explorations, the subsequent chapters are one version of the narratives of the projects that were developed in collaboration between service users, volunteers, charity partners, research developers, other researchers, and myself. This version is based on my understanding of the sequence of events, as well as my interpretations of the processes and outcomes of the projects.

Each of the chapters provides a particular response to the overarching research question of this dissertation: *How can digital technologies be collaboratively designed, developed, and appropriated with and within sex work support services to promote multidimensional justice for their service users?* Each of the projects describes one way of either designing, developing, or appropriating digital technologies with, in, or for sex work support services in the UK.

So far, I have begun to respond to the first sub-research question (*What conceptual framings help us better understand the role of 'sex work support services' in the promotion of multidimensional justice?*) by building an interdisciplinary understanding of the ways in which sex work, charity service provision, and digital technologies could intersect (chapter 2). In this chapter, I have provided part of an answer to the second sub-research question (*In what ways can research methods in and of themselves support service providers and users to move towards a space that is more just?*). In subsequent chapters this understanding will continue to grow as I reflect and integrate three explorations to provide the groundwork to be able to answer the third sub-research question (*What ethical and methodological considerations do we have to take into account as HCI researchers when working to design, develop, or appropriate digital technologies with, in, or for sex work support services?*) in chapter 8.

Furthermore, in subsequent chapters, I provide descriptions of the design processes and (some of the) outcomes of these processes in the form of novel digital technologies that support the service delivery of sex work support services and simultaneously promote sex worker rights. I explored the ways in

which digital technologies were appropriated by NUM to carry out their service delivery to collect reports from and alert sex workers about potentially dangerous individuals and situations. After this initial exploration of the appropriation and use of digital technologies for service delivery, I develop three implications for design (more on this in chapter 4) that are then put into practice in the subsequent three chapters. In these chapters, I address the process of designing and developing three digital technologies: (1) Digital Ugly Mugs systems (chapter 5); (2) The Red Umbrella Archive (chapter 6); and (3) The Partnership Quilt (chapter 7). To situate not only the charities, but also these explorations in J-OEs, these chapters do not directly describe and analyse the digital technologies that were developed, but instead provide thick descriptions of the explorations as a whole. As such, I provide information on the work, participation, action, and reflections involved in carrying out these projects not only by myself but also by my collaborators (which included charity staff, service users, and volunteers, as well as other researchers from Open Lab, Newcastle University, and in one case also professional craftspeople).

I feel that bringing the findings together into neatly analysed and compounded themes and sections would not do the messiness, creativity, and interconnectedness of the data justice. Instead, I have chosen to illustrate my research through narratives. By providing this reflexive account and various pictures, I was able to integrate my own feelings; to make clear the personal connections that were part of making the projects meaningful for stakeholders. These thick descriptions are made up of my writing that is supported by quotes, illustrations, and pictures of the research processes and my own reflections on these. They illustrate three differently collaborative design processes to design, develop, and appropriate digital technologies into service delivery of sex work support services.

Chapter 4

Designing Technologies for Justice

4.1 Introduction

So far, I have contextualised the research, and have introduced the conceptual framework of Justice-Oriented Ecologies (J-OEs). After also having addressed the methodological framing of my work, in this chapter I address the kinds of technologies that could be useful in sex work support services. To do this, I provide a description of pilot work I carried out with National Ugly Mugs (NUM) between April and September 2016. The majority of these findings stem from interviews and observations that I carried out in the NUM office, as well as field notes and reflections from a month (April 2016) I spent working in the NUM office where I also facilitated a number of planned and spontaneous focus groups with staff, and was involved in carrying out some administrative tasks to support their on-going work. I also use findings from drop-in sessions I observed at a sex work support service that provides services to street-based sex workers who may not be NUM members to illustrate experiences of some of these sex workers. Even though I began working from Newcastle again after the 1-month secondment to the NUM office, I continued to visit the office regularly, and spent time with staff in the office or at events. Based on this work, this chapter provides an analysis of the collaborative reflections on existing use of digital tools, platforms, and technologies as well as many discussions surrounding the potentials of different technologies. NUM is a small organisation with a huge remit and large membership of over 5,000, so I also engaged with NUM members (other third sector organisations and sex work support services as well as sex workers) in different ways to better understand the expectations and needs of these

different communities. In this way, I believe I was able to obtain a nuanced view of the organisation, their goals, practices, and engagements to be able to carry out the work they do to advance justice with and for sex workers.

I have written elsewhere about the social justice outcomes in sex work support services based on this work (Strohmayer et al. 2017, Strohmayer, Laing & Comber 2018), but here go into more detail of NUM and their service delivery. First, I provide a detailed overview of the justice-oriented ecology I became a part of. I start this by reflecting on the timing of this project, particularly in relation to the ways in which NUM developed as an organisation, and how the work we planned to carry out together was part of this on-going development. After this, I outline the different members of staff and the roles they perform. I also provide a description of the different technologies that NUM already make use of to better contextualise the reflections on their use of these technologies in the following sections of this chapter. After having provided this overview, I move on to describe the different practices NUM staff and members carry out through technologies. While there are many different potential ways of reflecting on this, here I provide examples related to the reporting of and alerting about potentially dangerous individuals and situations (which is the core service delivery of NUM – the 'ugly mugs' scheme), as well as examples of NUMs mobilisation practices. What I do not address here explicitly is much of the care work NUM carry out as part of clinical supervisions among staff to ensure staff wellbeing, or even the many different ways in which NUM work alongside other organisations, restorative and criminal justice systems, as well as the sex worker rights movement. Looking at the ways in which NUM carry out both the reporting and alerting, and mobilisation practices however, provides me with a solid understanding of their core service delivery. Towards the end of this chapter, I conclude my analytical description of this work to provide a more focused discussion related to the potentials of digital technologies in this space. I develop three implications for design that support meaningful design processes in J-OEs, and that helped me develop the three explorations I address in subsequent chapters.

4.2 The Justice-Oriented Ecology

NUM staff and I began to reflect on their existing use, thoughts, experiences, and needs of technologies together. Initially, we had several meetings to plan potential ways of tackling this huge question, but later this developed into collaborative, flexible, and often in-situ research design as well as extended period of time where I worked alongside staff. This kind of collaborative and

embedded work allowed me to build a nuanced understanding not only of their use of digital technologies, but also of their organisational development, the different roles staff carry out on a daily basis, as well as the variety of technologies they make use of to be able to carry out their work. In this section, I first reflect on the project timing. Secondly, I provide an overview of the different members of staff and their roles, and lastly I provide an overview of the different digital tools they used to carry out their work. After this descriptive section of this chapter, I move on to more analytical writing to reflect on the ways in which their service delivery relates to the aims of the organisation.

4.2.1 Project Timing

At the time I was starting out on the collaborative project with NUM in April 2016 I worked from their office for a month. Two new members of staff had just started, one of the London-based staff members had their training the first week I was in the office, and the other London-based member of staff was being recruited. This was the first time in the charity's life that they were able to fund roles for specific tasks beyond administration and case work. This was a sign of the organisation growing not only in size but also in remit as they were now able to carry out not only their core service delivery (the 'ugly mugs' scheme) but they were also able to engage in different activities (eg. policing and justice advocacy). This growth in service delivery and work was part of a larger development of the organisation moving from being a reporting and alerting scheme towards a charity with a model of multifaceted and multidimensional service delivery. For example, it was only a couple of weeks before I started, that NUM underwent a staff reshuffle. This reshuffle was part of the larger changes that the charity was undergoing.

To better understand the reasoning behind these changes, it is important to look at the history of the organisation. It was more than ten years ago, that a network was established to connect many of the UKs sex worker projects and support services. This network developed into an interconnected web of charities, organisations, and projects that cater directly to sex workers, but also included charities that addressed broader healthcare, substance use, or housing issues who also serve sex workers. This was called the United Kingdom Network of Sex Work Projects (UKNSWP). They existed alongside NUM in a landscape of organisations such as the International Committee for the Rights of Sex Workers in Europe (ICRSE) and the Global Network of Sex Work Projects (NSWP). This network had little funding, but was spearheaded by a number of dedicated individuals who tried to keep the website (uknswp.org) up to date, and developed a Special Collection that is

hosted at the University of the West of Scotland[1] which compiles literature published on sex work including briefing documents, information sheets, and other non-academic literatures. Members of the network also organised the Northern Forum, which was an annual meeting hosted in different parts of the north of England as a peer-support group for staff and projects to meet and address issues they are facing when working with sex workers, police, government agencies, or other regional and specialist groups.

In 2012 the UKNSWP received funding from the Home Office to pilot an 'ugly mugs scheme'. The idea for this scheme was not new, as schemes where sex workers share information about potentially dangerous individuals have probably existed for as long as sex work has existed, but its national remit made it unique. Even though across the world there are many projects, organisations, or grassroots organisers who develop such schemes (for example in Montreal (Strohmayer et al. 2019), and in the UK many projects already had ways of letting their service users know about 'dodgy punters' (or clients who may become violent) that had been reported to them), the UKNSWP was the first to develop this on a national scale. On top of this, it is also probably the first time that sex workers are not only able to warn one another about these potentially dangerous individuals, but that these incidents are recorded in a central repository to highlight the extent and diversity of violence perpetrated against sex workers. It was also perhaps the first time that this huge amount of intelligence could be shared with institutional bodies of criminal justice, such as the police, to further not only social justice outcomes for sex workers, but also to foster the building of relationships between sex workers and the police[2].

To report an incident, members are encouraged to fill out a form. This was developed by NUM staff, serious crime investigators, and academics, and is used to collect information on violent incidents. Staff told me the form is very long and difficult to fill out, but at the same time it made it possible to turn these reports to the 'ugly mugs' scheme into police reports to not only warn other sex workers of potentially dangerous individuals, but also to provide evidence in a more institutional justice process such as prosecution of the violent perpetrator. It would be the first time that in the UK sex workers had a national intermediary body to report crimes that had been

[1]More information about this collection can be found here: http://www.specialcollections.uws.ac.uk/infoUKNSWP.asp

[2]This is in itself problematic in many ways. Such collaboration is dependent on cultural, political, social, economic, and other developments of the country in which such a scheme is developed. It is not always beneficial to involve police in sex work justice advocacy, as police are also routinely perpetrators of violence. To read more about such a critique with a specific focus on technologies and ugly mugs schemes, see (Strohmayer et al. 2019).

reported against them in a non-judgemental way, an institution that they could trust without fears of criminal reprisal – an intermediary between sex workers and the often-mistrusted police.

Despite the potential behind this pilot scheme, NUM knew that they only had enough funding to run the scheme for a year, and that even if the scheme worked and had measurable outcomes and impact, they would not be able to receive more funding from the Home Office. With this knowledge, the two initial employees of the scheme worked tirelessly throughout the first year to utilise the network that was built by the UKNSWP to build the NUM scheme, deliver training to police and organisations, and get the word out to sex workers. At the end of the year, when the funding ran out, they continued to work to find new funding and to continue to build the organisation.

Similar to many other charities, NUM are in constant flux, adapting to the needs of their service users, the skillsets that new members of staff bring into the organisations, as well as the availability of funding options. But 4 years after the scheme's inception, in 2016, the initially very small and underfunded ugly mugs scheme that was part of the UKNSPW developed into National Ugly Mugs, a body that was now larger than the UKNSWP. The little ugly mugs scheme had developed into a charity in its own right, and in 2016 completed all the necessary steps to be officially recognised as such.

In 2016, when the pilot work this chapter is based on was carried out, NUM was made up of 4 members of staff based in Manchester, 2 members of staff working from London, and the CEO working between the two offices. Some of these members of staff were permanently employed, others were employed on a project basis, and some are part- and others full-time employees. As is the case with many charities, their employment of staff relies on external funding, and as such often changes. Despite the fluidity of funding that the UK charity sector has to deal with, NUM have been able to develop the ugly mugs scheme that remains their core service delivery, while also adapting to the other needs of sex workers in the country by, for example, providing evidence in Home Affairs Select Committees (Laing 2016*a*,*b*), developing their service delivery based on the needs of their service users, or by exploring funding options for police liaison work and/or training for police forces and other bodies.

4.2.2 Staff and Staff Roles

Similar to the ways in which service delivery develops for NUM, so do the different roles staff have. NUM have been able to employ staff to carry out work that is linked to their aims but goes beyond the core service of the

ugly mugs reporting and alerting. In this section, I will provide an overview of some of the staff roles, focusing on those who were employed by NUM and based in the Manchester office in April 2016. This section is based on interviews I carried out with all of the members of staff at the beginning of my 1-month secondment in the organisation.

During these interviews, I asked NUM staff to use coloured pens, coloured pieces of paper, and paper shapes (as seen in Figure 4.1) to document different parts of their jobs. Participants were asked to decorate a paper person to represent themselves, and to use hats to illustrate the many different 'hats they wear' while working at NUM. The flags represented the different tasks they carried out.

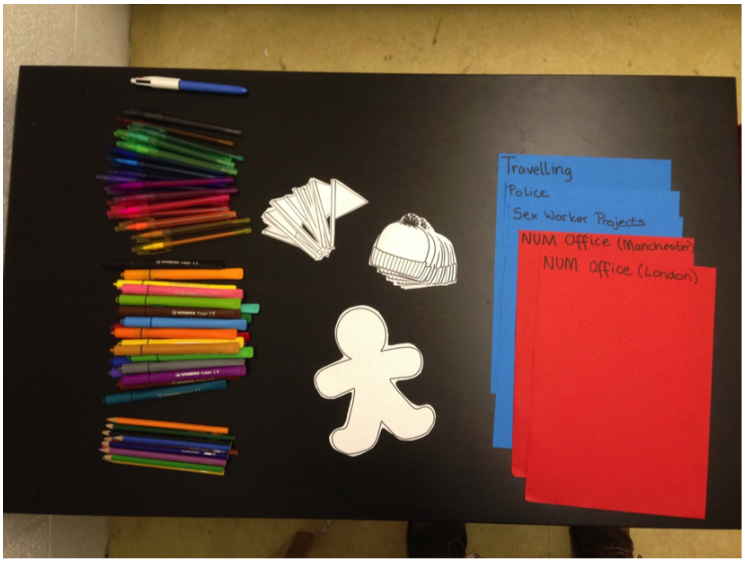


Figure 4.1: Materials made available to staff during initial interviews

All members of staff interpreted these materials in slightly different ways, and as such made use of them in unique ways. The different roles people had, and the types of work they were involved in also affected the ways in which the materials were used. Below, I provide some examples of the process and outcomes of the interviews (see figure 4.2). One participant did not engage with the materials, so instead I conducted a more traditional interview with them.

I interviewed people in managerial, administrative, fundraising, and case work positions. What became imminently clear, was that each member of staff carried out many different tasks while wearing many different 'hats' to do their work. As can be seen in all of the pictures in Figure 4.2, all members of staff used multiple hats to represent the different kinds of work

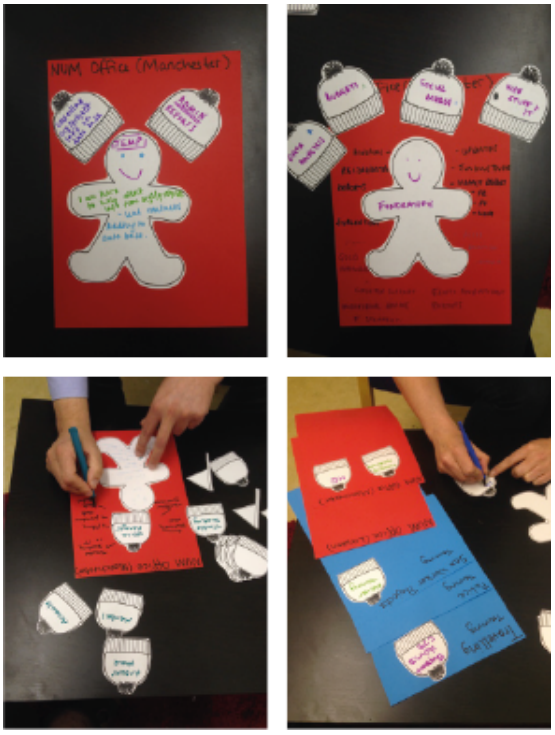


Figure 4.2: Some of the visual outcomes from initial interviews with staff; top left: figure of the temporary administrator; top right: figure of the fundraiser; bottom left: in-progress shot of the main administrator; bottom right: in-progress shot of operations manager

they do. The fundraiser, for example, also carried out work related to the organisation's "budgets", their "data analysis" to write reports for funders and/or compile annual reports, "social media" such as the charity's Twitter and Facebook presence, and any other "web stuff + IT" that are necessary to ensure the charity runs smoothly.

Even though I often talked to these members of staff about their work as part of my observations, it was rare to have time alone with each member of staff to discus the details of their work. These interviews provided me with useful and important context to the ways in which the charity operates, and as such also the work that I was witnessing and taking part in while in the office. While these interviews were valuable to build my understanding of the organisation, I want to make clear that I was not able to interview all members of staff, and that I did not carry out these interviews with new members of staff when they started their positions at NUM. For example, when the office manager left their role at the organisation and a new administrator was

employed to replace them, I did not carry out another interview with the new employee. From conversations with this new member of staff however, it became apparent that while their core job description is the same, the ways in which they carry out their work is different. Their work is based in their previous experiences as well as the skills they bring into the organisation, and the different needs the organisation has based on its own development.

I have created a diagram of all the members of staff that were employed by NUM between April 2016 and July 2018 (see Figure 4.3). I describe the development of staff positions here, because it is not unique to NUM – many charities rely on project-based funding to be able to employ staff, who are then employed to carry out particular tasks and roles. The fluidity of staff will become important again in the next chapter.

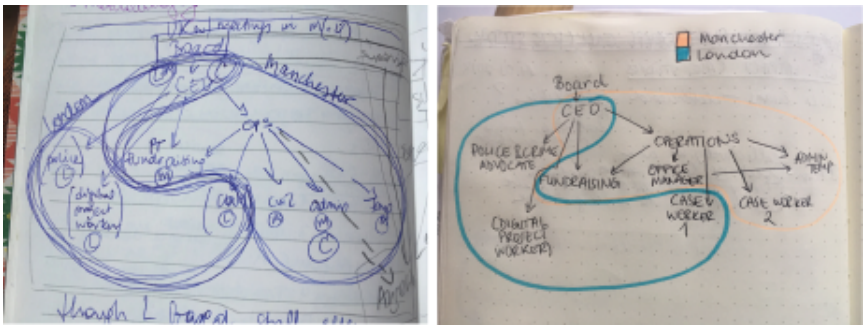


Figure 4.3: Two versions of a diagram of staff employed by NUM I developed as part of my original field notes (left) and an edited version (right)

As part of this diagram I include not only the members of staff I interviewed, but also the different members of staff that were part of the team for only a year (eg. the digital project worker who worked on a different technology project in 2016/17) and avoid detail on which roles were replaced by a new member of staff during my time in the organisation (eg. the CEO or the head administrator). I also highlight where the different members of staff are based in order to better understand the geographic constraints within which NUM operate. Staff are based either in Manchester or London (or commuting between the two). NUM have office space in which all Manchester-based staff come together to work. While they do have office space in London as well, it is rare to find all the London-based members of staff in that office at the same time as much of their work is carried out remotely. In this section I have shown not only that staff carry out a number of different roles while working in the office, but also that there is an interconnected web of staff who work together to reach the aims of the organisation.

Looking at this description through the lens of collaborative research

and/or design of digital technologies with organisations such as this one, we as researchers need to design with flexibility (I address this later in the dissertation). It is important to acknowledge that staff may carry out a number of different roles, and while we do not always need to know exactly what all of these different roles are or how they work together in great detail, we do need to acknowledge the different kinds of work staff carry out. When we engage in research with organisations such as NUM, we need to acknowledge the different kinds of work staff already do, and need to think about how our work fits into this existing model. Particularly when working in participatory research projects where we see charities as J-OEs however, it is important to reflect on not only the different positions and hierarchies already present in the organisation, but we also need to reflect on where we (as researchers and designers) fit into this mesh of people that make up the ecology. In Figure 4.4 I provide an edited version of the above staff hierarchy of NUM, with additions related to myself and my PhD.

When working in a way that is as embedded and collaborative as that described in chapter 3, when we as research obtain 'vulgar competence' (Crabtree 2001) in the various different roles within which we find ourselves as part of our research, we need to reflect on how we fit into the existing ecology. As can be seen in the diagram, I have placed myself within but outside the NUM team – I am both part of the team but also part of a different ecology (academia). From the diagram, it can be seen that my mentor also sits in both of the ecologies as she is on the board of the organisation. We sit both within the ecology of NUM and academia, where we are overseen by different types of individuals, institutions, and governing bodies (such as funders). But when working within J-OEs it is not only us as individuals (PhD students, researchers, supervisors, etc.) who sit between these different worlds. Our work sits at the intersection of these disparate but connected worlds; where we acknowledge the different kinds of work that area already going on, to respect the needs of those with whom we work. Going beyond the role of people within the J-OE, below, I tease out and reflect on the different technologies and platforms that NUM used before we stared working to redevelop their website.

4.2.3 Technologies

From when I started working with NUM I realised they were already making use of digital technologies in innovative ways. Like many charities, they have a website, as well as a number of other tools and platforms to carry out their administrative and case work. Being in their office for my 1-month secondment however showed the importance that whatever technologies we were

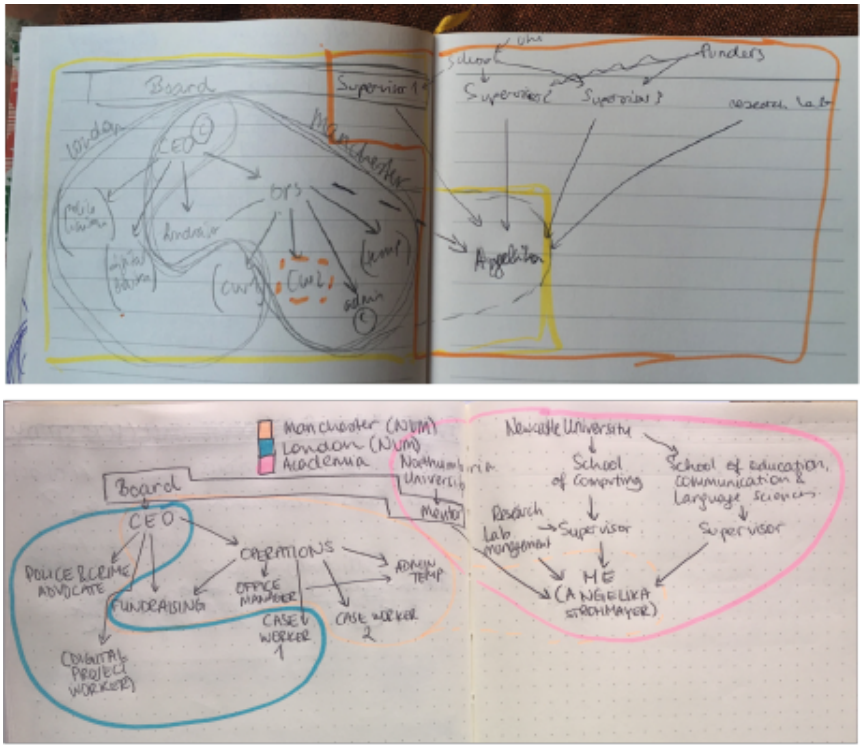


Figure 4.4: Two versions of a diagram of NUM staff alongside other people involved in the project ecology from my original field notes (top) and an edited version (bottom)

going to design to develop their service delivery would have to fit into and enhance their existing use of tools and platforms. Particularly when aiming to develop novel tools to be integrated in such an ecology, it is also important to understand and reflect on privacy concerns, as well as the organisations use of servers and data storage; eg. NUM use gapped servers as well as cloud storage to store sensitive information.

Like many charities and sex work support services, NUM have a website with which they communicate important information about their service. At the same time however, this website is also a main conduit for their service. This website has three different layers: a publicly available, members-only, and staff layer. The public layer of the website contains information about the organisation, their team, press releases, safety information for sex workers, and other information. The layer that is accessible only to members of the organisations contains the report form that is used by sex workers to report potentially dangerous individuals to the organisation as well as the alerts about these potentially dangerous individuals. It is also where the number

and email checker[3] can be found and used. The administrative and editing layer is accessible only to staff. This layer is in itself again split into various different areas of access as, for example, not all members of staff should be able to share alerts on the website.

On top of the website, there are a number of other third-party services that are invaluable for the organisation. For example, they use third party platforms to send e-mail and sms alerts to their members to warn them about potentially dangerous perpetrators that have been reported to them via the report form on the website. These alerts are also shared on the member-only layer of the website. They also use different platforms to ensure the security of their database of reports.

Further to these technologies for direct service delivery, NUM also use digital tools to engage with their members and wider publics. For example, they use Twitter and Facebook to communicate with a variety of communities such as sex worker rights groups, sex workers (both members and non-members), politicians, academics, and other community groups. They also share important information about their services, press releases, job adverts, or other pieces of information about the organisation and its developments on these platforms. NUM also have a YouTube channel where they have posted some of their training videos, but this platform is seldom used. For a brief period in February 2015 and September 2017 they also used Instagram. Usually it is one member of staff's role to post on these various social media channels, but several members have access to some of the platforms. Twitter in particular is used by different members of staff to illustrate the varied events they take part in, as well as some of the developments and happenings in the office, or to elicit feedback from some of their members. Sometimes tweets are scheduled by staff using a third-party software. They do this, for example, on December 17th to commemorate International Day to End Violence Against Sex Workers: they tweet out all the names of those on the database of murdered sex workers they also maintain (Cunningham et al. 2018).

On top of these digital technologies for service delivery and communication with members and other groups, NUM also use a diverse set of digital and non-digital technologies to share information amongst themselves as well as those with whom they engage. For example, they have good practice guidance documents that are available either in print or on the UKNSWP website, as wells as policy documents and recommendations, responses to Home Affairs Select Committees, or other reports on research (eg. the job satisfaction

[3]This is a piece of software that allows members to type in a phone number or e-mail address to cross-reference it with their database of alleged violators

survey (Connelly 2014)). On top of this, they also have a number of internal documents such as Standardised Operating Procedures, presentation slides used for training, or other internal databases. They use e-mails, a landline phone based in the NUM office in Manchester, as well as smartphones to communicate with one another between the two offices or with members, collaborating organisations, or others who are involved in the organisation.

On top of these tools and materials, NUM also use flyers, bookmarks, branded personal alarms, and other materials to advertise their service at a variety of events and within other organisations. They also share materials created by third parties such as SCOT-PEP (a Scottish sex worker rights group promoting the need for sex workers' health and safety) the Sex Worker Advocacy and Resistance Movement (SWARM), or other sex worker rights organisations to spread valuable information on the state of sex worker rights in England, Scotland, and the UK more widely. Considering the history of the organisation as outlined above, it is important to also bring forward the importance of the connections between NUM and various other organisations (both nationally and internationally), as at times they also become part of the J-OE.

All of these digital and non-digital technologies are used by different members of staff to fulfil their roles in the organisation. Together, the staff and technologies, alongside the history and development and contextualisation of the organisation make up the J-OE that facilitates the movement towards reaching the aims of the organisation: to fight stigma associated with sex work, and to save lives through the alerting service.

4.3 Using National Ugly Mugs

NUM are a service that is dedicated to ending violence against sex workers. As such, it makes sense that the majority of those they serve are sex workers. Having said this, there are a number of different ways in which one can become a member of NUM: as a sex worker, as an organisation supporting sex workers, or as an establishment and/or escorting agency. The majority of members are sex workers. Alerts are shared with all members, and many sex work support services who are members will also share ugly mugs information with their service users.

Below, I address some of the expectations and experiences related to the services NUM provides both from members and non-members. Members were asked to fill out a survey in May 2016, and some of these were later also interviewed by myself (see Appendix A.14 for an interview schedule). The survey was based on the original pilot evaluation of NUM from 2012/13 but

also contained questions directly related to NUM's use of digital technologies. The survey was aimed at all NUM members (the wording was slightly different for the version sent to sex workers and that sent to organisational members). A member of NUM staff and I also carried out observations at two drop-in sessions of an organisation that is a member of NUM to better understand the experiences and needs of sex workers who received ugly mugs alerts, but who were most likely not members of the organisation, which I also provide findings from below.

4.3.1 Members

When members were asked why they signed up to NUM, 72.6% said they wanted to receive the alerts. Of those who answered in this way, 41.8% wanted to receive these alerts via e-mail, 17.6% via SMS, and only 13.2% wanted to use the NUM website to look up this information themselves. 18.7% of respondents stated they became a member of NUM to use the 'number checker' - software that is able to cross reference phone numbers (and more recently e-mail addresses) that have been typed in by a member with a database of information that has previously been reported to NUM. Only 6.6% of the respondents initially signed up to make reports themselves.

Overall, the satisfaction with NUM was very high: 95.7% of respondents who were staff of another charity and 87% of sex workers said their expectations of the service had been met. When asked to expand on their expectations and experiences of the scheme, some of the responses were very pragmatic. For example one sex worker said: *"I receive relevant updates, they give me all the information I need to know and I can keep track for future reference"*. Others however showed emotions that are attached to the existence of NUM and their provision of services: *"This is the first time since working in the business that I've ever been warned properly about potential abusers."* Comments such as this one draw attention not only to the positive outcomes of engaging with a sex work support service with aims such as those of NUM, but they also allude to the political nature of charities in this sector. As mentioned in chapter 2, sex work support services work within a politicised space, and their mere existence is a political statement. One sex worker responded to my survey, stating that NUM provides them with a feeling of safety: *"It gives me an extra peace of mind about the client"*. As such, NUM as an organisation not only provides important informational resources for sex work support services and sex workers alike, but it also provides both physical and 'emotional security' (as one survey respondent called it) for sex workers in the UK.

4.3.2 Non-Members

There was an interesting difference between sex workers and organisations who responded to my survey: 26.4% of organisations responded that they engage primarily with street based sex workers, but none of the respondents to the survey who were sex workers stated they were street based. Based on NUMs pilot evaluation (Laing et al. 2013) and impact reports (National Ugly Mugs 2015), I was expecting not to receive many responses from street based sex workers.

Sex workers who are not members of NUM however, are also able to report to the scheme if they engage with a third-party support service who is a member of NUM. To better understand the ways in which these sex workers interact with NUM, I collaborated with a member of staff from NUM, as well as staff and volunteers from a third-party organisation who are members to carry out some observations in a drop-in with street-based sex workers. The charity with which we worked is based in an area of a large city in the UK where street based sex workers often work. At drop-in sessions, they provide warm food and drink, health and other support services, access to computers and the internet, friendly conversation, as well as arts and craft activities for wellbeing. Together, we developed an activity that would maintain the drop-in structure and format that their service users know, and that would support people to engage at their own terms. The activity could be carried out in a very short amount of time, but people could also spend the entire drop-in session with the materials; they could engage with the activity by themselves, with a friend, or as a group; and very importantly they could choose not to take part at all.

Based on my previous visits to the centre to plan the activity, I knew the space consisted of a large table with chairs as well as a number of smaller tables and a sofa. Staff knew of the kinds of activities service users enjoyed and often took part in, and that providing some snacks would also be appreciated. Ultimately we decided on an activity that included a creative element and the metaphor of *puzzle pieces* as we felt this would speak to the regular creative and collaborative activities the drop-in centre hosted: I designed puzzle pieces that each participant could decorate in whatever way they felt was most appropriate for them, reflecting on NUM and ugly mugs alerts more widely. The separate puzzle pieces could then be put together to create a large mural of experiences represented in each of the separate pieces.

As part of the planning process, we also addressed important issues of safeguarding, compensation for participation, as well as data collection formats. We advertised the drop-in session with a flyer that was placed in the centre and shared during outreach (see Figure 4.5). I recorded observational

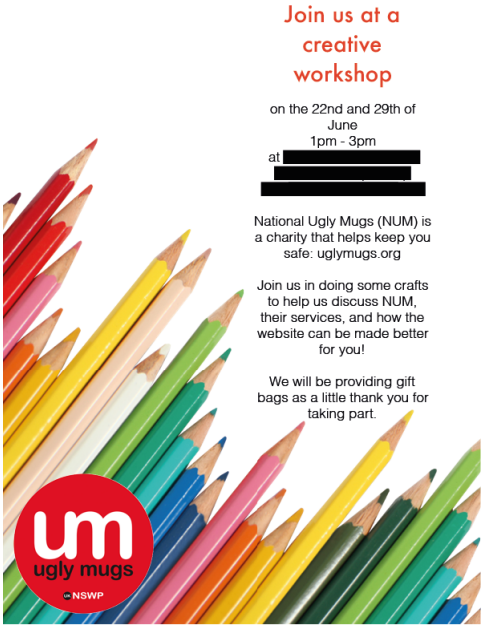


Figure 4.5: Flyer used to advertise the creative session at a drop-in centre for women who are street-based sex workers

notes of individual pieces after obtaining consent from the creator of the piece. In this way, participants were able to take part in the crafting activity provided to them, but not have to take part in the research.

I observed two drop-ins that incorporated this activity. I collected easy-access craft materials and supplies such as stickers, pipe cleaners, or felt-tip markers to lay out on the table. These materials were carefully selected to ensure participants would be familiar with them as they might have used them in school, when crafting with their children, or as part of the regular craft-related drop-in sessions and scheduled creative activities organised by the collaborators. We also included materials that would be familiar to the women outside of crafting (eg. nail polish and lipstick). These materials particularly intrigued some of the women, as they had not thought about using them for craft purposes previously. We also laid out the wooden jigsaw puzzle pieces to be decorated with these craft supplies. These particular materials were chosen to lower the barrier to entry for the creative activity, and to show that it was not artistic talent we were trying to illicit, but rather that we wanted participants to engage in the activity as a means to reflect on NUM, personal safety, and the support networks they have.

Puzzle pieces were decorated by women who engage in street based sex



Figure 4.6: One of the pieces created during the drop-in session by a volunteer, reading: 'Helping to fight the label and keeping women safe'

work (the service is a women-only drop-in space), staff and volunteers from the organisation, a member of staff from NUM, and myself (see Figure 4.6, as an example of a decorated puzzle piece). Altogether, 12 pieces were decorated. The sessions were not only an opportunity to engage with women engaging in street-based sex work, but they were also an opportunity to learn about volunteers' opinions of NUM and allowed me to learn more about how the charity itself interacts with NUM. After reflecting on the sessions with the member of staff from NUM, it was made clear to me that it was also an interesting activity for her as she learnt new things about the ways in which sex workers engage with NUM alerts after they have been shared with a third-party member organisation. As a result of these sessions, NUM adapted the ways in which alerts are titled, to make it easier for sex workers who read the alerts on the walls of a third party organisation as they had done in the centre with which we collaborated, and as we know many other organisations do.

This activity allowed us to engage with the women in a number of different ways. While many engaged with the creative activities, not all who wanted to talk to NUM staff and myself about their experiences wanted to engage in the creative activity (it was very clear that I was a researcher there and I provided information sheets throughout the session). For example, there were two women that did not create puzzle pieces, but were curious about what the NUM member of staff and I were doing at the drop-in. They asked many questions about the research, the research process, and the rationale

behind doing this work. In explaining what I was doing, they began asking about things related to sex work policy in the UK, but also asked me some personal questions as to what I thought about sex work, the policy in the UK, as well as policies in other countries. These conversations circled back to conversations about NUM, which resulted in the two women opening up about their work practices.

Others however did want to engage with the creative activity, and decorated puzzle pieces in different ways: some participants immediately started working on their pieces and were inspired by the messages they wanted to share, while others were inspired by the materials that were provided to them on the table. Other pieces came out of conversations participants were having amongst themselves, with volunteers and staff of the drop-in centre, NUM staff, or me directly. The women shared many stories and the pieces were often inherently political. Many explained to me what the different elements of their piece represented which were very personal, and often showed perseverance, bravery, and power for the women. Some of these included solidarity among 'working girls'.

I do not aim to compare the results from the survey mentioned in the previous section and these observational sessions, but rather see both of these methods as different ways of better understanding the needs and experiences of different parts of the community who interact with NUM. Below, I bring together findings from my observations of and engagements with NUM staff as detailed in the previous section, the surveys with members, and the sessions with non-members. I also expand on the above and provide more pictures of finished puzzle pieces in the sections below. In doing this, I reflect on three important aspects of the work NUM does: reporting, alerting, and mobilising.

4.4 Reporting, Alerting, and Mobilising

Even though since their inception in 2012 NUM's service delivery has developed, their core work remains the ugly mugs scheme. As such, much of my analysis of the organisation has focused on the reporting and alerting processes. Later however, I also address a third aspect of their service delivery: mobilisation practices. Even though they carry out many other things such as advocacy work, Independent Sexual Violence Advisor (ISVA) services, and research, I focus on these three areas as the majority of their work focuses on this. Furthermore, elements of their work such as the justice advocacy for example, also fit within these three wider categories. Below, I draw on the research I carried out with NUM members, sex workers who are not members

of NUM but who engage with a third-party service who is a member of NUM, as well as an analysis of NUM's Google Analytics to reflect on the reporting practices, alerting practices, and mobilisation practices with which NUM is involved.

4.4.1 Reporting Practices

As one respondent to the survey for sex workers put it, *"the system only works if people make reports"*, so I will now explore the different reasons why sex workers report to the NUM scheme. There are two ways in which sex workers can report to the NUM scheme: (1) they become a member themselves and fill out the report form; or (2) they engage with a service who is a member of NUM who will be able to fill out the report form on their behalf. Once logged into the NUM website, 12% of members immediately go to the 'Report' tab from the homepage. They spend an average of 13 seconds deciding whether they will fill out a full report, a mini report, or whether they will download the form. 52% make the decision to fill out a full report. Using the membership information of the logged in member, some sections of the form are auto-filled and given a unique identifying number. On average an individual spends 13:42 minutes on the report form, and once on this page Google Analytics reported a 0% bounce rate which means that the member interacts with the page in some way before leaving it (though this does not mean they will fill out a form, or that everyone who starts to fill out the form will finish this). 27% of members exit the website from this page, 13% go back to the homepage, and the other 60% visit other pages on the website.

The report form is very long and even though some have said that going through each of the 17 sections is *"cathartic"* (survey response from a sex worker), many (including staff) say the form is too long and complex to fill out. This is particularly the case if incidents that are being reported are not seen as 'violent enough' (eg. shouting or swearing at the worker) to warrant the time it takes to go through the entire form. There are many missing unique identifying numbers of the forms in the NUM database, which tells us that many who visit the page may start filling it in, but ultimately do not finish it. Due to the nature of the software that was used to create the form in 2012, we are not able to see at which sections of the form members drop off.

Sex workers who responded to the survey and who had reported an incident to NUM did this for a variety of reasons. Many did it as an act of solidarity, or to *"warn other sex workers in the area"*. Others reported their own experiences for themselves, to feel strong and safe: *"There is a sense*

of emotional security knowing that there is an organisation that is on the side of sex workers and our lives, safety, physical and emotional welfare is of importance".

Even those who have not reported an incident themselves see it as an opportunity to fight back against some of the many social or criminal injustices that are faced by sex workers. One sex worker said that NUM reporting is *"a great idea as for years working girls have been abused and said nothing now they can"*. In a way then, the act of reporting an incident is a political act. It is a channel for sex workers to voice their concerns for their human and labour rights; their right to safe work environments. NUM staff addresses this further as the intelligence that is produced through these reports has been used in campaigns and reports that were organised and written by, with, or for sex worker rights activists.

Looking at the puzzle pieces that were made by non-members of NUM, we can also see that reporting is a very personal, but also political act. At the beginning of the drop-in sessions surrounding the wooden puzzle pieces, several women sat down at the table and were offered tea, coffee, and lasagne. As they were waiting on their food and drink many began to play with some of the materials on the table, asking what all of them were for. One of the women enjoyed the different materials, and grabbed some of the more colourful ones as soon as she sat down at the table. After the woman made the puzzle piece that is seen in Figure 4.7, she explained to me what each element on the piece represented.

There are many elements in this piece, and each of these represents a different but interconnected way of looking at, experiencing, or sharing occasions of crime committed against a sex worker and the support that (should) follow after such an occurrence. The different elements are numbered on the image and their meaning as described and interpreted by the woman who created the piece are described below:

1. One of the characters represents a *working girl* who represents either someone to talk to, or someone who has been attacked by the other green figure: a *dodgy punter*;

2. The feather represents a weight being lifted off the sex workers' shoulders after reporting the incident either through NUM or other similar services online or through direct support services;

3. The smiley face represents *girls* (sex workers) pulling tongues out at *punters* (clients); saying *you can't hurt me! Even if dodgy punters exist!*

4. The heart shape overlaid on a fish shape are a metaphor for the following: if something *fishy* (curious or bad) happens during an interaction

between the sex worker and their client, the sex worker should report it; if this is reported to NUM or the drop-in centre, the sex worker will receive *lovely support*

5. The T&L on the piece shows that this support will be made up of people (T)alking and (L)istening to one another (either through the informal peer support that is represented by the two green paper people or through the reporting process).

6. The *Good*, *HAPPY*, and *SAFE* is how people feel after they have reported, and how this particular woman would feel if she found out one of her friends or colleagues reported a dangerous client.

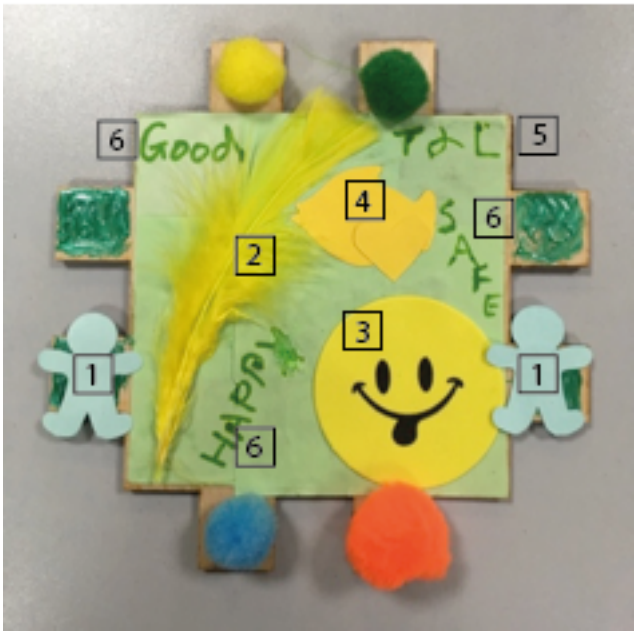


Figure 4.7: One of the pieces created during the drop-in session by a sex worker representing various feelings about reporting incidents to NUM

In the creation process of this piece, she took a lot of care to ensure the green paper (that is used as the background to the puzzle piece) was cut out neatly, and that it fit perfectly onto the puzzle piece; she also decorated the piece with nail polish and pom poms that had no metaphorical meaning for her, but worked to beautify the piece.

Although this piece did not focus directly on how the woman feels about NUM as an organisation, the way she used the craft supplies was unique: she was able to share many different things about sex work, sharing information

among sex workers, and how they feel when personally reporting crimes committed against them, or when a friend or colleague makes a report. When going into more detail of the piece, and reflecting on the conversation that surrounded the creation and presentation of it, we learn that being *happy* and *safe* is more important to this particular woman than feeling *good*. We see here that the crafting supported the woman in sharing her experiences, thoughts, and opinions on a variety of topics, giving everyone that engaged in the conversation surrounding the piece a more detailed understanding of the nuances that are present in street-based sex work. She used metaphors to express herself, combining them with other design choices to make the piece aesthetically pleasing, showing she wants to send a message to those who look at the piece to engage with it in different ways. To utilise it as a starting point for conversation once it is hung up on the drop-in centre walls; to show solidarity with women who have had to experience violence.

Another one of the puzzle pieces shows the ways in which women at the charity report to NUM (see Figure 4.8). When asked to explain the choice for materials, colours, and overall design of the piece, the woman explained to me that the piece as a whole is a description of the way *"working girls"* feel after they have reported a *"dodgy punter"* or violent/uncomfortable client.

1. The woman loves cats, so she chose a paper cat to represent herself.

2. The butterfly represents the freedom and *'good things'* that come along with reporting the dodgy punter. On the butterfly, she wrote the words *hope* and *happiness* as these are the feelings she most strongly associates with reporting, and as such the creation of an alert. Furthermore, she used these to *'keep girls positive and going'* since these puzzle pieces will be displayed in the drop-in space.

3. The two smiley faces on the piece represent girls who have had bad experiences with punters after they had reported the incident.

4. She wanted to finish her piece with something colourful and soft, so she chose the colourful feathers.

Overall, the woman sent a message: to *stay safe and report anything dodgy*. This piece was made by one of the women who was drawn to the table as it had many craft supplies. With the piece, she does not expresses the direct experience that some women have with *dodgy punters* but rather the feelings and experiences that come after reporting this incident. Here we can see that when there are experiences of violence, it is important to not only think about the violence itself, but the aftermath of having done something as

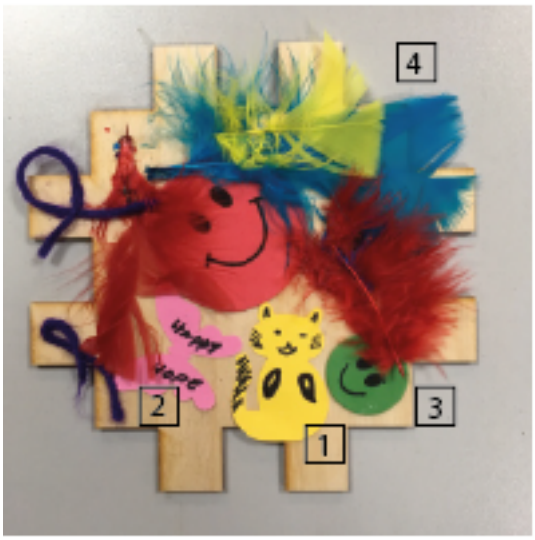


Figure 4.8: One of the pieces created during the drop-in session by a sex worker representing how 'working girls' feel after reporting an incident

a response to this violence (in this case the reporting). The positive feelings she portrayed in her piece are what came out of the intervention that was designed for the experiences of violence. Designing in these ethically and emotionally sensitive spaces requires nuance and a deep understanding of the context one is designing within, but when this nuanced understanding is there, it is possible design simple interventions. For example, the reporting of a crime that is associated with a cycle of alerting, archiving, and wider social and criminal justice implications can have direct impacts and effects in the ways in which people are able to engage with these violent experiences. In the case of this participant's insights, these can be feelings of hope and happiness.

After having brought forward all of this, it is also important to mention that while reporting has increased since the inception of the organisation, there is still a lot of work left to do. The number of reports increase every year, but there are many incidents that are still not reported, particularly if they are below a certain threshold of violence. For example, one sex worker responded to the survey with the following when asked why they did not report an incident to the NUM scheme even if they knew of its existence: *"It wasn't a big incident, just a jerk so gave an informal heads up"*. These 'informal heads up' are often shared on sex worker only online forums that are not associated with NUM. Even though NUM state on their website, as well as in the training they provide, that there is no incident that is *too small*

to be reported, sex workers may feel like NUMs services are only for *serious* offences. This may be due to the length of the form, as well as the energy, time, and effort it takes to communicate the violence that someone may have experienced. Some of these incidents may be similar to that shared by a sex worker in the survey: *"It was not a violent offence, simply harassment or persistent time wasting"*. With incidents such as this, informal online fora and peer-networks are used to communicate information on these potentially dangerous clients. More research should be carried out to better understand the distinction between potentially dangerous aggressors and people who are *persistent time wasters* or who disrespect sex workers in other ways that do not necessarily warrant more formal complaints or reporting processes.

As a consequence of these shortcomings of the reporting services NUM provides, they represent only specific forms of violence and abuse that have been alleged to be perpetrated against a sex worker. While NUM collects all of these incidents in a well-organised database for future reference and to potentially track patterns of behaviours from particularly dangerous serial offenders, it does not collect the full breadth of violence and bad working conditions experienced by sex workers in the UK.

Informal and peer-to-peer modes of sharing reports amongst sex workers, and as such another level of preventative outcomes of this kind of reporting take place outside the remit of NUM. These informal reporting systems support the work NUM carries out to prevent violence perpetrated against sex workers, but it is not captured in the services and collectivising work NUM undertakes – they are however part of the J-OE within which NUM operates. As such, it is important to keep in mind in any analyses of this database, that it does not paint a complete picture of the violence experienced by sex workers in the UK.

4.4.2 Alerting Practices

From reflecting on the reporting practices of members and non-members above, I learn that filling out reports can be seen as an act to improve personal safety as well as an act of solidarity with other sex workers, and as a way of warning others. In turn the sharing of the information provided in these reports as alerts by NUM staff makes sex workers feel safer. Even those who self-reported not having experienced violence in the survey feel safer through the alerts. For example, one respondent to the survey stated: *"NUM emails help to remind me not to be complacent"*.

The overwhelming majority of respondents to my survey joined the NUM scheme to receive alerts. Regardless of whether they receive these alerts via e-mail, SMS, or from the website, they provide a means of emotional and

perceived security while working. At the same time, according to a NUM annual report (National Ugly Mugs 2015) alerts also effect direct change in practice: staff calculated that 1,600 crimes had been prevented due to an alert. Despite this calculation, more work needs to be carried out to better understand the ways in which sex workers use these alerts in practice to avoid these potentially dangerous perpetrators. Better understanding the mundane practices sex workers engage with, for example by looking at how they store information on potentially dangerous individuals, will in turn help us develop better services and digital technologies within the J-OE.

One of the women in the drop-in centre created the piece depicted in Figure 4.9. In this piece, we see the wooden piece left almost entirely blank, with only two paper tags attached with see-through nail polish containing blue glitter flakes. On one of the tags the participant wrote *knowledge* and on the other *safety*. While talking to the volunteer who made this piece, she said that those two words were what she thought NUM represented – it is a way for people to share knowledge with one another; and that through this knowledge, sex workers are able to make more informed decisions to ultimately be safer.

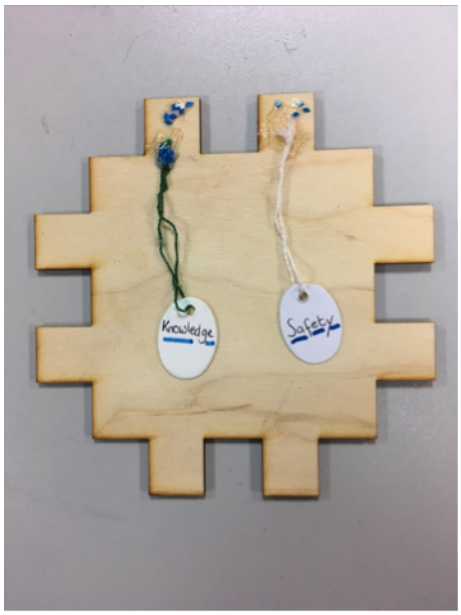


Figure 4.9: One of the pieces created during the drop-in session by a sex worker with two small tags, reading 'knowledge' and 'safety'

According to NUM staff, it has taken a lot of work and time for sex workers to trust the organisation. Also, when considering that sex workers

who report alleged crimes that have been committed against them to the organisation, they make visible this trust – they report to NUM and not the police. At the same time however, during my observations at the drop-in centre, I learnt that these women did not seem to make a distinction between the support service with which they engage and NUM when it comes to reporting and alerting about 'ugly mugs'. In these instances, they place the trust into the support service they engage with to pass on the information to NUM, rather than putting the trust into NUM directly. For a sex worker who engages directly with NUM however, the trust alongside the emotional security this trust provides, becomes a driving force for reporting an alleged crime (and as such creates the possibility of sharing an alert).

No matter in what ways alerts are received by sex workers, they are seen as being *"invaluable"*. Regardless of whether they receive this information from NUM directly via an e-mail, SMS, or the website; whether they receive this information from the wall of a drop-in centre of an organisational member of NUM; or whether they receive an alert from an informal online peer-led forum these alerts are an example of information and communication practice among sex workers. This also makes them a way of addressing social and criminal justice concerns, as well as human and labour rights of sex workers – in a way, these alerts almost represent a different, more just world; one where sex workers are able to communicate with one another freely to engage safer work practices and to discuss experiences of violence in a safe space. In the next section, I expand on the ways in which the reporting and alerting processes, as well as other work NUM carry out are used as mobilisation practices to fight stigma as is outlined in NUM's mission statement.

4.4.3 Mobilisation Practices

The below poem was written collaboratively while many of those involved in the drop-in session were sitting around a table, joking around, shortly after we found out one of the women really enjoyed rapping. A member of NUM staff and I wrote an initial draft of the rap with two women:

There once was a ugly mug
Who behaved just like a thug
He thought he was clever and would be free forever
Alas he was wrong, for the women were strong and all stuck together
Reporting his dong
He was then given time for his crime.
And we all went out and had a safe, good time.

Once we had finished a draft of the poem and were about to type it up to print and glued onto the puzzle piece, another woman joined the conversation. She was unhappy with the lines we initially used to end the poem as she had had first-hand experience of a serious crime being committed against her by a client. She expressed her disapproval, and helped develop an ending to the poem she and the others were comfortable and happy with. Now the poem ended with these two lines, replacing the last two lines of the previous version:

The women rejoiced at the time
For he was punished for his crime

The change that took place in the poem through the consultation of others' experiences seems quite simple, but when reflecting on the conversations that were had around this change, and seeing the slight change in wording at the end, I learned that there was a lot of nuance around the situation a sex worker (or really, any person against whom a violent crime is committed) is placed in. The case that is described in the poem is what was seen as a 'best case' scenario: the perpetrator is found and punished. While it is not clear exactly how they are punished, it is implied that this is through the criminal justice system. Through the change between going out to have a *"safe good time"* to *"rejoicing"* about the punishment, we see a nuanced change in behaviour rather than a drastic change in meaning to the poem. In the finalised version of the poem, the woman against whom the crime was committed does not remain the same person; they no longer have the same feelings of safety as before. The finished poem was then typed up and printed by one of the women on a computer and printer provided by the drop-in centre, to be turned into a puzzle piece (see 4.10).

Despite initially not wanting to create her own piece, the woman who initiated the change in the poem shared her story with those at the session, and was then encouraged to create her own. At first, she reluctantly started to touch some of the materials, gravitating towards colours rather than textures, shapes, or materialities and becoming more curious about the different things that were available to her. At the end of the session, she began making her own piece (as seen in Figure 4.11). She condensed her story into very few words: *"Thanks to [anon] and Ugly Mugs, the man who attacked me was found guilty and got 15 years!"* As she was creating this note, she shared more details about the incident and criminal justice procedure she had to endure. This piece was supposed to be a personal one, so she shared the amount of time the attacker received for committing a crime against her directly, but in conversations around the piece we learned that due to the



Figure 4.10: One of the pieces created during the drop-in session by a group of sex workers, including the poem

archived reports NUM collects, they were able to see that this man was a serial perpetrator who eventually received a much longer sentence based on the accumulation of crimes he had committed against sex workers.

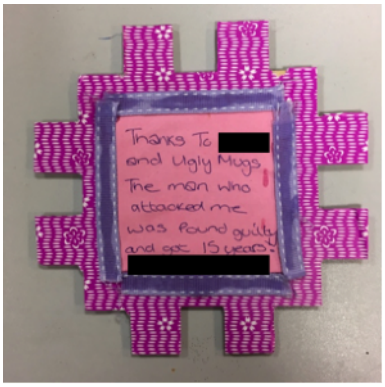


Figure 4.11: One of the pieces created during the drop-in session by a sex worker, reading: 'Thanks to [anon] and Ugly Mugs the man who attacked me was found guilty and got 15 years!'

As can be seen in Figure 4.11, there are two parts of the message that have been anonymized so I could use this image here. They are the name of the charity we engaged with, and the name of the woman who created this piece. She wanted her name to be on the piece so that once the pieces were displayed on the walls of the drop-in centre, those who see it would know who's story it is. She wanted to tell her story to inspire others to come forward with crimes that were committed against them so that perhaps, like in her case, serial perpetrators could be found. At the same time, she saw

putting her name down on the piece as an act of personal empowerment – this was her story, and she was ready to tell it as part of this drop-in, but also to others who may ask her questions about it in the future after seeing this piece on the wall of the drop-in centre.

When looking in more detail how the meaning of the poem in Figure 4.10 was changed, and comparing this with the subsequent piece in Figure 4.11, we can see that activism starts to play a large role. All the pieces will be displayed at the drop-in centre. Many of the twelve pieces portrayed images of solidarity, hope, and support for those who see the display to engage in – many of which are explicit in their messages. The poem itself was fun to write and rap in the drop-in, but the image has been used by NUM in social media campaigns. It is a piece that represents collaboration between groups of people that rarely work together (street based sex workers, drop-in centre volunteers, support staff from a national organisation, and an academic researcher), but it also illustrates the power of ugly mugs schemes in a creative way. It shows the positive impact that this process can have, while still taking into consideration the emotional aftermath of such an incident. Particularly when coupled with the thank you note to NUM and the smaller more local charity: we need to do something (in this case report the incident) about these violent perpetrators, and if we do, there is a possibility of positive (criminal) justice outcomes. The conversations surrounding this incident will reveal further details that support this activism through sensitive, nuanced, and personal encounters.

What these two puzzle pieces show is that NUM's service delivery reaches beyond the intended purpose of the ugly mugs scheme: to collect reports and share alerts about potentially dangerous individuals. This can be seen not only in the above example, but also in NUMs mission statement that reads: *Fighting Stigma, Saving Lives*. Similar to ideas of multidimensional justice (Fraser 2008), we must see the issue of violence perpetrated against sex workers as multifaceted and multi-layered. For example, as an organisation, NUM see the alerting and reporting practices "as a means to an end in social and criminal justice, rather than the end in themselves" (Strohmayer et al. 2017). What I mean here, is that on top of the reporting and alerting practices, they also provide safeguarding, protection, and advocacy alongside and for sex workers of all genders and across all types of work in the UK. Through their work, they challenge existing power structures; they move power towards sex workers and away from police and themselves to create a kind of participatory structure that can lead to empowerment for sex workers.

Much of the work NUM do is based in the underpinning need to improve criminal and social justice outcomes for sex workers. One way of doing this is providing safety information such as the alerts, while another is recording

the violence experienced by sex workers through the reporting, or through the mobilisation work that NUM carry out.

NUM recognise the political nature of their work, and make their standpoint on sex work, as well as the policies and laws that govern this work in the UK, clear. They do this not only as a tokenistic gesture towards their service users, but through the services they provide. The ways in which they provide these services also shows they genuinely care about the outcomes of their work, and try to find different ways in which they can continue to advocate for the socio-cultural, political, and rights-based outcomes they seek as allies of the sex worker rights movement.

Alongside the work described above, NUM also engage in a variety of different kinds of work to engage in activism. Among other things, NUM use social media (e.g. Twitter and Facebook), policy documents (for example Laing (2016*a*)), and publications (for example Feis-Bryce (2015) or Laing et al. (2018) or Jones et al. (2017)) to mobilise their members. Here however, I will focus on their use of social media to share information about these other types of documents with their members and others who follow them online. NUM use different social media platforms to engage with different parts of the community, but being able to make concrete claims about this would require more strategic analyses of their use of Twitter and Facebook. I would however like to bring forward one particular example that illustrates their engagement with others in the international sex worker rights community through overtly political campaigns: their engagement in what some called 'Whore Hunt 2.0' in Germany in 2016 (Clark-Flory 2016). After being made aware via social media an evening in May 2016 that a map was released online that contained sex workers' names (both working and non-working), addresses, and phone numbers (in some cases personal and non-public pieces of information) NUM staff worked alongside other sex worker rights activists to remove this information. Alongside many others they reported this map online, and were ultimately successful in its removal. Allegedly, this map was created and shared by an anti-sex work group in Germany, where sex work is legalised but remains stigmatised.

This is just one example of the work NUM staff do that is often hidden: they utilise social media and other tools to mobilise their members and others with similar politics surrounding sex work. Sometimes, this kind of work is seen as separate from their service delivery and core casework. As was outlined above, NUM members see them as an organisation whom sex workers are able to report crimes to, and who then share information about the alleged perpetrator with other sex workers. They do not necessarily see them as leaders politically in sex work debates, despite seeing them participate in these debates and events. In a way, this is similar to NUM's use

of digital technologies – which is fragmented. While this can result in less efficient workflows, this should not be seen only as a disadvantage. Instead, it can be recognised as a tangible manifestation of the ways in which they are able to act in multiple aspects (eg. service delivery and political activism) and across multiple spaces (eg. providing safeguarding services, delivering training to police, and providing policy briefings) to proactively work towards more social, political, or criminal justice for sex workers in the UK.

4.5 Implications for Design

NUM's service delivery however, is not only interesting for its multifaceted use of digital technologies. NUM is a national organisation who support sex workers, who overtly share their opinions on the politics of their work, and who carry out their work in a member-centred manner. While, as I have said previously, there are many third sector organisations, grassroots groups, and online communities where sex workers exchange information on potentially dangerous clients, NUM are the only organisation in the world who provide such a service on a national scale. Their unique positioning within the historical context of sex work support services in the UK as having developed out of the UKNSWP, as well as their unique approach to digital service delivery make NUM a useful case study to reflect on the kinds of digital technologies that can be useful for sex work support services. As such, I use the learning from the pilot work carried out with this organisation to reflect on not only the kinds of technologies NUM already use, but which kinds of technologies would be helpful to fit into their and other sex work support service's existing J-OEs.

In the following three chapters, I provide explorations of three different technologies that were designed, developed, and appropriated with sex work support services in the UK. While I have already addressed methodological concerns of carrying out this kind of work with, in, and for sex work support services in chapter 3, I want to now reflect on the kinds of technologies that are useful. To do this, I provide three implications for design that should be followed when designing technologies with, in, or for sex work support services. These are high-level implications that may be useful for sex work support services beyond the UK, as well as other organisations who work with communities who are often stigmatised, (partially) criminalised, or otherwise engaged in taboo areas of work. First, technologies that are developed with, in, or for service delivery should be designed to reduce harm. Second, technologies should also acknowledge the political nature of the work sex work support services do and the values of the organisation with which

researchers and/or designers collaborate to design these technologies. This should be integrated throughout the design and development process as well as its ultimate use. Third, these kinds of technologies should incorporate mundane aspects to ensure their use and integration into the existing ecology are possible and direct. I expand on these three areas below.

4.5.1 Technologies for Harm Reduction

As Grenfell et al. (2016) point out, service delivery and public health approaches need to be developed in accordance with evidence base. As such, the designing of digital technologies with and for sex workers and sex work support services must be designed in such a way, that they give agency to sex workers (ibid.). One way of doing this would be to adopt an approach similar to that developed by Rekart (2005), and described in chapter 2. Rekart developed a framework of service delivery for sex workers that takes the work of sex workers into consideration, and that approaches the harms associated with the work rather than discrediting the work as a whole. It is well-known that sex workers experience more harm than those not engaged in the sex industry, but it is also known that this harm is reduced when the work they do is decriminalised (Amnesty International 2015).

In Rekart (2005)'s framework, he acknowledges the harm associated with sex work, which he sums up as risky environments, harm, diminished quality of life, and vulnerability. He argues that it is the role of sex work support services to develop interventions that turn these negatives into more positive aspects. These interventions and services should lead to supportive environments with reduced harm, which in turn should lead to improved life quality and the subsequent empowerment for sex workers. This model however does not acknowledge the diversity of people in and aspects of the sex industry, and instead places all sex workers prior to intervention in risky environments and with diminished quality of life. On top of this, Rekart's idea of ultimate success of an intervention is that sex workers are 'empowered' to leave their work (Rekart 2005), to become 'respectable' once again (Sanders & Campbell 2007*a*).

Despite these shortcomings, Rekart's model is useful in reflecting on the kinds of goals a service should have: to lead to improved life quality of sex workers, so they can carry out their work with less harm. When incorporating these ideas from Rekart with sex worker positive feminisms, social justice approaches, and the sex worker rights movement (for example Nagle (2010) or Chateauvert (2013)) however, the ultimate goal for intervention should not necessarily be to encourage sex workers to leave the industry. Instead, taking the politics from these sex worker led groups into consideration, the

development of digital technologies and services should enable the types of changes in harm reduction as outlined by Rekart (2005) that would ultimately enable sex workers to continue doing their work in more supportive environments with reduced harm, improved quality of life, and subsequent empowerment to make more informed decisions about the kinds of work they engage in.

Arguably, digital technologies already play an important role in the lives of sex workers: not only do they advertise online (Cunningham & Kendall 2011), but the digital space is also often the first point of contact between a client and a sex worker (Sanders et al. 2018). On top of this, digitally mediated sex work, has been found to be safer than street-based work (Cunningham & Kendall 2011), which may be precisely because of all the different ways in which sex workers use technologies. Above I describe the ways in which sex workers use NUM services, but also alluded to their use of non-affiliated peer networks and other online resources to share information about clients and/or safety. These kinds of behaviours should be taken into account when designing novel interventions, and these interventions must be compatible with current safety practices of sex workers.

When talking about 'harm' in relation to sex work, violence perpetrated against sex workers and sexual health risks that are perceived to be associated with sex work are often the first (and sometimes the only) harms that are considered. Learning from the above findings however, it is also important to acknowledge other significant challenges faced by sex workers, such as being outed by anti-prostitution groups (such as in the 'whore hunt 2.0' (Clark-Flory 2016)), or other physical, emotional, and verbal violence that sex workers become victims of in online and offline spaces. These are important harms that when working with sex workers, we must take seriously. What I mean to say with this example is that we must widen our understanding of sex work beyond the exchange of sexual services between consenting adults, to also incorporate the more mundane aspects of the work carried out by people in this industry. Some of these concerns relate to privacy concerns, the exploitative nature of certain online platforms used by sex workers, or the harassment that is experienced by sex workers from sex worker exclusionary feminists and other groups.

HCI in particular is uniquely positioned to be able to address these issues as many researchers already address issues such as online privacy or harassment (Jones 2015, Sanders et al. 2018), but little work has been carried out with sex workers directly. Even though HCI has started to address pornography as a space for research (Smith & Laing 2012, Tyson et al. 2013, Wood et al. 2017), as a community we need to move beyond the voyeuristic evaluation of sites such as YouPorn (Tyson et al. 2013) and instead acknowledge the

many digital concerns of sex workers and sex work support services as what they are: safety needs. As HCI researchers, we need to publically address the politics of our areas of research (Dombrowski et al. 2016, Strohmayer et al. 2017) in our methodologies as well as publications (Akama & Light 2012, Le Dantec & Fox 2015, Vines et al. 2013). If we want to design in justice-oriented (Dombrowski et al. 2016) ways, we must develop and design technologies that incorporate our own standpoints as researchers (Bardzell 2010, Harding 2004, Muller 2011) as well as those with whom we design.

4.5.2 Fighting Stigma, Saving Lives

Designing technologies for harm reduction as described above has the potential for direct justice impacts for sex workers, especially if we move beyond our current ideas of 'harm' experienced by sex workers. Sex work in and of itself is not more harmful than other body-centric professions, but the stigma attached to the industry makes it harder for sex workers to come forward about the crimes that have been committed against them. This becomes particularly apparent when looking towards New Zealand, where sex work is decriminalised. As such, service delivery should not only aim to provide services to sex workers, but they should also tackle the stigma attached to the industry to improve their quality of life.

In the UK, NUM lead on such work by example. They are a national organisation who do not shy away from tackling the stigma experienced by sex workers – rather this is part of their core remit and mission statement: *Fighting Stigma, Saving Lives*. For NUM, the reduction of stigma is part of their service delivery; part of how they attempt to reach their aim of ending violence against sex workers. This becomes particularly apparent in their mobilisation practices, and the work they do alongside sex worker rights groups.

Stigma cannot be attributed to individuals, and instead is a socially constructed phenomenon (Heijnders & Van Der Meij 2007). Similar to the ways in which technologies in organisations are part of their wider networks of service delivery (Strohmayer, Laing & Comber 2018), those who are affected by stigma are part of a social ecology that either supports this stigma or works to reduce it (Heijnders & Van Der Meij 2007). Looking at stigma-reduction strategies in HIV/AIDS, mental illness, leprosy, Tuberculosis and epilepsy, Heijnders and Van Der Meij argue that stigma-reducing interventions can take place at one or multiple of the following five levels: intrapersonal, interpersonal, organisational and institutional, community level, and governmental and structural (ibid). Using their findings, I look beyond NUM's service delivery, and look more closely at the ways in which digital interventions and

services more widely could alleviate some of the stigma experienced by sex workers. Technologies have the potential to support this alleviation and to affect change. While it has been theorised (Dombrowski et al. 2016) and it has been attempted to put this into practice by some researchers (for example Dimond et al. (2013) or Bellini et al. (2018)), more research is needed to explore how technologies are used to affect change to stigma through political, socio-cultural and individual means. While this is an implication that is important beyond the development of technologies in sex work support services, I want to highlight again the importance of the appreciation of the politic of our work as researchers, and that we as HCI-researchers should adopt the learning from other disciplines such as sex work research in proactively embedding these justice-oriented practices and ideals in our work.

4.5.3 Mundane Technologies

Now that I have addressed the different practical and political implications that technologies that are developed with, in, and for sex work support services should incorporate, I want to address a slightly more tangible topic: what should these technologies look like? I do not want to prescribe any kinds of technologies or platforms here, but instead want to address one aspect that is particularly important when designing within a J-OE: the ability for this new technology to be sustainable (Dombrowski et al. 2016) and useful within the organisation. There are a number of ways in which technologies can be useful, but perhaps most importantly they are useful if they can be integrated into the repertoire of service delivery and if their use makes sense to staff, volunteers, and service users alike (Strohmayer, Laing & Comber 2018).

In the case of NUM, they use mundane technologies such as e-mail, SMS, or the website to receive alerts. As mentioned earlier, this was the main reason for most of the members to join the organisation. Sex workers use the intelligence they receive via these services to keep track of information regarding potentially dangerous individuals who may be, or may pose as, clients. The accumulation of this information makes them feel safer, and improves their physical and emotional welfare. This felt security, as well as the improvements in physical safety (National Ugly Mugs 2015) in itself is an improvement of justice for sex workers as it is one way in which "experiences of and practices with technology" (Dombrowski et al. 2016) are impacted in this space.

The service delivery through the use of these mundane technologies directly and indirectly tackles the marginalisation and oppression of sex workers. As was discussed above in the section titled 'mobilisation practices' the

use of these simple technologies also support debates regarding the legality of sex work (Leigh 2010), while simultaneously tackling stigma attached to the 'morality' of sex work (Alexander 2010).

Sex workers, sex work support services, and NUM directly are utilising mundane technologies such as social media, websites, or mobile phones to improve their safety and simultaneously reduce their marginalisation and oppression. Working together across multiple institutional, service, and technology levels these disparate but connected communities create spaces where sex workers are 'enabled' (as Rekart (2005) calls it) to work within the sex industry more safely; in a supportive, harm reduced, improved quality of life and empowered way. This is exemplified by some of the responses I received to the survey, where multiple sex workers alluded to or directly stated that NUM's reporting and alerting scheme was the *"first time"* that sex workers who have experienced violence in the UK are able to talk about or report this violence in a way that they felt was respectful, non-judgemental and anonymous.

I would now like to focus on one particular technology that is part of NUM's service delivery, which may easily be overlooked: the report form. The existence of a form in itself is an act of resistance, as well as a movement towards alternative forms of justice (beyond or outside of the criminal justice system) for sex workers. Some of the respondents to the survey who were sex workers said that filling out this form was *"cathartic"* and that it was a way of dealing with the violence they had experienced in their own way; particularly the women with whom I interacted with during the drop-in sessions had very positive messages to share about the reporting process. Even those who had not experienced violence themselves, felt empowered by the existence of the form. What is important to remember here however is that the form does not exist in a vacuum: it is a political tool for justice (sex workers can report crimes they would otherwise probably not report (National Ugly Mugs 2015)), but at the same time it is also part of the wider ecology of service delivery, and always attached to human interaction between a member of NUM staff and the reportee (or between a support worker of an organisation with a NUM membership and a sex worker reporting via this service).

As mentioned earlier, the reporting and alerting processes are important elements of the mobilisation practices of NUM, and are part of the ways in which they support the UK sex worker rights movement. These processes encourage sex workers to share their stories and experiences in an environment that is judgement-free, while also part of a wider movement for human rights and protections for sex workers.

At the same time however, filling out the long report form is an incredibly personal act, which in itself can result in feelings of solidarity and empower-

ment. Bringing together these personal, community-wide, and national (or arguably international) conversations allows discussions of harm and stigma reduction to take place at multiple levels (as promoted by Heijnders & Van Der Meij (2007)). Small changes to the materiality of a mundane technology such as the form, or even the ways in which the administrative work takes place to be able to receive, process, and share information received through the form, would greatly benefit the members of NUM and wider sex worker communities in the UK. In the following chapter I will continue to describe my collaboration with NUM, focusing on the mundane technologies that we designed together to improve their services by making precisely these kinds of small but calculated changes I allude to above to their existing processes.

4.6 Summary

NUM staff and service users use mundane technologies to communicate with one another, other organisations, policy makers, police, and others. As part of this, they develop Good Practice Guidance documents for service provision, support the developments of policy development (such as the HASC inquiry into prostitution (Laing 2016*b*)) and work to support sex workers in being able to carry out their work in a safer way. They utilise mundane technologies such as SMS or emails to share information about potentially dangerous individuals, but also use social media and other online resources (such as press releases or blog posts to mobilise their members and the wider sex worker rights community nationally and internationally. In this multi-layered approach to service delivery, they are able to affect immediate change in individuals' perceptions (such a increased feelings of safety after reading an alert), as well as more long-term change in the reduction of stigma attached to the sex industry (through widespread advocacy and activism).

NUM utilise technologies in multifaceted, effective, yet mundane ways, which I would argue is an example of a just sustainability (Dombrowski et al. 2016). They have been able to sustain immense growth in not only their membership numbers, but also staff employed by the organisation, as well as different types of work they do. They have been able to sustain their service delivery despite changes to their organisational structure, CEO, and arguably multiple shifts in remit over the last 6 years, while maintaining an ecosystem that improves the quality of life within it (Dombrowski et al. 2016). They have developed a use of digital technologies that demands ways of "accounting for difference and inequality" at not only a societal (ibid.) but various different layers, scales, and levels. As illustrated in a study on strategies to reduce stigma, (Heijnders & Van Der Meij 2007), working

across multiple levels is imperative to the success of such work. Reflecting more widely on the findings and discussions as outlined in this chapter, any technologies we develop for the service delivery with, for, and by sex workers should be built on the understandings of harm reduction, justice, and should take into consideration the potential values that mundane technologies may bring into the J-OE. These technologies should be adaptable and effective across multiple levels, and should also be beneficial to the organisations immediately, as well as in the long term. These considerations are perhaps particularly important when technologies are designed, developed, or appropriated with, in, and for services that engage with communities that engage in unconventional or perhaps 'deviant' activities (Strohmayer et al. 2015). Working in this way, would hopefully create "a space designers should strive to innovate within" (Strohmayer et al. 2017), to work alongside TSOs and wider communities of advocacy to move towards a more socially just world.

In this chapter, I have provided a description and analysis of the ways in which NUM utilises digital technologies for their services. The high-level discussion of this, allowed me to develop three implications for design that should be applied when designing digital technologies with sex work support services: designing technologies for harm reduction, designing mundane technologies, and designing technologies with that acknowledge organisational politic. In the following chapters I provide thick descriptions of three explorations to answer the research question in three different ways: *How can digital technologies be collaboratively designed, developed, and appropriated with and within sex work support services to promote multidimensional justice for their service users?* In these descriptions I focus on design processes to develop these technologies to place value not only from the outcomes of the projects (at the research, design, and personal level), but more importantly I am able to reflect on the PAR and RtD processes as detailed in chapter 3. Through the detailed and personal accounts that describe these processes, I am then able to develop new vocabulary for HCI researchers who engage in participatory, design-focused, and justice-oriented research with sex work support services and third sector organisations more widely in the 8th chapter of this manuscript.

Chapter 5

Digital Ugly Mugs

5.1 Introduction

In this chapter, I provide a detailed description and analysis of my first exploration into the ways in which we can design, develop, or appropriate digital technologies with sex work support services. Here, I focus particularly on the ways in which NUM staff were involved in the design process to redevelop their website; providing an in-depth account of the ways in which this took place. On top of working with NUM, I collaborated with designers and developers in Open Lab to redevelop the digital system NUM staff and members use to make use of their services. As stated in the previous chapter, my involvement with NUM began in April 2016. Initially, we worked together to evaluate their existing services and develop implications for the design of future digital technologies alongside staff. In 2017, our collaboration turned more closely towards the development of a new website for the organisation. This collaboration continued throughout the time of my PhD, and past the writing of this chapter. As such, I am not able to discuss the launch of the website, nor am I able to provide information on the impact of the new site at this time. Staying with the aims of this dissertation, the purpose of this chapter is instead to candidly report on the process involved in producing requirements and designs for the development of the site, as well as the various ways in which these shifted throughout the two year process I document here.

By providing a detailed overview of this process, I hope to gain a better understanding of the J-OE within which I worked, as well as some of the practical and ethical considerations that must be made when working in such a space. I take the learning about reporting and alerting practices outlined in the previous chapter, to develop designs that facilitate more efficient use

of time for staff to be able to follow-up on these reports (among the other administrative and advocacy work that takes place in the organisation), while also exploring how design work can influence the image and identity of the organisation as a whole. To be able to describe this process, I provide a detailed and analytical account of the research and design process that was carried out between April 2016 and October 2018. This account is based on field notes, recorded and unrecorded conversations, focus groups with staff, as well as interviews. These accompanied the development of design documents and artefacts, various concept-things that were produced such as interim reports, testing schedules, or Standard Operating Procedures (SOPs), as well as screenshots of the system at various stages of its development.

5.2 The Design Process

Before going into detail of the design process for the new website, I want to provide a brief foray into the development of the relationship between NUM and myself throughout the project. As I continued to work with NUM after the initial evaluation of their use of digital technologies, the relationship we were building continued to evolve. In the below vignette, I have pulled together notes from various stages in the research process, to illustrate part of the ways in which my relationship developed from first meeting one of the board members (who later turned into a mentor for my PhD – Dr. Mary Laing) all the way to a point where it felt like I was 'part of the team' that makes up NUM.

> After discussing project ideas with one of the board members of NUM, I met with the CEO who then introduced me to some of the staff. After meeting the entire board several times to present my research ideas, I was able to organise a visit to the office. In this first visit to the office I was told I could shadow some of the staff, but that I would not be able to do much else. This was the start of a journey that would later lead me to do some of the work that I was initially only allowed to watch and take notes of. As the relationship progressed, I began scheduling meetings with the staff directly (not going through the CEO), which later turned into simply notifying staff of the next time I would be in the office. These visits grew into encounters that both staff and I would look forward to and ask for. In May 2017 it even came so far that I dropped by the office for a 'surprise' visit. In a scheduled meeting before this surprise one, I knocked on the office

door before entering. The staff responded with: "Why are you knocking like a stranger? You don't need to knock to come in!" For the rest of the day we each worked on our own tasks having informal conversations, and asking curious questions about our separate but linked projects throughout the day.

When leaving the office that same day, they said: "See you soon, and don't knock the next time you come in!"

While this vignette (written in the autumn of 2017) paints a nice picture of the development of our relationship, and while the overall narrative of the development of the relationship was as positive as described here, there were a number of instances where the narrative was not as positive. This was due to a number of personal, academic, and practical reasons. For example, I often felt like I was under a lot of pressure to complete the project within certain time constraints that seemed unrealistic from a technology development point of view, as well as a more practical point of view of readiness from the organisation. For example, there was an instance in Spring 2018 when we were supposed to launch the website – it was almost finished, and resources were tightened in Open Lab to finish off the project before I was to leave for a three month placement in another country. There were however still some changes that needed to be made from the point of view of NUM to be able to launch the site without reservations. Over several weeks, we were in touch several times almost every day via email, text message, and phone calls. We would discuss issues on topics as wide as visual design, privacy concerns, and user experience; I would get questions I was unable to answer myself so would then consult with my collaborators in Open Lab who were building the site before calling staff back to give them a response. This time was incredibly stressful for myself and for NUM staff and ultimately resulted in only very few changes. The stress that we reproduced in these phone calls led to a strained relationship between myself and some members of NUM staff, as well as myself and the developers who were working on the site. Sometimes I felt like I could not raise certain questions or was re-explaining an answer to questions to both sides.

Throughout the process involved in the development of this site, I often felt like I was in the middle not only of two geographically separated offices, but between two worlds – (1) Open Lab, academia, technology development; and (2) NUM, the third sector, and social care. Most of the time I was happy to play this role, after having worked in both worlds for several years I felt like I knew most of the language necessary to be able to translate terms such as 'privacy' or 'safeguarding' from one world to the other. I also felt confident that I knew what questions I needed to ask of whom if I was not sure about

terminology; my collaborators on both sides were incredibly patient with me to help explain these things. At the same time however, I also often felt like I was at a loss of words – the translational work necessary to communicate not only terms but concepts and sometimes even entire world-views was difficult.

I think it is fair to say that there were times where the relationship between NUM staff and myself were great, at other times however it was strained due to pressures related to time and resources. On top of this, the production of requirements and the development of the website was a long, messy, and convoluted process. I wanted to highlight some of my personal feelings about the process to preface its description. Due to space constraints, I am not able to always address exactly how I felt, at times I also do not have the language to describe these feelings of sitting between multiple offices, conceptualisations of technology, and lived realities of the development process. Having said this, I aim to integrate snippets of personal reflections such as this throughout the chapter. For the purposes of this manuscript however, I chose to document the process based on a number of documents or actions taken that marked milestones in the process. I will describe each of these milestones below, in an order that is mostly chronological. These descriptions will be laced with examples, vignettes, images, and other pieces of information that will highlight some of the practical issues of working with a charity so closely for an extended period of time. Below, I describe the process by talking about: (1) the service blueprint; (2) the requirements documents; (3) the design sprint; (4) stylized documents; (5) design consultations; and (6) comments on launching the system.

5.2.1 Service Blueprint

After taking many notes about the ways in which NUM operationalize their service delivery, I began to create diagrams of how particular tasks were carried out by staff and other stakeholders. Initially, this seemed like a mammoth task – how could I place the incredibly complex and context-dependent ways of working into a simplistic diagram? After multiple conversations with Tom Nappey, a service designer based at Open Lab, however I was able to synthesise much of my learning of the tasks and processes involved in NUMs service delivery into a diagram.

First, I created lists of actions taken by staff that later turned into more detailed sub-lists. Then, I grouped these lists into sections of actions such as 'receiving reports and archiving these or 'producing alerts'. As this initially relatively simple listing became more complex through the collation of tasks, I started to lose sight of how things were connected. Talking to Tom again, we worked towards turning these lists into diagrams. For example, I developed

a diagram of the different actions that are taken, or can be taken, when a new member signs up (see Figure 5.1).

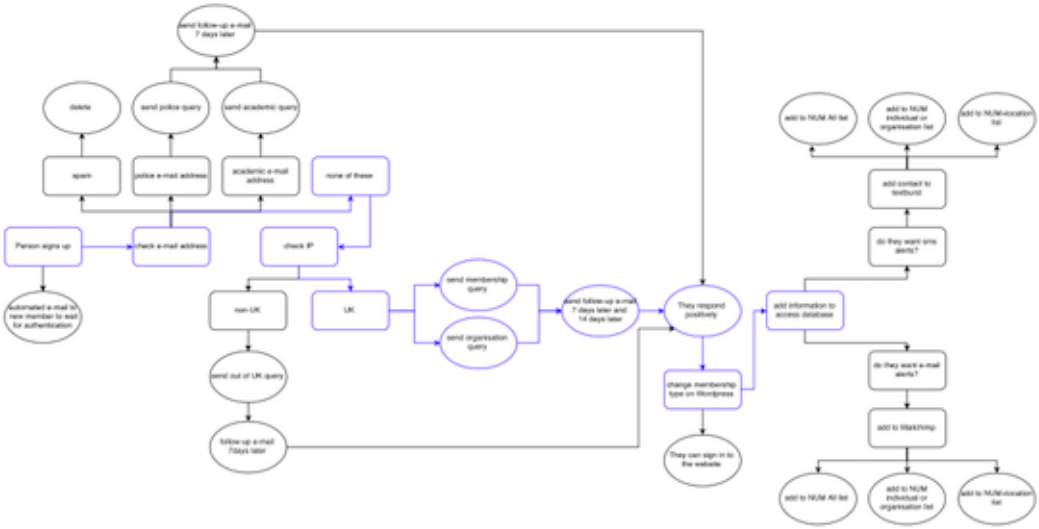


Figure 5.1: An initial diagram documenting some of NUM's processes for service delivery

Using mind mapping software, I was able to produce a number of these diagrams, but again, this visual representation was not enough to truly show the complexity of the actions. In the above image, I used colours to denote the actions that can be taken by the member themselves (black) and those that must be acted on by staff (blue). I also used shapes (oval or square text boxes) to differentiate between actions and other types of information.

As I was creating such diagrams for the alerts process however, it very quickly became clear that the complexity of interactions and possibilities would make the flowcharts hard to read. At the same time, I also started to get confused myself about the ways in which certain actions are connected to tools, technologies, or forms of communication between members and staff. I then used the lists and diagrams that I produced, to create a more visual representation of the connection of actors, actions, and technologies.

After creating hand-written lists and connections between stakeholders, actions, and technologies, I began to stick together individual pieces of paper to create a hand-written first draft of NUM's service blueprint (see Figure 5.2). This is a type of diagram often used in service design to map out actions taken by people prior to developing new or improved services. As this web of services grew, I began to move around pieces of paper, developing a format



Figure 5.2: A detail-shot of my handwritten draft of the Service Blueprint (left) and an overview of part of the process of making it (right)

that was still true to the order in which staff carry out their work, but that also made visual sense in the representation of the service blueprint. This resulted in the moving around of pieces of paper, as well as sticking together of separate clusters of papers.

As the relationships between sections of the service blueprint became more complicated, I realised the limits of this paper-based drawing out of services. So, I attempted to use various programmes such as Microsoft word and excel to digitise these processes, but again came to the conclusion that these programmes were not adequate for the task at hand. In the end, I used Adobe Illustrator to create the diagram, using symbols associated with the charity to illustrate and simplify some of the language (see Figure 5.3).

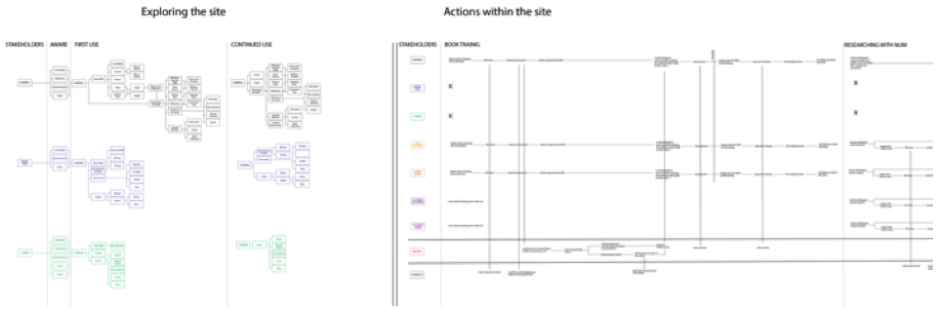


Figure 5.3: A screenshot of one of the first digital versions of the Service Blueprint

After exploring ways in which industrial design and service design make use of this kind of analysis, I began to make more sense of the processes and the ways in which the production of the blueprint itself is a form of analysis. Throughout the analytical process of producing this concept-thing (coined

by Pierce (2014) and described in chapter 3), several questions about the actions of NUM staff arose: for example, the ways in which alerts should (or shouldn't) be filtered was a complex issue to address, where different members of staff had varied opinions, and where these opinions often shifted. To be able to address some of these questions, I printed out the service blueprint in a large 1m x 5m format to be able to read the text and clearly see the connections (see Figure 5.4).

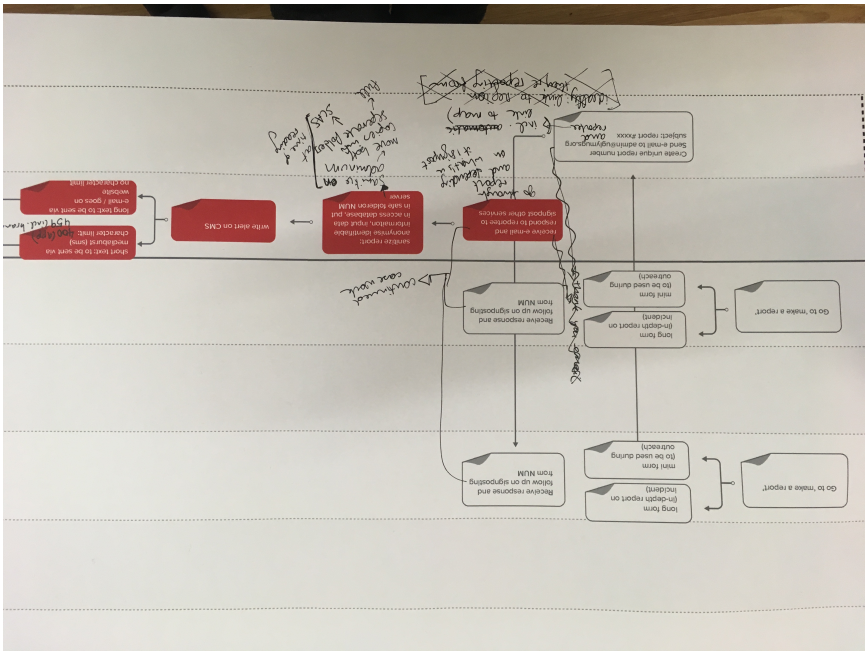


Figure 5.4: A detail-shot of the printed-out version of the Service Blueprint, with some notes

Throughout an entire day, the service blueprint was laid out on the floor in the NUM office and we had many long conversations about the outcome of my initial analysis of their process. While we were discussing the diagram, we also annotated it. The discussions we had here included corrections of my analysis of the process, as well as discussions of how the process could and should be changed in the future.

This process allowed me to directly discuss the analytical process of the research project with participants. I was able to leverage the relationship we had built up by this point to ask difficult questions, and at times even to question staff about why they were doing certain tasks in a way that seemed more cumbersome than they needed to be. At this point in our relationship, I felt able to ask difficult questions, and to really dig into why staff felt the

ways they felt about the processes they engaged with. See below for an example (where S is a member of staff and A is the researcher):

> A: okay, so if all you're doing is sending that e-mail and saying if they're a member add them, if not let us know. Why can't that be automated?
> S: which bit?
> A: the email thing
> S: because I need to check it
> A: why?
> S: because I don't trust the system.
> A: why?
> S: because it's technology. Because it's a domain isn't it? so I just want to, I just want to check. I just want to check it.
> A: do you realise you're making yourself more work than you need to have?
> S: well it's not huge though, is it? Because we're not talking about one and a half thousand members, we're talking about 300 projects, and it's that, that's quite easy to manage.

Based on these kinds of conversations, not only did I learn more about the processes staff go through, but staff also discussed reasons for going through certain steps amongst themselves. This helped clear up some misunderstandings about the ways in which processes currently worked among staff as well. On the day of this discussion, as well as following days, staff discussed with one another about how to change small aspects of their administrative processes to streamline their processes. The audio recording of the conversations that were had during this day, and the annotations to the service blueprint were then analysed to create an initial skeleton for the website and subsequent requirements documents. I expand on these below.

5.2.2 Requirements Documents

Using the service blueprint as a starting point, I began to develop a variety of different versions and formats to develop the website skeleton. This started as a word document that listed all the different pages that needed to be on the website, as well as some detail on what would be on that particular page. At the beginning of the document, it also listed a few design decisions such as *"red, white, and black"* or *"simple, clean design"* which were raised as important throughout the consultation process.

As time went by, this document evolved; changing content and format over the next year or so. One of the first versions we created was a kind

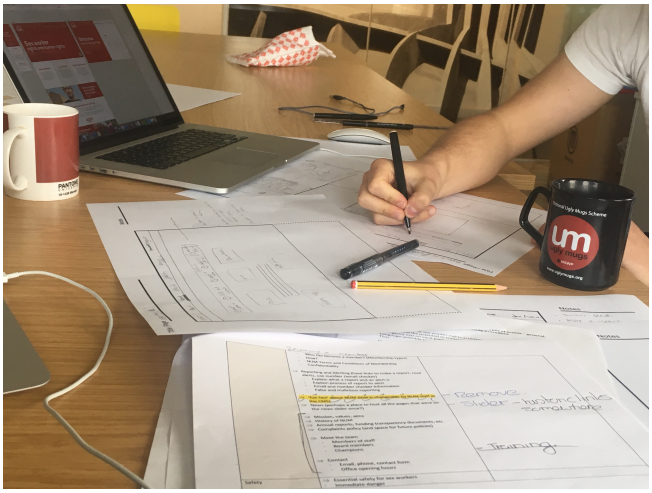


Figure 5.5: Picture of the design team working on requirements and design documents

of *skeleton* of the site. It was very simple and did not include much information on what we would change on the site; rather it was used (alongside various other documents I produced) by myself as a way of understanding the current content of the site. Throughout June of 2016, I created another document, providing an overview of the different pages that should be on the new site, which I updated after a consultation with NUM staff. After several consultations with staff, I also developed another document, where I created a list of changes we were thinking about making to the site at the time – this also included content that we thought would stay the same at the time (eg. we were not going to change the report form members use to report violent incidents that may have occured to them while working). These kinds of documents evolved over time, and were changed often either by myself after in-person consultation with NUM staff, or by NUM staff themselves directly in the word document after I had sent it to them to request feedback via e-mail.

Through these changes, the website skeleton quickly became more detailed and ultimately turned into the requirements document from which we worked as we started to design the website and build some of the digital infrastructure needed for it to exist (see Figure 5.5). While these documents helped us discuss what was needed for the website, they also became a barrier to discussing the website sometimes; as one participant stated, as we were discussing one of the requirements documents in May 2017: *"We really struggled to see it. [. . .] Yeah, and we couldn't kind of work out how it looks."*

Initially, it was only myself and NUM staff working on word documents to

develop the requirements. It wasn't until Ed Jenkins and Rob Anderson (two research developers in Open Lab at the time of this project) became involved in February 2017, that the structure of this document changed. With their involvement, the orientation of the page (from portrait to landscape), the layout of the document, and the kind of content that was included changed.

The format of our requirement documentation changed again after August 2017, when the majority of the website had been built. At this point, most of the features and content were in place, but there were still bugs that needed fixing, and details that needed to be adapted. It was at this point, that we moved on to the use of a variety of different tools to communicate about the small changes that needed to be made. Some of these included:

- Separate word documents with lists of features that required adaptation or addition.
- Hand-written notes from myself that were based on phone calls and in-person consultations I had with NUM staff, as well as meetings with the developers.
- E-mails were exchanged that included information on changes that needed to be made, or updates that had been made since we last spoke.
- Several *Trello boards* – this is a collaborative web-based project management software where tasks can be placed onto cards that can then be moved around (see Figure 5.6).

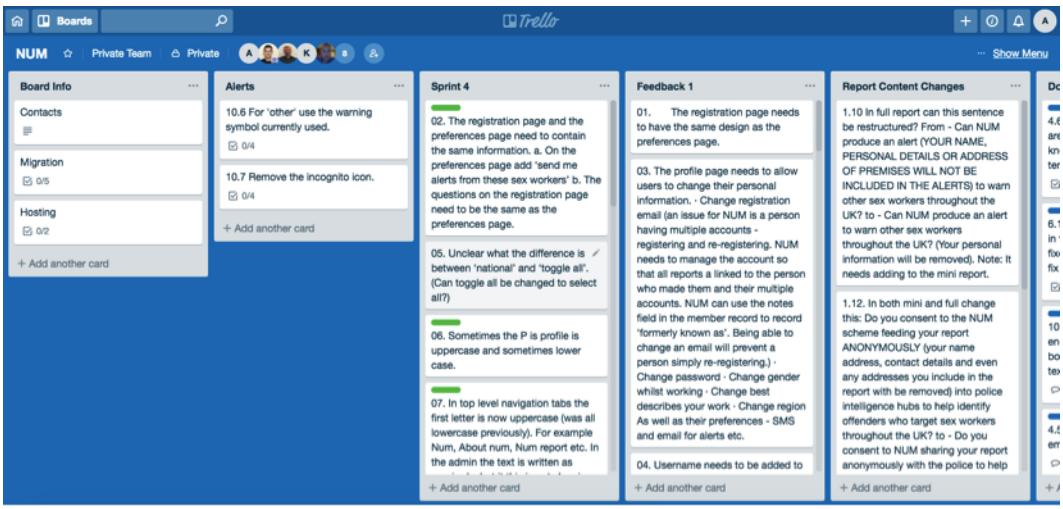


Figure 5.6: Screenshot of our shared Trello board

Each of these formats provided different opportunities for the ongoing collaboration. For example, the word documents were useful to document changes that had been made, while the hand written notes were useful to document questions raised by NUM staff in what were often impromptu phone calls or email exchanges between myself and staff. The e-mails provided space for a less formalised update than the formatted word documents with lists of changes that had been made and still required to be made. The Trello board was used primarily by myself and the developers to keep up to date on issues that had been raised or features that still required tweaking. The software allowed us to communicate with one another by creating lists, commenting, colour coding, or moving particular tasks between different cards. In the summer of 2018, some members of NUM staff also started using Trello as a way of communicating with the developers directly. Between the developers, there was also communication about the different features and requirements they were working on through their use of GitLab and the various push and pull requests they made through that platform to update various documents needed to write the code for the server and website. Staff and I often had phone calls or in-person conversations to be able to discuss these different forms of documenting the process. For example, in one of these conversations we talked about the report forms (where S is a member of staff and A is the researcher):

> S: So the report form is not being changed, is it? Not, it's staying as it is...
> A: but the format of it might be changed. So it's more like pages that you go through [rather than a single form, as it is now].
> S: All right. Oh, that'd be better for analytics, won't it? And also the edit, in the future it'd be easier to edit it? That'd be brilliant, because we're looking at the report forms as a separate project.

What we can see from this interaction, is that even though with the project, we weren't able to make some of the changes we would have liked (eg. we were not able to change the content of the report form), the process involved in the production of the new site, allowed us to slightly reformat it. Using this example, we knew that making the changes would be a huge undertaking in and of itself, and that more funding would be needed to be able to carry out this project. As with a variety of other considerations, the design process allowed us to reflect on not only what changes needed to be made, but also what would need to be put in place now to be able to make necessary changes in the future. In the case of the report form, we

were able to implement changes that would have an immediate effect on user experience and that would allow for sustainable project development in the future; to future-proof the website.

One member of staff said to me towards the end of the project, that *"you've been able to sit with us and soak it up and be a part of us."* Which was followed by another member of staff saying: *"yeah, you learned what we did from within."* Statements like these relate to the report form example outlined above. What I mean with this is that there is a difference between knowing what needs to change, and understanding how that change needs to come about. This means that while I knew we needed to change the report form (this was said to us in the survey with members, and NUM staff knew about this from previous interactions with members), it was only through my intimate involvement with the organisation that I understood that re-writing the questions was more work than simply condensing them. The questions are needed for different purposes, for different layers of service provision, and for a variety of different organisations such as police or the criminal justice system. The complexity of these questions is beyond my expertise, and recognising this is equally as important as being able to make minor changes to improve user experience.

Similar to this, at the requirements gathering stage of the project, we talked about future plans and aspirations of the organisation. Again, while we were not able to integrate some of these needs into the new website, the consideration for this played a large part in deciding its architecture and infrastructure. For example, in May 2017, one member of staff said: *"We're also looking at a case management system at the minute, which we have to get. We don't have a choice at the minute, it is getting impossible. So the case management system, we want to at some point [...] build it into the website. So stuff like that [eg. membership information] will automatically fill into the case management system."*

Looking at both of these examples (the need for a new report form, and the ability to integrate a new case management system into the website), I learn that gathering requirements for a website of an organisation such as NUM is not as simple as figuring out what is needed now. It is a messy process of negotiation between all the involved parties to determine not only current requirements, but to also take into account future requirements. This complexity is further compounded by external forces. For example, as a charity, their funding sources and allocations are constantly in flux, and as such is part of the focus of their non-core service delivery activities.

5.2.3 Design Sprint

In the week of the 30th of May to the 4th of June 2017 Tom Nappey, Rob Anderson, Edward Jenkins, and I worked in an apartment in Manchester to begin to build the website. This week was structured as a design sprint (Banfield et al. 2015), a strategy used by developers to make progress quickly. We worked long hours that week to develop a prototype of the site. Working up to that week Tom Nappey and I developed design ideas based on the research I had been carrying out for the previous year and a half, and finalised the wireframe of the site. In the run-up to the sprint, Rob Anderson also began to set up the development framework for the site, to ensure that once we started the week we all knew which pieces of work had to be done.

During the week, each morning, we wrote a list of to-dos on a whiteboard that we crossed off as the day went on. In the evenings, we would revisit this whiteboard to double-check what we had achieved and what was left to do. We documented this week through pictures, a stop-motion film of our workspace, as well as the many lines of code and documents that were written. Throughout the week, I had 10 phone calls with the NUM office and visited their office for design consultations twice. As a team of four, we carried out roughly 338 hours of work (this does not include the work carried out by NUM staff in the various phone calls and visits I had with them as well as the time they spent looking at, documenting, or discussing the project amongst themselves).

At the end of the sprint, we had worked on implementing the main functionalities of the new system. Even though parts of this had to be re-written at a later date, a lot of testing, experimenting, and thinking about solving particularly difficult problems took place during this week. The Monday after the sprint, NUM had a board meeting that I was invited to. I presented the outcomes of the sprint, explained what we had achieved, and what was still left to do. I presented the board with the new branding and branding guidelines, as well as the justification document that was produced during the week.

In the months following the sprint I visited the NUM office several times to discuss progress on the website. Throughout this time countless e-mails were sent between the organisation and Open Lab, and many phone calls were had. Between the various in-person and digitally-mediated meetings, all parties engaged in different kinds of work. For example, Edward and Rob continued to develop the site while I continued the documentation of the processes through the production of Standard Operating Procedures (SOPs). NUM staff and I continued discussions about functionalities and designs of the site, and I continued to negotiate digital possibilities with Edward and Rob. NUM

staff in the meantime continued their usual service delivery while also going through the documentation I sent them about the progress of the site, often giving feedback. This process was documented through handwritten field notes as well as in the production of various documents such as the SOPs, continued updating of the justification document, or various collaborative and individual to-do lists. Furthermore, the developers and I continued to use Trello to document our collaborative progress on the site and to keep up to date on the bugs that we discovered through the on-going testing. Further to this, GitLab was used to document the progress made on code development.

5.2.4 Stylized Documents

The development of stylized documents also became useful throughout the lifespan of this project. These included, for example, Standard Operating Procedures, a design justification document, and brand guidelines. Originally, these documents were intended as part of the handover package that would be given to staff once the project was complete. Throughout the process of the project and their production however, the production of these documents, as well as their use, were constantly changing and useful in a variety of different ways. For example, as we were developing the site, I started to work on the Standard Operating Procedure (SOP) of how to add new members to the new system. This was decided after I saw copies of the existing SOP procedures, and after I had myself been trained in how to do this by members of staff as part of my secondment to the office in 2016. Their original document was simple and outlined the processes for adding new members. What I felt was missing was a visual story of how to go about this, which we agreed we thought could help better facilitate the training of new staff.

As such, originally, the SOPs we created were intended as documents to help train staff on the new system and to support staff when inducting new members of the team. Similar to how we worked on the requirements documents, I checked with staff regularly about whether this format, the language I used, and the design choices I made were appropriate. I wanted not only to improve the 'look' of the original SOPs, but I wanted to improve the storytelling within them. As we progressed through the project, I developed a number of different SOPs outlining the processes involved in adding new members, adding new research outputs to the website, or sending out alerts. I opted to use software that allowed me to edit text and images, and to overlay them in a way that would help staff understand the various steps they have to go through to be able to do their work (see Figure 5.7 for an

example of a page in one of the SOP documents).

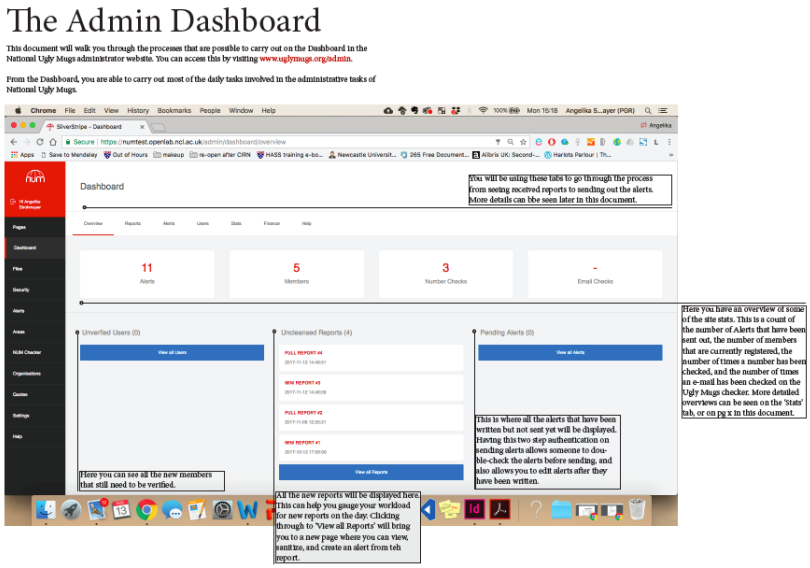


Figure 5.7: A screenshot of one of the pages from a SOP document

By developing and changing these documents at the same time as the website was being developed, their usability also developed. What I mean to say here is that the process of developing these documents in and of itself became a useful tool in talking with NUM staff and learning more about the service. Similar to the requirements documents, SOPs were sent to staff via e-mail. This allowed staff to go through the documents as a team without my presence there. In turn this allowed them to discuss issues they saw among themselves before telling me about them. Being able to do this was important as staff needed to be able to discuss issues they saw within the context of everyday use of these documents. Often staff would take notes on these discussions, and feed these back to me either through phone or in-person conversations, or even through handwritten notes made on the printed out documents.

In these conversations we talked about the content as well as the design of these documents and were ultimately able to address issues staff had with the website rather than the documents themselves. At this point in the development stage, staff only had limited access to the site as the developers were still working on ensuring its core functionality. Unexpectedly however, the SOPs had become a way for me to provide information on these development to members of staff without having to sit them down in front of a computer to walk them through the developing site. Through this, I was

able to discuss not only the progress we had made on the site, but I was also able to address ideas we (the design team) had, that the developers had not implemented yet.

5.2.5 Design Consultations

On top of the stylized documents, there were also multiple instances where I would provide design ideas to staff to consult on the ways in which these designs fit in with their organisational practice. This took place both during the phase of designing the website, and the development process of the final design. During these walk-throughs I would sit down with staff either in front of printed out designs at various stages of development, or in later stages in front of a computer to show them different aspects of the website.

At the early stages of the design process, these walk-throughs were much shorter than towards the end, as less of the website had been designed (or developed). On top of this, the purpose of the initial consultations was to get a better understanding of what kinds of design choices we would make based on the image of the organisation as well as the purpose of the website. I was able to provide staff with a variety of options for potential designs for the website. These ranged not only in art style, but also level of development. For example, some were hand drawn by myself, others were hand drawn by another designer, and others still were digitally drawn. In a later consultation, I printed out and cut out physical copies of a variety of different elements of designs that staff pointed out. We used these elements to lay out a variety of home pages, using different colour combinations. We also used small paper prototypes of buttons in combination with some of the designs to make impromptu changes to the layouts.

The designs, outlines, and small paper prototypes allowed staff and myself to develop a shared language to better discuss design choices for the website. This language was developed together, where for example I would teach them words from the software development world and they would help develop my language to better understand the work they do. Our shared language however also went further than developing each other's vocabulary in the others' field of work. For example, roughly drawn circular shapes that were recommended as potential designs were quickly dubbed *"coffee stains"* and from then on were always referred to as such. Even months after the design idea had been abandoned, we made jokes about these *coffee stains* or brought them up as examples when discussing further design options.

Looking at some of the other design choices and staff reactions to these, I was able to learn more about the ways in which staff felt about their service. In turn this enabled us to have more nuanced discussions of service

delivery, and ultimately helped me better understand the J-OE within which we were designing. One of the designs included digitally drawn figures, each representing a member of NUM. We included these as previously we had had several conversations about whether we should include pictures of NUM staff on the website. At the time of discussing these they did, but were also thinking about removing these images to protect staff. After reflecting on these discussions, a colleague and I came up with the idea of drawing out flat-design drawing of each of the members of staff that could be used on the website as placeholders for photos. Each of the drawings represented some of the members of staff, using identifiers such as glasses. This would ensure anonymity from the public, but at the same time allowed people who knew the members of staff to identify them based on those images.

After showing staff these images, one member said: *"That to me, says this is an automated service and not personal service by people [. . .] 'cause they've got no face."* From this response, I was able to learn how important it was for staff to ensure that it was clear that their service delivery was carried out by people, even though it relied heavily on a digital system. As in countless other situations, staff made it clear to me that it is important that the website embodies the humanity of their service delivery, and that even though they *"don't have a drop-in centre. We don't have a van to do outreach."* the human element is important to their service delivery, even though *"the website becomes that central organization presence"* for members (both third sector organisations and sex workers), and is conceived as being *"literally the face of the organisation"*. Staff are able to interact with members primarily through the website and other digital means (eg. social media or over the phone). As a member of staff said about the website: *"that is us, that is the interaction with us they have."* Despite this however, as NUM move more and more into a space where they are able to provide case work on top of their core service delivery (receiving reports and writing alerts), staff do interact with members. They use Twitter and Facebook to interact with members, allies, Members of Parliament, academics, as well as members of the general public. In a way, they do this to provide the *human* side of the service by posting pictures of members of staff at special events in the office, or by posting pictures of members of staff attending protests. While not directly related to the website, when we take into account the J-OE that is NUM, we see that the humanity of their staff, and the ways in which they interact with members is important. Ultimately, this needs to be portrayed in the design of the website.

Engaging in design consultations and website walk-throughs also helped me better understand the J-OE in which I was working more directly. Developing the shared visual language of the designs supported staff in being able

to *"see"* what the website looked like, rather than having to imagine it (as they had to do with the requirements documents). In turn, this enabled us to talk in more detail about the purpose of the website; it supported staff in articulating nuances to me that previously they may have deemed as *unnecessary* for me to know. For example, we spent a lot of time in the early days of the collaboration talking about the purpose and audience of the website. We had many different discussions about whether it should be focused on providing information about the organisation, or whether it should be very clearly a form of service delivery for its members. These discussions became much more tangible when we started talking about this via designs and as part of the website walk-throughs. For example, in one of the focus groups, two members of staff had the following conversation (where S1 and S2 are two different members of staff):

> S1: The NUM webstie is about alerting. It's about, it's about... so somebody goes to the front page – it's [to] make a report, look to check a number, not to meet the team
> S2: It's about functionality
> S1: as a sex worker, it's about 'I'm coming to this site because I want to do something'
> S2: 'tell me what to do in a nutshell'

This part of the conversation helped me understand the ways in which sex workers use the website, but statements like this are also countered by other statements from staff about its audience. On one hand, it is aimed at sex workers to become members, or if they are already members to be able to sign in, make a report, and to read the alerts. In the same focus group with staff however, they also said: *"there's probably three audiences. There's the sex worker who's a member: so they're coming in here for a reason. There's the non-member who might be coming just to look 'what these guys're about' and then there are the funders."* Interestingly, immediately after saying this, this particular member of staff stated that different parts of the website are aimed at different audiences. Looking at the information provided on the website about *what NUM do* they said: *"obviously that's aimed at funders. This is what we do. That's what we're spending your money on."* While it may be relatively straightforward that different parts of a website are aimed at different audiences, it is incredibly important to understand all these different audiences and the ways in which they interact not only with the website, but with NUM as an organisation. As mentioned above, they interact with members via e-mail and social media – this is all part of their service delivery ecology. Looking towards funders: while they need to ensure

the kind of information mentioned by this member of staff is on the website, they also interact with funders via e-mail, phone calls, or even visits to their office.

Understanding the various different ways in which they interact with members, funders, and others who may be visiting the website was integral to being able to design a website that worked for the organisation. At the beginning of our collaboration all these details and nuances were not clear. It was through the variety of different approaches to understanding their J-OE, that we were able to mutually develop our understanding of not only the organisation, but also the ways in which they interact with people, technologies, and other actors within the ecology to carry out the work that they do.

5.2.6 Launching the System

As the design and development process was coming to an end, we started to gear up to a potential launch of the website. We set several launch dates, but ultimately we were not able to launch the site prior to my writing of this chapter. This was not only due to technical issues (eg. bugs, or details that needed changing in the workflow for staff), but also due to other issues within the J-OE. In this section, I provide some information on how we planned for the handover of the website (Taylor et al. 2013) by presenting two documents that were produced prior to the launch, as well as some of the complexities of launching a site that is intimately tied to the service delivery of a charity, but was developed by a University alongside the third sector organisation: (1) a Service Level Agreement (SLA) and (2) an Intellectual Property Statement (IPS).

The SLA included descriptions of which elements of the website were developed by us (myself and Open Lab staff), which third-party platforms we used (eg. mediaburst to send out the alerts via e-mail and sms), as well as which hardware and software were excluded from this agreement. The document set out the responsibilities for both Open Lab and NUM as related to the new website, and provided a two-year plan of support. This plan was split into three stages: (1) for the first three months; (2) for the third to the sixth month following the launch; and (3) from six months to two years after the launch.

1. In the first of these stages, Open Lab would provide 'full support' for the website, working closely with the company who provide hosting and technical support for NUM already to ensure they are aware of how the system works. We would work with the developers in the company to

ensure they would be able to manage and maintain the website in stage two, where Open Lab would provide less support.

2. In the second stage, Open Lab would provide 'partial support'. This meant that the company who already supports their digital infrastructure would provide the majority of the support to the site, and be the first point of contact for NUM. However, Open Lab would remain a point of contact for the company, to support any questions they may have about the code or digital infrastructure of the website.

3. In the third stage, six months after the launch of the site, Open Lab would provide only 'code support' to NUM. This meant that Open Lab would fix bugs for any part of the system that were wholly developed in-house. At this stage, we hoped that the company would be able to entirely support the website in a sustainable way. However, Open Lab would remain as a point of contact to the company, in case there were any further technical questions.

Similar to the SLA outlined above, the IPS was not a legally binding document, nor was it ever meant to be. The purpose of this document was to outline the relationship that both NUM and Open Lab had to the website. This document included details on the different software components that were used to develop the site as a list of commercial licenses, open source components, and bespoke tools that were developed. It outlined the ownership of the code-base for the site, but also included information on the branding that we developed, as well as the text that is on the website.

Developing this document opened up many conversations that related to the wider ecology in which we were developing. It showed that there were contesting interests between academia and third sector organisations as, for example, all software developed by individuals funded by the EPSRC (like myself and other members of the design team) is required to be Open Access. At the same time however, the charity has a need to 'own' the website and their workflow. Staff and I discussed at length the reasons why learning and understanding related to this kind of service delivery is incredibly important. Staff felt ownership not only over the site, but also their workflows. This was based, at least in part, in the years of learning they had undertaken to get to the point where they were able to consolidate all of their processes into one workflow, as can be seen in this exchange between two members of staff (S1 and S2):

> S1: If you invested right at the off with a brand spanking [new] website [...] right at the start before you knew [what you really

needed] and then when you [launch] all these bits don't work, it's tough. Whereas that's [pointing at the new website is] built on learning.
S2: And that's actually a benefit of it. I think like on one hand. It's frustrating that it's probably taken, like, it's taken two years for the website to get to the point that it's launchable, but equally it's been adapted in those two years and it is going to be very fit for purpose and it's allowed the breathing space for us to reflect back

To further address the issue of ownership and learning related to the workflow, I asked staff about whether anyone would be able to pick up the website to develop their own NUM in a different country. To this, members of staff responded saying:

S1: So you could do [pick up the website and just run a service based on that], but you're taking a risk to get it wrong. And also you're starting from scratch then so you take five years to get where we are.
(...)
S2: You could do it but it'd take years like it took us years to learn and there is risk attached to that.

What we learn from here once again is that even though service delivery is mediated through the digital platform, it is embedded in wider histories and understanding of sex worker rights, service delivery, and care. On top of learning about the care that is taken by staff to do their job and the learning involved in developing the system long before we started developing the new site, writing the IPS also opened up several conversations between myself and the management of Open Lab. In these conversations, I learnt a lot about the responsibility of the University, and the ways in which academic funders impact research. I am not able to go into the details of the negotiations related to Intellectual Property here, but it is important to state that such negotiations are bigger than between staff and researcher. They relate to wider institutional policies (eg. University Open Access requirements) and even national frameworks (eg. funding bodies' requirements) and international ethics and good practice models. At this point in the collaboration, the ecology within which the project sat had grown to be wider than that outlined in the previous chapter; it now included academic and third sector funders and international conventions.

These documents were an important step towards ensuring the sustainable roll-out of the website. Despite not being legally binding in any way,

they set out a plan for support, and provided some clarity on the messy relationship that had been developing between myself, Open Lab, and NUM. Similar to the ways in which the stylized documents provided a tangible starting point for more nuanced discussions, the SLA and IPS provided both NUM and Open Lab the opportunity to lay out a potential future relationship.

As I hope has been clear throughout this chapter, I was not the sole person from Open Lab who was involved in this project. For example, two developers, a designer, and various other colleagues supported the project formally (eg. writing code or designing icons) and informally (eg. discussions on design ideas or peer-support). On top of this, the project was also situated in the wider ecology of Open Lab, where resource allocation (eg. time from developers, or funding to make trips to the NUM office) were out of my personal control. This lack of control on my part became particularly clear at this stage of the project, where decisions about future support had to be made. I knew that my role in the lab was time-constrained (my PhD funding would run out soon, I would eventually finish the project to write up my PhD, and would eventually move on from Open Lab to pursue a different role at a different University while finishing my PhD), and also know that those who had developed the site so far were also working on different projects (and would continue to do so in the future). As such, questions such as 'how realistic is it, that developers in Open Lab would have resource to provide technical support for the charity?' or 'is it the role of a University to provide technical support for a system that was developed by them for a third sector organisations?' were floating around in my head. Further to this, and given the state of flux that both Open Lab and NUM were in during 2018, as well as the precarity of my own role within both institutions I was struggling to understand how these documents could be followed up on. How could I, as a PhD student who was coming to the end of their funding, ensure that the partner with whom I had built up a relationship over three years would have a trusted point of contact in the research lab to ensure they are supported once the website is launched? I do not have answers for these kinds of questions, but ultimately if we were setting out a document that stated how we would support the charity, we needed to ensure that we would be able to actually provide that support.

In the spring of 2018, NUM were able to employ a member of staff as a liaison between themselves and Open Lab. This member of staff had been part of the team while I was carrying out the majority of the work, though they had not been involved since September 2017 (as they left their role to continue to pursue their education). Working with the developers from Open Lab, they were able to address some of the details that still needed to

be ironed out prior to launching the website.

In Autumn 2018, we made the decision to ensure that NUM had full control over the website and its development. This time roughly coincided with the funding for my PhD ending, and my own starting a job at a different University. It also roughly coincided with the Principal Investigator of the funding moving to a different university. All these changes were very stressful for me, not least because I was not able to provide clarity for NUM in relation to the kinds of support we would be able to provide for the finishing of the website, nor the continued support after its launch based on changes in Open Lab management.

After a very difficult phone call with the new CEO of NUM who had recently started their role, it was decided that we should provide their hosting company with full access to the most recent version of the website. Even though much of the site had already been moved to the company's servers months earlier to support testing the system, recent changes had not been pushed yet. On top of this, credentials for third-party systems still needed to be changed to ensure NUM had full control over these accounts as well. To navigate the moving over of all files, I got in touch with the developers in Open Lab as well as the member of staff in the company who provides support for NUM. After some carefully worded e-mails between myself these individuals and members of staff at NUM, we were able to move all files over. Following this process, both NUM staff and I have taken away a lot of learning related to the ways in which relationships in research projects that so intimately intertwine with service delivery can develop and end.

5.3 Summary

Throughout this chapter, I have provided a detailed description of the ways in which I engaged with NUM staff to design their new website. While initially this seemed like a very straightforward project, looking at NUM and their use of technology as a J-OE showed the complexity involved in such a task. The development of the site was complicated by looking beyond their use of the website into their use of administrative technologies, as well as their use of social media. On top of this, the wider complexities of the collaboration between a University and TSO were made particularly clear to me towards the final stages of the website.

In this chapter, I have shown how the use of concept-things has supported the development of a mutual language between NUM staff, myself, and software developers. This development of language was especially important in this case, due to the complexity of the project, and the complexity of the

ecology in which we were working. What I mean here is that when I was able to provide technical answers to one member of staff, they would have to go back to the rest of the members of staff to explain the situation to them as well. At the same time, I would have to explain some issues from NUM staff back to the developers, who were not as aware of the ways in which NUM worked as I was. On top of this, I have showed how mundane design documents such as requirements documents, SOPs, or even SLAs can become useful tools to support these kinds of conversations and language development. Moving towards the launching of the website broadened the ecology beyond myself, the developers, and NUM staff, to include different members of staff in Open Lab who had previously played only a peripheral role. It also began to include legal issues related to intellectual property and funders' requirements for software development.

In the next chapter, I will outline the process involved in developing a different kind of technology. In that project, I focus more on the activist nature of designing with third sector organisations who support sex workers. In doing this, I widen the scope of my research beyond administrative technologies to support the care work carried out by staff towards how activism also fits in with these processes.

Chapter 6

The Red Umbrella Archive

6.1 Introduction

December 17th marks International Day to End Violence Against Sex Workers (IDEVASW), a day to commemorate the deaths of sex workers who passed away due to violence perpetuated against them in the previous year, but also a day to actively promote sex worker rights. This is a day that is celebrated globally with a host of activities being organised on local, national, and international scales. These events, while supporting an international cause, often take place in highly localised settings that are contextualised by the experiences and aims of the organisers themselves. While there are a variety of ways in which the day can be commemorated, there are no rules to define the ways in which the commemoration should take place. As such, many of the events can be very strongly linked to the resources available to the organisers. For example, National Ugly Mugs (NUM), whom I worked with detailed in chapters 4 and 5, commemorate this day in two ways: (1) they add a page to their website, which provides details on the events they know about that are being hosted in the UK; (2) they also tweet the first name, age, and city in which each of the 180 sex workers in their database of sex workers who have been murdered in the UK were killed – this results in a new remembrance tweet almost every five minutes.

In this chapter, I explore the ways in which one particularly localised commemoration of IDEVASW is carried out. I go into detail of one part of my collaboration with Changing Lives' Girls Are Proud and Male Action Project (GAP/MAP) services to join, support, and archive the experiences of those who partook in the activities IDEVASW in 2016 and 2017. To do this, I supported the organisation of the days by joining in some of the meetings, but then also supported the activities on the day: I joined the march, attended

the commemorative service, and carried out a creative activity to archive some of the attendee's experiences. In 2016 I was joined by Janis Meissner, a friend of mine who is also a PhD student in Digital Civics at Newcastle University, though sadly she was not able to take part the following year.

This project aimed to understand the ways in which digital technologies were already being used by GAP/MAP to support their service delivery and advocacy work[1], while also exploring more ways in which digital technologies could be used. As such, this chapter provides another context and exploration to answer the overarching question of this dissertation: *How can digital technologies be collaboratively designed, developed, and appropriated with and within sex work support services to promote multidimensional justice for their service users?* Since I used an existing technology to build the archive, this chapter particularly explores the ways in which digital technologies can be *appropriated* with and within sex work support services to promote multidimensional justice. In this case the goal was to provide a localised experience of IDEVASW that supports GAP/MAP service users specifically.

By using my field and meeting notes, a reflection of the day recorded by Janis and myself on December 16th 2016, and pictures of the day[2], I am able to provide a detailed and visual account of the localised implementation of an international commemoration. Unless otherwise stated, the quotes provided in this chapter are from the transcript of Janis and my reflexive discussion after the event in 2016. First I address the use of digital technologies during the IDEVASW commemorations organised by GAP/MAP. Here, I focus on the commemoration in 2016, but also bring in some examples and details from the 2017 event. This is then followed by a detailed description of the 'Red Umbrella Archive', where I provide an overview of the tangible, digital, and interactive elements of its production. I outline what digital technologies we used to build the archive, how this works, and how we used it in this project. This is then followed by thick descriptions of the ways in which the crafting activity to produce the archive took place in both 2016 and 2017. To end this chapter, I reflect on the ways in which this project can continue to live beyond my collaboration with Changing Lives.

[1]An analysis of this forms the basis of a forthcoming publication: Strohmayer, A. (forthcoming) Using technologies to commemorate International Day to End Violence Against Sex Workers in the North East of England. *International Journal of Women's Studies*

[2]These pictures are a combination of pictures I took, but also contain pictures that were shared with me by Changing Lives staff.

6.2 Technologies on December 17th

While there is some literature detailing the ways in which digital technologies are used during protest and activist marches, there is very little academic literature detailing the ways in which technologies are used specifically to commemorate IDEVASW. Having said this, there are a number of non-academic publications such as blog posts, websites, or online news stories produced by sex workers, that provide an insight into this space. Furthermore, sex worker rights advocates make use of Twitter hashtags such as #IDEVASW or #StigmaKills to build platforms for one another to commemorate this day. During the writing of this dissertation, I have thought many times about analysing either (or both) of these hashtags, but ultimately decided not to as this would move my discussions away from design processes in J-OEs. The hashtags however, are a way for sex worker rights advocates to appropriate digital technologies to facilitate one element of the fight for the recognition of the rights of sex workers.

Here, I want to focus on the ways in which digital technologies were used in this particular IDEVASW commemoration. 2016 was the first year that GAP/MAP not only organised a commemorative service, but where they also organised a red umbrella march. The meaning of the red umbrella is explained in more detail in chapter 2, but here I want to reiterate that this is an internationally recognised symbol of sex worker rights. Before describing the details of the march, I would like to point out that this localised commemoration was not only catered to the experiences of GAP/MAP service users, but it was organised in part by them. Staff collaborated with service users, other volunteers (such as staff from other charities that work with some of their service users), as well as Northumbria Police. Janis and I reflected on this: *"on the march it ended up actually being very client led, which I thought was really nice and it was a nice combination of everything."* The march itself was a client-led initiative that showed pride in doing sex work, but also commemorated those who have been lost throughout the years due to different forms of violence. Both years, service users physically led the march.

Both in 2016 and 2017, the commemoration was split up into two sections: (1) the red umbrella march; and (2) the commemorative service. In 2017, GAP/MAP built on some of the learning from the previous year and extended the path of the march. In Figure 6.1 I provide an annotated map of the route taken in 2016, and in Figure 6.2 I provide a different kind of annotated map of the routetaken in 2017. These maps look different, as the contexts in which these were made differed: the first map was annotated as part of Janis and my audio-recorded reflection. The second map was hand-drawn by myself

as part of the reflective field note entry I wrote after the commemoration in 2017.



Figure 6.1: An annotated map of the march in 2016

In Figure 6.1 the pink line represents the path taken by some of the marchers who met up outside the Monument Metro station to get to the starting point of the march before it started. The purple line represents the path taken by all marchers: from the corner where St Mary's Place and the Great North Road meet to the Methodist Church where the commemorative service was held. The pink triangle that is outlined in purpe represents the space in which all the marchers congregated before heading off to wait for others to join. It was here that police officers joined the march and that a journalist from a local radio station interviewed some of the marchers (this was not repeated in 2017).

I used different materials to create the map for 2017: as it is hand drawn the distances are not to scale, but the annotation on this map are much more detailed than those from the map Janis and I annotated in 2016. In Figure 6.2 I used a black pen to draw the outlines of buildings and streets, marking particular places of interest such as the Metro stop (with a circled M) or the church in which the commemorative service took place (with a cross in the square that represents the house this is in). I used pencil to draw the path that was taken by the marchers. To provide more detail, I also annotated some of the particular points of interest with a blue dot and brief notes outlining what happened in this particular place. Furthermore, I drew a camera symbol in the two locations where group pictures were taken.

The path taken the second year that GAP/MAP organised a red umbrella march was only slightly different to that taken in 2016. Both years, it started

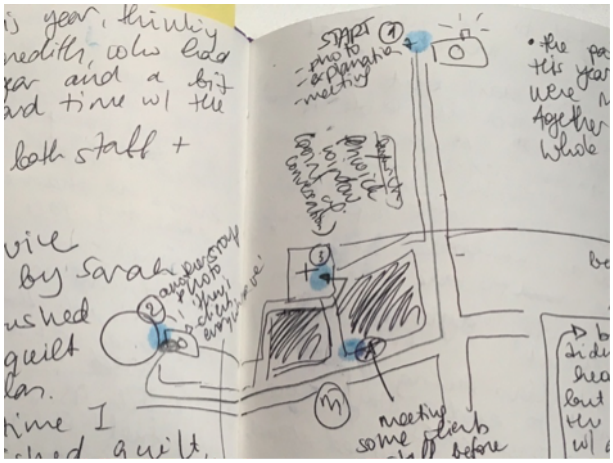


Figure 6.2: An annotated map of the march in 2017

and ended in the same place and walked down all of Northumberland Street (Newcastle's main shopping street). In 2017 however, we did not march down the side-street directly to the church, but instead walked all the way down Northumberland street to Monument. From there, we continued walking to what was referred to as 'the hippie green' by those leading the march (Old Eldon Square).

Below, I look at the ways in which technologies were used on the march itself, and the use of technologies during the commemorative service. To do this, I focus primarily on the events that took place in 2016, but also bring in details from my second attendance of the day in Newcastle.

6.3 Technologies on the March

Both in 2016 and in 2017 Changing Lives staff, service users, and others attending the marches used technologies to facilitate interactions. Here I focus not only on digital technologies, but also include technologies such as red umbrellas to obtain a more rounded understanding of this hyper-localised commemoration of IDEVASW. Even if not digital, the technologies detailed below function as a facilitator of communication and activist tools without which the march would not have been possible. Below, I reflect on the ways in which mobile phones, the red umbrella, and taking part in the march supported the commemoration.

6.3.1 Mobile Phones

The technology that was perhaps most ubiquitously used during the march were mobile phones; smartphones specifically. These were used as a tool for communication and to take pictures. Mobile phones were important especially at the beginning of the march, or rather before the march itself started.

Both years, members of staff contacted service users they engaged with regularly to ask whether they were attending. If they were, the phones were used as a means of negotiating the best meeting place. These conversations happened both through phone calls and sms (or other text messaging applications). In 2016, we had organised to meet members of staff at Monument Metro station. This was also the meeting point that they had organised with many of their service users and some volunteers. While waiting there, questions like *'when is [anonymous] going to arrive?'* and *'is [anonymous] going to join us too?'* were asked by both staff and service users. Often, these questions were answered by a member of staff after looking at their phone screens, or as they were looking up from their mobile phones while authoring a text message.

In 2017, I did not organise to meet with members of staff in a particular location as I knew where the march would start and where the commemorative service took place. Just like in 2016, I first walked to the church to drop off my belongings. This year however, I was much earlier than last year as I thought the march started at 12-noon (it turned out that this was the meeting time before the march rather than the start of the march itself). As I was dropping off the materials for the creative Red Umbrella Archive activity early, I met some of the Independent Sexual Violence Advisers (ISVAs) that support some of the GAP/MAP service users. They were accompanied by one of the members of staff whom I knew from my previous interactions with GAP/MAP – she told me to leave my bags in the church as she was looking up from her phone. After several minutes of waiting I asked whether other members of staff were meeting here or in a different location – she told me that some others were on their way, but also that she was trying to reach some of the women she supports. While one of the ISVAs and I were chatting about the work they do, the Red Umbrella Archive, and about the ways in which creative mindfulness activities like The Partnership Quilt (see chapter 7) and the Red Umbrella Archive were chronically underfunded, the member of GAP/MAP staff was busy text messaging and calling some of the women she supports.

Mobile phones were used not only to communicate between service users and members of staff, but they were also used to take pictures. These pictures again had at least three different purposes: to start, document, and conclude

the march. Both years, a picture was taken to catalyse the march. After everyone who was expected to attend had gathered at the meeting point, it was clear that to mobilise this group of people, we needed *"a little bit of this kind of 'officialness' in some way"* to announce the commencement of the red umbrella march. To do this:

> There was like, 'okay, now we are going to take this group photo with the umbrellas covering our faces so nobody can be recognised' And taking this group photo before the march starts but at the same time, this served also as an official starting point.

In Figure 6.3 we can see the picture taken in 2016, where the uniformed police officers add another layer of 'officiality' to the process of catalysing the march. This process slightly differed in 2017, the taking of a picture also *"functioned as a catalyst for the march [but] simultaneously created an air of officiality for those taking part"* but this time, the umbrellas were not used to cover all of the faces. While in 2016, it was expected and said that everyone should cover their faces, in 2017 we were given the instruction to cover our faces if we did not want to be recognised, but also that we did not have to do this. This may have been, at least in part, as in 2017 there were many more members of staff from GAP/MAP present than the previous year. Either way, this photograph functioned as a trigger for *"okay, now we're all together, let's start. Let's get going."*



Figure 6.3: A picture taken at the beginning of the march in 2016

Pictures taken on smartphones were also used as a way of documenting the march. As is made evident by some of the pictures in this chapter, both myself, and GAP/MAP staff took pictures with their phones throughout the

march. I also saw some of the service users and other marchers take out their phone throughout the march to take pictures of their participation in the march.



Figure 6.4: A picture taken towards the end of the march in 2016

At the end of the march in 2016, as we were walking down the back alley to reach the church *"one of the staff members said actually: 'oh it would be nice to have a group photo again in front of the church' but then half of them were already in"* the church, as documented in Figure 6.4. It wasn't until the march in 2017, that we were also afforded the possibility of taking a picture at the end of the march. Even though this was not directly at the end of the march (in front of the church), the picture concluded the activist part of the walk to the church. After the picture was taken, the majority of people that were holding an umbrella closed it and no longer held it up above their heads as they did in the march. It was also here that many left the group – only those who were taking part in the commemorate service started to walk towards the Methodist church.

6.3.2 The Red Umbrella

Congruent with the international symbolism of sex worker rights, this localised addition to the international archive of IDEVASW commemorations used red umbrellas to attract attention to the march. These were provided by GAP/MAP, but not every single marcher had an umbrella. In 2017, GAP/MAP brought more umbrellas than the previous year. On top of this, one of the drop-in groups that GAP/MAP organise had prepared for the march in a unique way: they decorated some of the umbrellas using glitter,

pearls, and other craft supplies. Two of these umbrellas can be seen in Figure 6.5.



Figure 6.5: A picture of two decorated red umbrellas from the march in 2017

These decorated umbrellas show that even though IDEVASW is a commemoration of an international celebration, through service user participation, it is possible to increase the specific, localised, and personal meaning of this day. The picture above was taken inside the church, a few minutes before the commemorative service started. Since these two women were proud of their umbrellas, they wanted to not only use their creations during the march to inform the general public, but they also wanted to use these highly personalised umbrellas during the service – at the start of service, before any words of welcome were said, the two women walked down the isle between the chairs in the church with their umbrellas held high. Once they reached the front, they placed the umbrellas on the floor, adding to the decoration and memories of the day. This act was important to these two women, and also illustrates the importance of the symbolism of the red umbrella (as well as the personalisation of these which I will come back to in section 6.5) to those who understand its meaning.

Contrasting this, in the report I wrote about the Red Umbrella Archive project to publish and share with service users at the march in 2017 (see Appendix A.5), I reflected on the ways in which members of the general public interacted with the symbolism of the red umbrella:

> While the umbrellas were a useful tool for getting attention, it is unclear whether passers-by understood what they were about. While it is a very well known international symbol for sex worker rights in communities associated with sex work, those who do not

> know much about the fight for sex worker rights are not always aware of this symbolism.

Particularly considering some of the decorated umbrellas in 2017, I wonder what some of the passers-by who do not know much about sex worker rights or IDEVASW thought the march was about. I briefly talked about this with one of the service users as we were marching together, her pushing a pram with her 3-month old son, and myself holding up an umbrella. Our brief conversation ended with the conclusion that those who cared enough to wonder about our march would probably search online for *'red umbrella'*, *'red umbrella march'* or similar keywords to find out more. She said that she thought they would do this on their smartphones as soon as they saw us. We did both wonder however how many people would actually do this – were we just walking down the street with these umbrellas for no reason? Upon further reflection, even if nobody looked up what our march meant, it was clear that the march was not for no reason, as I address below.

In 2016, Changing Lives provided not only the red umbrellas to make the march more visible on the busy Northumberland street. They also provided some red umbrella pins that were attached to a small flyer (see Figure 6.6).

These were used as a way of engaging members of the general public who paused for a moment when they saw the red umbrellas or looked interested in what was happening in some other way. In handing out these pins, the marchers were able to start a conversation about the day with passers-by or were able to share the message of the day without talking too much: *"People were handing out the pins and explaining and there were people who came up and asked."* While handing out the pins myself, and seeing others interact with passers-by, Janis and I thought:

> Many [passers-by] just realised [what the march was about] when they got the flyer and then read the capitalised 'sex work and sexual exploitation' where they were like 'oh okay! but it's a pin, so that's nice' I think it was quite good that they had the pin on it as well as a little gimmick, because that probably makes a couple of people that would shy away otherwise, you know still keep the set of the pin and the paper.

After the march and the commemoration had ended, and Janis and I had had some time to reflect on the day as a whole, we thought that *"the awareness raising actually worked quite well. Some [passers-by] were really eager to find out."*

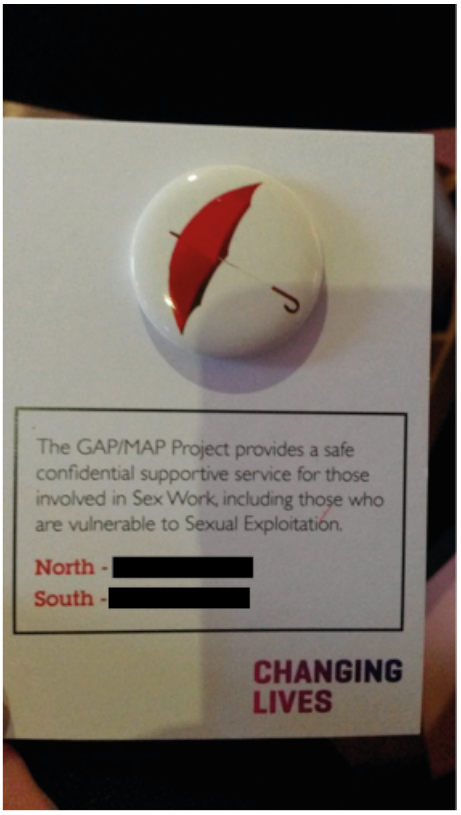


Figure 6.6: A picture of the flyers with pins attached that were handed out on the march in 2016

6.3.3 Taking Part in the March

When looking at the ways in which technologies were used throughout the march, it is also important to reflect on the ways the march itself differed in the two years. In a way, the march functions as a 'technology' to reach the goal of raising awareness of IDEVASW. Below, I go into detail of the ways in which the march in 2016 and 2017 differed. Here I want to point out that even though these differences were incredibly important in relation to the ways in which the march functioned, the differences were made up of details. I look at the ways in which the journeys differed and reflect on some of the reasons of this. Janis and I reflected on the time of waiting at the starting point of the march in 2016:

> In some ways it was almost like a little mini-protest in itself through togetherness. Everyone is assembled in this kind of mini-square where a lot of people have to go through. And I think it actually got a little bit of an extra mini-protest for some

> individuals being rather on the side where a lot of people have to squeeze themselves through. The way how they were handing out the information flyer with the pins was almost like a little bit provocative. Like: 'Here you go! You need to take this!' but it was only happening because they were there in their small group surrounded by the bigger group.

In 2017, even though the number of marchers was much bigger, this mini-protest did not happen in the same way. This was due to a number of different reasons. Firstly, marchers were not given any pins to hand out – only umbrellas. Secondly, Newcastle City Council had redeveloped the small square into a more pedestrian-friendly space: going from a small zebra crossing that many people had to squeeze through to a large and open pedestrian space. This change in the urban architecture made the 'mini-protest' less efficient as pedestrians did not have to squeeze through the growing number of people waiting to start the march. The ways in which we marched also changed. In 2016, marchers were walking at vastly different speeds:

> The front was walking quite quickly, and then there were some people in the middle and I think where we were [in the middle but towards the back] it was like: 'Oh they're going really quick, we should slow it down' and then in the back they were walking really slowly.

This resulted in a diffused march where different people engaged in different activities: *"I think those in the back were also doing a little bit more of the information work, because people see them in the front, and then we come slower so we seem to be more approachable in the back."*

In Figure 6.7 we can see the result of this spreading out of marchers. Even though there were enough marchers and red umbrellas to create a 'mini-protest' at the meeting point, we see only two umbrellas clearly in the picture. If looking really closely, it is also possible to see some of the other marchers with their red umbrellas – very far in front of the others.

The second year the march took place, the issue of walking at different speeds was directly addressed at the beginning of the march. Before we had started, an announcement was made: the route was explained to us and we were told to walk slowly in the front. The police officer who made this announcement went on to tell us to make sure that if the front was walking too quickly to let them know. This announcement seemed to make a difference as the march was much slower than in 2016. On top of this, when the front of the march started to separate from the rest, they noticed and



Figure 6.7: A picture showing the ways in which the red umbrellas were held throughout the march

waited for those in the back. This happened two or three times. Both years, I was in roughly the same part of the march – in the middle towards the back – but the difference in visibility of red umbrellas can be seen when comparing Figure 6.7 and Figure 6.8. Here it is important to note as well though, that there were more marchers in 2017 and that more of the marchers also carried red umbrellas.

Members of the general public engaged with the marchers both years. In 2016 *"people were handing out the pins and explaining; and there were people who came up and asked"* what the march was about. Further to this *"there were also a couple of people that you, like, many just realised when they got the flyer [that the pin was attached to]."*

In 2017 however, the marchers did not have pins to hand out due to changes in funding. I think this reduced the interaction between marchers and the public as the marchers did not have anything to 'lure' passers-by into interacting. As I was walking with one of the service users a woman who was doing some shopping approached us, asking what the march was about. The service user responded about how it related to ensuring people should be safe. From this example, we can see that even though we did not have pins in 2017, people wanted to find out more about the march. Having said this, in reflecting back on the interactions I had myself and witnessed other marchers having with members of the general public, *"I think it was quite good that they had the pin on [the flyer in 2016] as well as a little gimmick, because that probably makes a couple of people that would shy away otherwise, you know, still keep the set of the pin and the paper."*

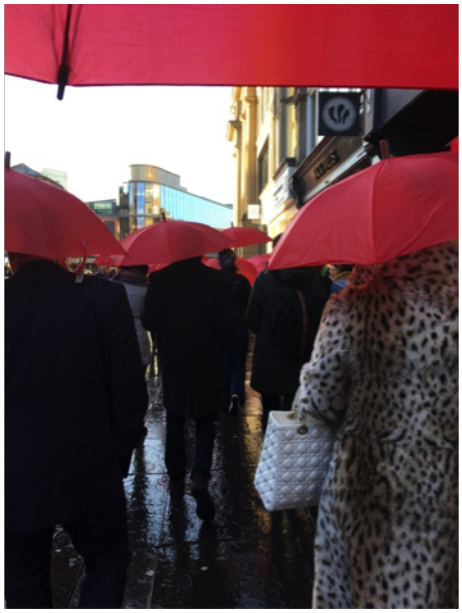


Figure 6.8: A picture taken by myself during the march in 2017

Above, I have provided examples of three different technologies that were used throughout the march and the ways in which these facilitated different kinds of interactions with IDEVASW: mobile phones, red umbrellas, and the march itself. Below, I continue with the description of the ways in which technologies were used on this commemorative day by GAP/MAP staff, service users, volunteers, and myself as a researcher focusing on the commemorative service itself.

6.4 Technologies during the Commemorative Service

Not only was I invited to join the public red umbrella march, but I was also invited by GAP/MAP staff to attend the commemorative service that is held at the Methodist Church that is accessible via a small alley leading off of Northumberland Street. Again, mobile phones were used by staff, service users, and volunteers alike to communicate with each other and others not present at the service. They were used in other ways throughout the service that I allude to below as well. I provide a detailed description of the use of mobile phones in the previous section, so will not go into detail of their use during the commemorative service here. Rather, I focus on the ways in which digital and no-digital technologies were used throughout the service in

relation to its structure, focusing on the various activities for remembrance.

6.4.1 Structure of the Service

Both years the service was made up of a number of different participatory and non-participatory activities. I will go into more detail of these below, but here want to focus on the ways in which music and a slideshow were used to facilitate changes in activities. In Janis' and my reflection, we said that *"the church had like a multimedia suite"* as it was equipped with a number of different technologies to use during this, and other, services:

> So at the back there was a projector and a woman sitting on a laptop that had all the slide shows and videos and music on it. No, the music was coming from the priest's smartphone! Because she was turning down the music manually with her smartphone

Furthermore, the church was fitted with microphones at the pulpit at the front of the room. Overall, it felt and functioned much like a *"smart church."* The music supported a different kind of atmosphere to what I was personally used to in a church – in 2016, Robbie Williams featured a lot in the music choices, whereas in 2017 it was other contemporary and slightly older pop songs:

> I thought [the music] added a different layer to the whole service. To have, especially in the bit where they commemorated all the people that had died this year, it was nice to not hear the names being said out, but to just have some nice music and to look at the screen where [the names] just appeared.

The volume of the music, as well as the songs themselves, were tools of scheduling the commemorative service. Some of the activities were carried out for as long as one or two songs, or ended with a volume change in music (eg. via a manual fade-out of music).

Similar to the music that played throughout the service, a slideshow also functioned as a tool to prompt the moving on between different phases and activities of the service. The slideshow that played throughout the service both in 2016 and 2017 was showed on a screen at the front of the church (see Figure 6.9). In 2016, it was unclear to both Janis and myself who made this slide-show, but in my continued engagement with GAP/MAP and the organisation of this event, I learnt that it was a member of staff from the charity who made choices about music and the slideshow.



Figure 6.9: The space in which the commemorative service was held both years

Different parts of the service engendered different types of activities and as such elicited different emotions from attendees. For each of the different elements of the commemorative service, elements of a slideshow were prepared. For example, while a member of staff was reading a poem written by one of the service users who was unable to attend in 2017, the words of the poem were also written on a slide that was projected onto the large screen. Additionally, in 2017, the Red Umbrella Archive made an appearance at the end of the slideshow (see Figure 6.10) to give a visual representation of the activity that attendees could get involved with at the end of the service.

6.4.2 Activities for Remembrance

As mentioned above, the service was made up of a number of different activities. Some of these were non-digital, but used tools and technologies in different ways. With these activities and the multimedia tools provided by the church described above, GAP/MAP made use of both digital and non-digital technologies to support the remembrance of the lives that were lost in the last year, but also the lives that were affected by these deaths or violence committed against sex workers more broadly. In this way, they used technologies to buid a J-OE based on IDEVASW.

There were four activities that stuck out to me as important elements of the service. These were however not the only activities that took place (there were, for example, also poetry readings, speeches, and readings of letters), but I feel that these four activities were supported (or perhaps facilitated?) with (through?) technologies. The four activities I focus on here are: (1)



Figure 6.10: The presentation slide that was used in the service in 2017 to inform people about the archive that was being developed

crafting tree ornaments; (2) lighting candles; (3) remembrance of names; and (4) remembrance of the year.

Crafting Tree Ornaments

This activity was one that was organised and prepared by the church we were based in and was slightly different in 2016 and 2017. This was an activity that Janis and I described as: *"the crafty activity with the angel and the message"* in 2016. Each of the attendees was given a piece of paper and some pens. When folded correctly, this piece of paper turned into a three-dimensional angel that could be hung on the Christmas tree at the front of the church. In 2017 the shape of the Christmas tree ornament changed from the three-dimensional angel to a two-dimensional and slightly more colourful star (various shades of red, rather than the simple white of the angels in 2016). Participants of this activity were asked to take a moment to reflect, and then write either a name and/or a few words about a person they would like to remember, or that they would like to commemorate on the tree: *"I think it was quite impressive to see how many people really had a message for someone to write on the paper angel to then hang it up."* Further to these observations and the reflection, craft activities have been found to be linked to wellbeing in public health research (Burt & Atkinson 2012).

In 2017, I joined in with this activity, as I had lost a childhood friend to domestic violence that year. After a long time of contemplating whether I wanted to write her name to hang it on the tree, I wrote her name down on the star, but did not stand up. I noticed the woman sitting next to me struggling to write on her star as she was holding her baby at the same time. I offered to help her out, taking her baby on my lap for a minute as she wrote. She then gave me the two stars she had written on, and asked whether I would be able to hang these on the tree for her. I stood up and slowly walked towards the front of the church, thinking about my friend with tears in my eyes. As I reached the tree, I looked for places where I could hang the three stars, placing the two that the women gave me close to one another.

Both in 2016 and in 2017 the tree in the church was covered in paper ornaments (see Figure 6.11) – and those who commemorated IDEVASW with GAP/MAP filled in some of the very few branches on the tree that had not yet been covered by an ornament.



Figure 6.11: Picture taken by a member of GAP/MAP staff showing the starting slide and Christmas tree in the commemoration venue in 2017

Lighting Candles

Another activity that took place was the lighting of candles. Unlike the angel or star activity, this activity was supposed to make us feel more hopeful. This activity was the same both years: tea lights were handed out to all attendees. We lined up along the outsides of the chairs set up in the church before the candles were lit and placed on mirrors on the floor. In 2017, these mirrors were placed on the floor by one of the members of staff in the shape of a

cross; and the candles were placed on top of this. We were asked to think of something hopeful while lighting the candle and placing it next to the mirrors on the floor.

Remembrance of Names

The slideshow I mentioned above was used to commemorate the names of those who had passed away that year. In 2016, the names of those who had died in the previous year came up on the screen at the front of the church in *"white writing on black screen; just the names of people (one after the other – one name per slide). I thought that added a whole different perspective to it."* In 2017, the names came up on the screen again, accompanied by music, but in a different format. They appeared in a list that continued to grow on the same slide. It had a light brown background and was styled with the same template as the rest of the slides throughout the service. 18 names were listed in 2017, one appearing after the other until the slide was covered from the top to the bottom in the names of people who were service users of GAP/MAP and who had died that year: *"there were a lot of tears. Very silently, but they were there."*

Remembrance of the Year

The last activity I want to talk about here was also one of the last activities during both of the services of remembrance I took part in. After the activities described above, it is understandable that there were many tears and hugs; as well as some hushed voices of support. One way of supporting people in leaving the service in a more positive mood was to display pictures of some of the activities that took place throughout the year. These pictures were made up of various craft activities, meals, walks along beaches, or other kinds of drop-in (and other) activities. These pictures came up on the slide show one by one, slowly fading into one another. Some of these elicited laughs, others caused several audience members to go 'aww', and others yet again prompted some public and private comments. It was lovely to also spot a picture of The Partnership Quilt (see chapter 7) in the collection. Since I was sitting next to the woman with whom I marched in 2017 and whom I knew from working on The Partnership Quilt throughout the summer of 2017 during the service, we looked at each other and smiled. Seeing these pictures made it clear how many different kinds of activities and types of support GAP/MAP provide with and for their service users; the many different shapes, formats, and sizes of groups that they support.

After a few minutes of pictures, many in the audience seemed to feel more

positively and a member of staff concluded the service. Everyone was invited to join in the food and drinks reception that was prepared in another room in the church. They were also invited to join us in the development of the Red Umbrella Archive.

6.5 The Red Umbrella Archive

Even though we marched through a busy shopping street in Newcastle, the commemorative service was a very private affair. It was only until I was invited to some of the organisational meetings in 2017 however that I realised how private it was. In a meeting I had with several members of staff to discuss the ways in which we could integrate The Partnership Quilt (see chapter 7) into the commemoration, I was told that more people had been invited to the march this year, but that the church service remained an intimate service user-led event that only those exclusively invited by staff were welcome at; as described above, the service itself was directly tailored to the experiences of those that took part in it. To continue to support this localised understanding of the day, we began to build an archive of experiences of this day in 2016. We called this the 'Red Umbrella Archive'.

Brief Disclosure

In this section, I will be using 'we' rather than 'I' as the crafting and using of this archive was a deeply collaborative process. As detailed in chapter 3 of this dissertation, inter-disciplinary and inter-organisational collaboration and stakeholder involvement were integral to the research processes I engaged in throughout the time I spent working on the projects detailed in this dissertation. Here, I want to explicitly honour this collaboration by referring not to the work I have done, but to refer to the work that I supported in the research process. The contribution of this work is built on my analysis that stems from this collaboration, as well as my personal reflections and experiences of this collaboration.

6.5.1 Archive Ecology

We used existing open-source technologies to build the Red Umbrella Archive. This technology is called JigsAudio and was developed by Alexander Wilson[3] so "participants can draw on wooden jigsaw pieces and then record an

[3]See http://jigsaudio.com/ for more information on this technology, as well as a toolkit to build it

audio explanation of their design onto to a Raspberry Pi embedded within the piece"[4]. Originally, this technology was used to encourage children to participate in decision-making processes surrounding the redevelopment of their local areas through town planning. However, we saw the potential of this technology to function as a tool to collect stories and experiences to begin to build an archive, appropriating it into a completely different space; adapting some of the creative processes to support contextually aware service delivery. Below, I provide pictures and descriptions of our process of using this technology to build the Red Umbrella Archive. First, I detail the materials and technologies that were used; second, I detail the process of crafting the archive; and third, reflect on the production and use of the archive as a 'hybrid archive'.



Figure 6.12: Picture of the wooden umbrellas, including the RFID tag

JigsAudio allows people to link a physical artefact (in this case decorated wooden umbrellas) to an audio file. Once finished, the artefacts can then be photographed or scanned, and digitally linked to their audio files on a dedicated website, where users are then able to view the images and listen to the linked audio files. This process will become clearer as I describe the process with which we have developed the archive, as well as the ways in which this has been used. The tool itself is made up of two elements: (1) the object with an attached Radio frequency Identification (RFID) sticker to which an audio file is linked; and (2) the device that is needed to record the audio files. Once the necessary information (the artefact, a picture of the artefact, and the associated audio recordings) has been collected, these

[4]https://digitalcivics.io/newcastle-city-futures-shaping-the-future-of-our-cities/

are then stored and structured to allow the software to create the website at which the information becomes available in an accessible format.

Originally, the objects that were used to record an audio file were wooden puzzle pieces (hence the name, JigsAudio, a portmanteau of Jigsaw and Audio). In Wilson's own continued use of the system, the shapes of the wooden or cardboard pieces evolved from simple puzzle pieces, to puzzle pieces decorated as balustrades, or pieces shaped like planets. To build the Red Umbrella Archive, we made use of sex worker rights symbolisms. As such, the wooden pieces that participants can draw onto are shaped like umbrellas. I laser-cut 3mm thick plywood into the shape of umbrellas, with two types of decorative etching (see Figure 6.12). As can be seen in this picture, the wooden umbrellas also have a small hole at the top, with which these can be hung up with string or wire, ready for their exhibition (see Figure 6.13 for the laser cutting pattern that was created for the umbrellas).



Figure 6.13: Screenshot of Illustrator file used to laser-cut the wooden umbrellas

We can also see that on the back of the wooden pieces (the side that was not etched into), there is a small circular sticker. This is an RFID tag; or a piece of hardware in the shape of a small circular sticker, with which we can automatically identify and track files (in this case sound files) that are linked to the object. The RFID tag is what allows us to later link the sound file and the physical umbrella to build the hybrid archive.

The second element of JigsAudio is the device on which the wooden umbrellas are placed to record the audio files. The building of the red umbrella archive took place over two years (December 2016 and 2017). At the same time, JigsAudio also developed throughout this timeframe. As such, we used two different versios of JigsAudio: in 2016 it was necessary to plug in the

tool or attach it to a battery (see Figure 6.14). In 2017 however, a battery



Figure 6.14: Picture of JigsAudio ready for use in 2016 (left) and 2017 (right)

had been designed into the case that is JigsAudio, making it more portable. Since we had worked on the archive in 2016, we were able to exhibit this version at the 2017 event. We hung up the decorated umbrellas on a coat rack, and provided a laptop with headphones so people could browse the website and audio recordings of the previous year. As people were crafting their contributions for 2017, the collection of tangible artefacts hanging off the coat-rack grew. People were able to interact with the archive digitally (on the website provided on the laptop – see Figure 6.15), as well as physically (by looking at and touching the finished wooden umbrellas). Furthermore, we provided professionally printed copies of the report we wrote about IDEVASW 2016, titled *The Red Umbrella March: Crafting a Living Activist Archive* (see Appendix A.5). As such, the archive ecology is made up of at least four elements: (1) the crafting of new pieces to be added to the archive; (2) the exploring of existing entries of the archive by interacting with physical artefacts; (3) the digital exploration of the archive via a laptop or tablet; and (4) the reading of the report and tangible documentation of this particular use-case of JigsAudio. Below, I expand on the ways in which the crafting of the archive took place in 2016 and 2017.

6.5.2 Crafting the Archive

We provided all sorts of traditional and non-traditional craft supplies for people to decorate the wooden umbrellas that make up the artefacts to build the archive. In this section, I focus on the materials and crafting processes that we went through, it is in the next section that I focus on the ways in which these umbrellas make up the archive. As the international symbol



Figure 6.15: Picture of finished umbrellas on display (left) and the accompanying website of the archive (right)

for sex worker rights are *red* umbrellas, the materials we provided were all different shades of *red*.

Similar to the other use-cases of JigsAudio, we provided markers, pens, and different writing utensils for people to use to draw or write onto the umbrellas. On top of these standard JigsAudio materials however, we also provided a number of different craft supplies such as paper, feathers, ribbons, glitter, stickers, or string (see Figure 6.16 for a picture of some of these supplies). Learning from my experiences of co-designing the activity carried out at a drop-in centre to decorate puzzle pieces to capture peoples' experiences of ugly mugs schemes (as detailed in chapter 5), I brought along not only traditional supplies, but also some non-traditional craft supplies. These were materials that participants may have interacted with previously, but in a different context: for example, different shades of red lipstick, lip-gloss, and nail polish, as well as insulation tape.



Figure 6.16: Some of the materials used to craft the archive

The combination of these materials allowed participants to create red umbrellas with different textures and materialities – it allowed them to create unique pieces of art based on their personal experiences, thoughts, and feelings towards the day, while still ensuring that they could all fit together under the red umbrella of sex worker rights.

We used the same materials in 2016 and 2017 to decorate the umbrellas, but the spaces in which we carried out this crafting activity were very different. In 2016, we carried out the activity in the same room in which the service took place. We spread out the materials on a small table by the entrance (see Figure 6.17), and used a little nook beside this table to do the audio recordings. GAP/MAP staff chose this place as they thought it would be appropriate because it provided some privacy, but it ended up being *"very limited in space, it was very dark"*. They had thought of this little space from their previous experience of hosting the commemorative service at this church.



Figure 6.17: Picture of the craft materials ready for use during the commemoration

Even though initially, we were supposed to do the craft activity after the service had finished, in 2016 we ended up doing it before the service, we *"had a really slow start, I think there were like one or two women there and then suddenly there was loads of people that wanted to do it."* At first, people very carefully approached the table with the craft supplies; *"they seemed also a little insecure even though curious."* Soon however, more people started to join us by the table to decorate their own umbrellas.

> The table was actually quite small and not everyone could actually get to the materials. So I tried to be a little bit more

> like as a helping hand and ask them: *would you like any materials that I can fetch for you?* and bring it over or help out when the ribbon was not sticking and stuff like that. But it was hardly any talking, really. Apart from *how do I do it?*

Even though the space we had was limited, we were able to accommodate several people in the crafting of their umbrellas. Some of us were sitting on the steps close to the table, others were standing by the table, and others again sat down at another very small table that was nearby after we had moved some of the books that were placed on this. Different people chose to work with different materials for their umbrellas, but the red glitter (see Figure 6.18) was one of the most-used materials.

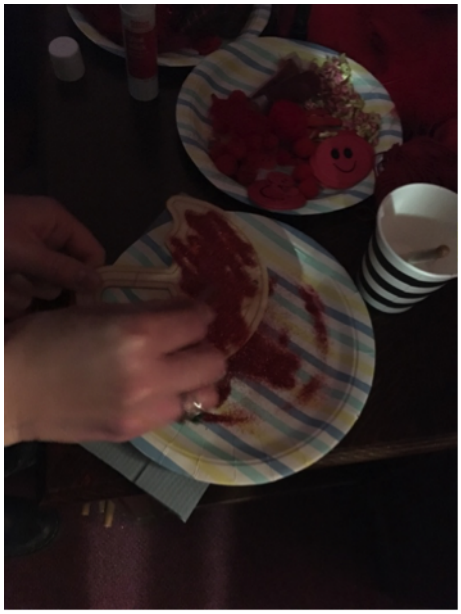


Figure 6.18: An action-shot of one of the of the umbrellas being decorated

Different people joined in with the activity in different ways, and produced umbrellas that represented their experiences and thoughts of IDEVASW in different ways:

> Some had a clear message with the umbrella because they wrote text on it. but not everyone, and I think some really just let them be inspired by the materials and just wanted to do something quickly.

Perhaps it was because of the lack of space, but perhaps it was also due to the kind of activity this was; one to prepare us all for the coming commemorative service:

> Actually, there was not so much personal talk or about the walk, it was really just more about doing it and making it. And very functional conversations, I had.

The majority of those who worked on umbrellas did so very quietly. They found a space to work and talked only to ask others to help them or pass them some of the materials. In our reflection, Janis and I talked about this. We wondered whether the crafting of the archive was an introspective activity.

> It definitely had the potential for [being an introspective activity], the only problem was basically, I think the girl sitting next to me was also sitting next to me on the stairs. She saw it more as an introvert activity; just having like the opportunity to sit down. I think it might've also happened a bit more at the second table where there was a little bit more space for after you fetched the materials but I think the setup was not ideal.

We raised this concern with GAP/MAP staff in meetings to organise the activity in 2017. They had noticed this as well and as such, we thought about ways of finding a more appropriate location for the activity. In these discussions, we also discussed the appropriate timing for the activity; we concluded that the second time we would do this activity we would do it in the room where the food and drinks reception took place, at the same time as this reception. With this change, we made sure that we had more space, light, and time for people to engage with the activity. As can be seen in Figure 6.19, we had larger tables to work on. This allowed us to spread out the craft supplies more widely, and for people to sit down together. Many brought their cups of tea and coffee to the table, to drink and chit chat while working on the umbrellas.

Having the activity in such a different space affected the ways in which people interacted with the materials, umbrellas, and the archive. In a way, there was more attention on the activity in 2017 (it was announced during the service with a slide integrated into the commemorative slideshow and an entire area in the food and drinks reception room was dedicated to the activity), but on the other hand, it was also paid less attention to (there were fewer umbrellas made the second year). Having said that however, the space allowed for a deeper engagement with the activity, while also bringing people together. Again, people took a lot of care in the production of their umbrellas (see Figure 6.19 for an example of someone carefully outlining their umbrella with glitter glue – more on 'care' later in the chapter), but this time there was also more chatter around the table. There was a nice mix of service users



Figure 6.19: Picture of the table we worked on to craft the archive in 2017 (left) and an in-progress shot of a participant decorating an umbrella the same year (right)

and members of staff sitting around the table, with people coming and going at all times. Some sat down only to chat to their friends, others sat down to take part in the craft activity, and others yet again came for one of these but stayed for the other.

Not only did we have more space to decorate the umbrellas in 2017, but we had more freedom in choosing where to carry out the audio recording for the archive. As mentioned above, in 2016 we use a small nook at the side of the church for the recording. To make this more private, GAP/MAP staff brought along a sheet to function as a curtain to ensure privacy for the recordings (see Figure 6.20).



Figure 6.20: The curtained-off space we used to record the audio-messages in 2016

In our meetings to prepare for 2017, we reflected on this and tried to figure out the best way of going about the recording. In the end, we decided not to hang up a curtain, but that we could find a corner in the room for privacy. To prepare the activity, I placed the recording device on a chair behind the Christmas tree, but in practice (see Figure 6.21), we ended up taking the portable recording device and sitting at an empty table to record the message. In one case, we recorded the message at the same table where we had crafted the umbrellas.



Figure 6.21: An umbrella being placed on the device to start the audio-recording

More so in 2016 than 2017, *"it was good that you could record multiple messages to one piece"* as people were often unsure what to say in the recording. Based on this, in 2017, we prepared a few written prompts for people to look at while crafting their umbrellas. The written prompts seemed to reduce the insecurity around recording the audio message, as situations such as the ones Janis and I mentioned in our reflections took place much less frequently in 2017.

> People were like 'oh I don't know what I want to say, I don't know what I want to say' and one girl just burst out laughing. So it was quite interesting that that element of *oh now I have to record something* took people quite a bit *oh no*. A couple of people didn't want to record anything, which is perfectly fine.

Alongside the crafting and recording, we provided a space for a pop-up exhibition of the finished umbrellas from both years. In 2016, this was in the same nook where the audio recordings took place, but in 2017 this was in a more visible part of the room where the activity took place (see Figure 6.22).

6.5.3 An Archive of Care

As I alluded to above, the archive not only functions as a tool to record and store localised understandings of IDEVASW, but when seeing it as part of a J-OE I understand it also provided a space for people to care for themselves, one another, and the wider sex working community (I expand on the concept of *care* in chapter 2). In this section, I address the care that went into the crafting of the umbrellas and the subsequent audio recordings in general before I provide two detailed examples of this: (1) archiving voicelessness; and (2) archiving three generations.

I believe that one of the reasons why so much care was put into the artefacts is because GAP/MAP often engage their service users in craft activities. Not only did I witness this while doing some of the relationship building work in the Summer of 2016, but it is also visible in their head offices. At the end of one of the tables in the office, there is a huge display of condoms that have been pinned to a piece of wood to create a heart. In one of my first visits to the office I asked a member of staff what the condom-display represented. I was told it was an outcome of a workshop they had recently had. On top of these experiences, Janis and I also reflected on this after the commemorations in 2016:

> Angelika: It was just understood that this was something that was nice, and something to take part in as part of the service. And I think that depends a lot on the type of service that it is. The way that, as far as I know, the charity is quite open with everything. A lot of the pieces that are made during kind of drop-in sessions and things like that are displayed somewhere. so for example, at the service at the front you had a couple of [inaudible]



Figure 6.22: Finished umbrellas on display in 2017

and then pieces of artwork that people had done during some of the drop-in sessions. So it's quite common for them to be doing something that will then get displayed somewhere else.
Janis: Yea, and get recognition from the rest of the group as well.
Angelika: Exactly
Janis: Which is something that was also feel-able in the way how people clapped after the poems that two of the people read.

We go on to discuss how this care translated into the red umbrella archive activity. Here we express what we had felt and experienced ourselves during the session:

> I think they are really using these kinds of things to give each other recognition and more, you know, strengthening in a way. I think maybe this is related to what we said before, like this insecurity and the fear to fail. Just integrating, making it more natural. You know just giving a channel for this curiosity, where it's not too bad when you fail. so keep doing it, even though they might feel suddenly *oh, am I really wanting to do that?* or *hmm*

Furthermore, we noticed the extent to which people engaged in the activity. We talk about the care that was taken to decorate the umbrellas, but also the perfectionism that was evident in some of the umbrellas:

> I realised that people who put a lot of effort into them you can see that in the selection of materials and the use to decorate it. Because there was a lot of the more sophisticated looking things. You know, they could have just taken like a brush and acrylic paint and it would have been done in like two seconds, like just smear it over and here we go! But no, they wanted to have the glitter gluing up there, they wanted to have the little flowers in very even spaces between it. And it was not just the bow being attached on it, on the right, the exactly the right place, they also had to have like little flowers on them as well. And you know, it was very interesting. And I think the one who gave up was actually, she wanted to make a heart-shaped glitter thing and the glue didn't stick equally. So, after she saw like *oh my god! this doesn't look like a heart at all!* she just like *no*. So there was a lot of perfectionism in it. definitely.

On top of the care that was put into the production of the artefacts themselves, there was also an element of care in the recording of audio messages. Not only do these questions allow us to take responsibility for "what and whom we care for" without being "in charge" (Puig de la Bellacasa 2011), but ultimately they allow us to reflect on the care we (and others) have extended to participants.

While many did not want to record their experiences in the audio format, those who did, wanted to make sure that what they recorded made sense. What I mean here is that many of those who wanted to record a message tried to do this multiple times as they were not happy with their initial recording; and/or prepared something to say before pressing record. In 2016, for example, the following took place:

> One girl came over to me and said she wanted to record this message. and she told me what she wanted to record and then I was like: *that's perfect! Let's just record it* and then we put the thing on, and then she completely blanked and forgot. [And she said] *What did I want to say again? What did I want to say again?* And I was like: *you just said it before, it's fine.* And then she said *okay, can I have another go?*

Archiving Voicelessness

In 2017, one woman took a lot of care in preparing for her audio recording. I had been chatting to this woman while she was crafting her umbrella. We talked a little about what this day means to her, but mostly also talked about cake. As she was finishing her piece, I asked if she wanted to record a message. At first she told me that she did not know what to say, so I showed her the piece of paper I had printed out with potential questions to prompt the recording (see Figure 6.23). I asked her some of these questions, and she responded. After she had told me more about her own perceptions, I said that these were the kinds of things that it would be great to record – this seemed to make her think as she grabbed a pen and some paper that was laying on the table in front of her, and she began to write. She wrote a brief text on her piece of paper, re-read it, and then told me that she was now ready to record.

We placed her umbrella on the JigsAudio tool together, and I pressed record for her. I had assumed she would record the text she had written, but after a brief pause, she started to talk into the device. What she said was different to what she had written; it was a poem about what the red umbrella means to her.

Seventeenth of December Twenty seventeen
An umbrella with the colour red is seen
No matter the race or the class
We come together as one
To stop violence against sex workers
And hope for solidarity to live on

Thanks to the RFID tags on the umbrella, this short but heartfelt poem is associated with the red umbrella that can be seen in Figure 6.23. It is beautiful to see the care that has gone into the creation of the detailed and thoughtfully crafted umbrella as well as the care that is shared through the poem. I want to take this particular example from the archive, to reflect on the ways in which the physical artefact and the audio recording can interact. In a way, her umbrella juxtaposes her poem almost completely. On the physical object, she has written 'voiceless', but has then gone on to share her voice to artistically contradict this voicelessness.

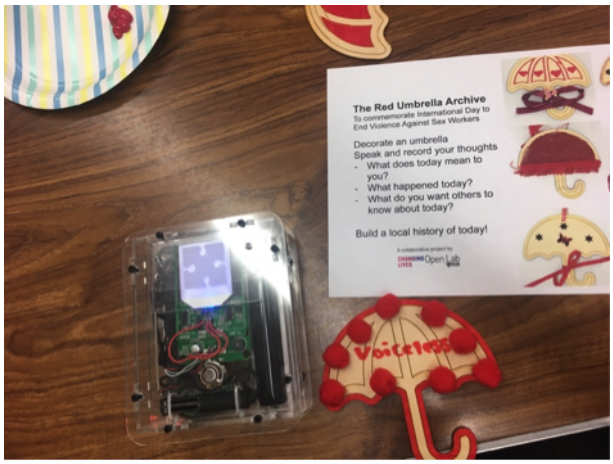


Figure 6.23: The 'Voicelessness' Umbrella

Archiving Three Generations

In 2017 at first it seemed that people were reluctant to listen to the archive. One reason for this could be that the archive was not the main point of interest in the space (the crafting and exploring of the archive took place at the same time as a food and drinks reception after the commemorative service). As people began sitting down and chatting after they had eaten however, the table where the archive was being crafted became busier. With this, so did the exploration of the archive. People walked over to the coat rack with the

finished umbrellas, looking at the different artefacts, and touching some of the materials. Here, I want to provide one story of how two women and a small child interacted with the archive as an example of the living element of the archive. This story starts in 2016 and continues at the commemoration of IDEVASW in 2017.

> Angelika: Something else that I noticed is that people made the pieces for somebody else.
> Janis: Yea, there was a lot of *who do I do it for?*

One of these instances took place between a mother and her daughter. Both of the women attended the commemoration in 2016 and 2017. In 2016, the mother first crafted an umbrella before the service, while the daughter crafted her own umbrella after the service.

> Angelika: And they wanted to hang [the umbrellas] next to each other. Which I thought was quite nice, but then also, one of the roses had slightly fallen off and was stuck to the glitter rather than the place it was supposed to be, and we went and fixed it right away, because it needed to be perfect. I thought was really nice and said a lot about the...
> Janis: ... the care in it

After the daughter had made the piece, she wanted to hang up her umbrella next to her mothers'. Before doing this however, she paused and asked if she could take the umbrella to give to her daughter, who's name she had written on the umbrella; an example of where the piece was crafted for somebody else. In our reflection after the day, Janis and I reflected on this:

> The woman who wanted to do it for her daughter, I think she kind of switched her mind like, *okay am I actually firstly giving it to my daughter, or am I hanging it up here?* and then was more like *okay, then I hang it at least next to my mum*

In 2017, they came to look at all the umbrellas that had been finished in 2016 and displayed close to where the crafting activity took place. As I was curating the umbrellas for the 2017 event, I did not focus on who created which umbrella. Instead, I focused on the materials used for each of these; for example making sure not all the umbrellas that used primarily glitter were placed next to each other.

When we walked into the room for the food and drinks reception after the service, the two women and toddler sat down at the table with the craft

supplies. They looked at the umbrellas, but did not stand up to inspect them more closely. After I briefly talked to them about the umbrellas, and made clear that these were the umbrellas that were created the previous year, the oldest stood up to have a look. She ruffled through the exhibited pieces and then pointed out the ones that they had made the previous year. After they had looked at the umbrellas, they asked if they could create another one this year: of course I agreed, pointing towards the craft supplies on the table they were sitting at. At this point, I also pointed out the laptop at which they could listen to the archive. Again, they were quite apprehensive about listening through the messages, but then mustered the courage to have a look. They smiled and energetically talked to one another when they heard their own voices. The daughter crafted another umbrella with the help of her own daughter (the toddler), and hung it up alongside the other finished pieces, telling me that her daughter had made this piece. There were now three umbrellas in the archive, crafted by three generations.

6.5.4 A Hybrid Archive

After talking through the infrastructure, ecology, and process behind the crafting of this archive. I now want to take a step back to look at the archive as a whole; to reflect on the hybridity of archival practice involved in its use and production, as well as the hybridity of tangible non-digital artefacts and digital infrastructures that support the creation, storing, and continued use of The Red Umbrella Archive. Falling back on the descriptions of archives in chapter 2, I first reflect on the theoretical hybridity of the archive by exploring which kind of archive it is, then address the tangible hybridity of the archive by reflecting on the kinds of artefacts that make it up. To conclude this section of the chapter, I address how these two discussions affect potentials for the future.

The Red Umbrella Archive can be seen as a theoretical hybrid of a number of different kinds of archives. To build this archive, I have drawn on literatures that describe and analyse living, community, and activist archives. Based on the description in chapter 2, the archive we have been working on for two years functions as part living archive (it is supposed to be a constant work in progress as it is continually added to every year that GAP/MAP carry out their commemorative service), activist archive (as part of its purpose is to be able to create a history of those who participate to be used as a tool for advocacy to reduce violence and stigma), and part community archive (as the development of the project and the collection of stories was started and is continued by members of the community who's stories are being recorded).

There are however many elements that these traditional archives have that have not really been addressed by this project. For example, an archive traditionally stores a lot of metadata around artefacts, but here we store almost no metadata. The only information that is stored for each 'entry' into the archive is the year it was produced, a picture of the finished artefact, and an audio clip that is linked to the picture (if there was one recorded). Not recording further metadata was a conscious decision in this project. When considering the violence and intersections of stigma of the people who's stories, experiences, and opinions have been stored here, I question the necessity of archiving traditional metadata. In the report we published about this project (see Appendix A.5), GAP/MAP staff wrote:

> Changing Lives have found that the problematic terminology can be a significant barrier to meaningful debate and narrative, and in turn this hinders the development of a strategic response both at local and national levels. The existing debate around language is polarising and divisive. In response, Changing Lives now describes our work using the phrase 'sex work, survival sex and/or sexual exploitation' which is long-winded but inclusive of the experiences of all those using our services.
>
> Sex workers and people who have experienced sexual exploitation often face stigma and discrimination as there can be negative perceptions associated with their work or experiences. For many Changing Lives service users this stigma and discrimination can be exacerbated by other needs they may have leading to multiple layers of discrimination and stigma associated with, for example, homelessness, addiction, offending, or having children in care.

As can be seen from these statements, the recording of private information for the purpose of tagging metadata for this archive may not be appropriate here. Some people wrote their names (or their children's names) on the red umbrellas, but we did not want to create additional barriers to participation by requesting detailed information on the creator of each of the pieces.

Not only is this archive a hybrid of various theoretical archival practices, but it is also a hybrid of craft and technology, as well as digital and non-digital interactions. Below, I provide information on the artefacts, audio recordings, and the website separately, before summarising the ways in which these all interact to provide various modes of interaction for creators and users of the archived information.

Artefacts

I have described above in detail the process involved in the creation of the wooden umbrellas. The people who partook in the activity:

> definitely produced something that has some kind of value and can't just be some quick something. It is, they definitely created some kind of meaning in it. It's just hard, I don't think that, maybe the recording is not the right way to really get this kind of meaning out of it.

This 'meaning' that is produced through its creation is manifested in different ways. For example, each person who made one of the umbrellas associates their own kind of meaning with it as seen for example in the above section titled 'Archiving Three Generations'). Another 'meaning' is solidarity in the symbolism of the red umbrella (as can be seen, for example, in the short section above titled 'Archiving Voicelessness'). On top of these examples, there are also unspoken meanings for each umbrella that each person who created one has for themselves. Another meaning is that of the archive as a whole for GAP/MAP as an organisation.

Audio Recordings

The archive is made up of not only artefacts, but also the audio recordings that are linked to a specific umbrella. The number of recordings are lower than the number of umbrellas that were made as not every person who made an umbrella wanted to record a message. This is another reason why the combination of artefact and sound are so important in this archive – similar to the work of concept-things (Pierce 2014) each type of context brings a different kind of meaning and materiality to the archive. The tangibility and intangibility of these two elements of the archive, are part of what makes it so materially interesting.

Website

On top of these tangible digital and non-digital artefacts, The Red Umbrella Archive is also accessible via a website. This is created by using the JigsAudio tools provided on GitLab[5] that is publicly accessible. The website itself however is currently not publicly accessible.

[5]The link to the code and toolkit to build JigsAudio can be found here: https://openlab.ncl.ac.uk/gitlab/alexander.wilson/JigsAudio

A screenshot of the website can be seen in Figure 6.24: At the top of the page is the title of the website as well as a brief description of the project. The button with the text 'More about Changing Lives' leads visitors to the Changing Lives homepage. Below this short informative text, the archive is displayed in chronological order. For each year of its existence, a horizontally scrollable bar can be navigated to view all the umbrellas that were created that year. Where available, a small 'play button' is visible over the picture. Pressing on this triggers the audio file associated with that particular red umbrella.

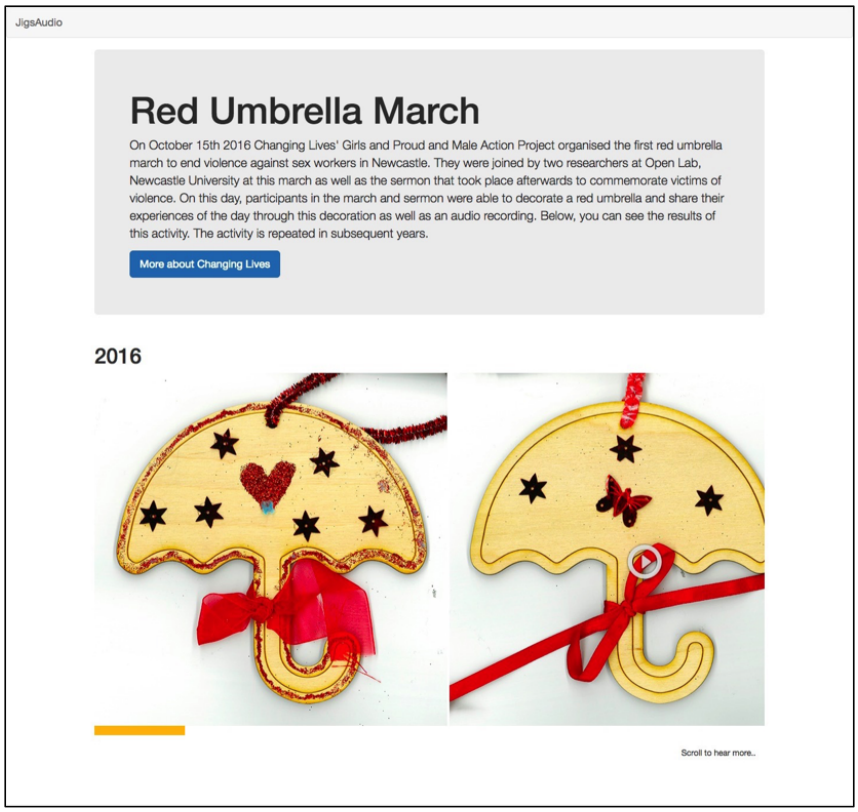


Figure 6.24: A screenshot of the archival website

Interacting with the Archive

Due to the various different elements that makes up the archive, there are various ways in which people can interact with it both as creators and as users. Creators are able to take part in all, or only some of the archival processes. For example, they can decorate a red umbrella but not record an audio message; they can record an audio message to a non-decorated

umbrella; or they can decorate an umbrella and record one (or more) audio messages to it. Users of the information can also engage with the digital and non-digital artefacts in a number of different ways. For example, they can visit an exhibition and interact with the tangible artefacts; or they can interact with the website to browse the photos and listen to specific audio clips. I am in conversations with the developer of JigsAudio, and hope to see developments of the tool to develop infrastructures that allows users of the information to interact with the tangible artefacts to trigger the audio files associated with them without having to interact with the digital interface (the website). This would allow more tangible interactions with the archive, allowing more of the care that has gone into the choosing and placing of materials on the artefact to become visible and tangible to those who do not know the details of how the archive was crafted.

6.6 Summary

Even in the first year while we were only starting to decorate some of the wooden umbrellas, people began to ask us what was going to happen with the artefacts:

> It was quite nice when people started asking, it was really the staff who started asking *so what's going to happen with this?* and after some chatting with them, we thought: *oh it would be quite nice to do an exhibition* that's the kind of thing that [anonymised member of staff] and I had been talking about as well. And whenever anybody heard that, they said *oh that'd be great, that'd be good, or that'd be interesting.*

On top of this, I know that *"A lot of the pieces that are made during kind of drop-in sessions [and other elements of GAP/MAP service delivery] are displayed somewhere."* Based on this knowledge, I hope that The Red Umbrella archive will continue to be exhibited not only at future IDEVASW commemorations but in other more public fora as well. In meetings with GAP/MAP staff we have discussed potentials for the digital elements of the archive (especially the website) to be used for public advocacy through Changing Lives social media channels. We have thought of using pictures, audio files, and the website of the archive as part of an increased engagement with IDEVASW, broadening engagement beyond the public march and internal commemorative service towards the engagement of online publics.

Even though there are many opportunities for the continued use of the archive, there are also some practical limitations involved. It is hard to

provide materials for GAP/MAP for long-term continued (or sustainable) use of the system, but I have taken precautions in our materials to ensure this is as easy as possible for the charity to carry on after I have finished my engagement with them. With this I mean that, for example, we used RFID stickers that are cheap and easily available on various large online markets. The wooden umbrellas are also easily made as the templates exist and are easily used by novices. With these however, access to a laser cutter is necessary. This is possible through 'maker spaces', but requires time and travel to these locations for members of staff, volunteers, and/or service users.

Even though the tangible materials that are used to create the umbrellas, and the JigsAudio tool itself are easily replicated by GAP/MAP staff, the process involved in putting the necessary information onto the website is still difficult. The steps between the collection of the information and the replication of this on the website are still very difficult to do; particularly so for care workers who may not have an understanding of digital technologies nor access to individuals who would be about to support them with this particular technology.

Overall, this chapter has provided another context and exploration to answer the overarching question of this dissertation: *How can digital technologies be collaboratively designed, developed, and appropriated with and within sex work support services to promote multidimensional justice for their service users?* Since I used an existing technology to build the archive, this chapter particularly explores the ways in which digital technologies can be appropriated with and within sex work support services to facilitate their organisational goals. In this case the goal was to provide a localised experience of IDEVASW that supports specifically the service users of GAP/MAP. Above, I have provided an overview of the use of digital technologies on the day to contextualise the J-OE before providing a detailed look at The Red Umbrella Archive that was collectively designed and crafted.

In the next chapter, I will provide an exploration of the ways in which digital technologies can be collaboratively developed with a sex work support service. In this exploration I partnered with the GAP/MAP project again, but worked with different service users and staff to develop The Partnership Quilt. For this project professional quilters were also involved.

Chapter 7

The Partnership Quilt

7.1 Introduction

In this chapter, I detail the process involved in the creation of The Partnership Quilt. I go into detail on the process involved in the project before presenting the finished quilt and reflecting on some of the various different physical and metaphorical layers that make it up.

This chapter provides another example of how the overall research question of this dissertation could be answered: *How can digital technologies be collaboratively designed, developed, and appropriated with and within sex work support services to promote multidimensional justice for their service users?* Here, I focus particularly on the ways in which digital technologies can be collaboratively *developed* with sex work support services as The Partnership Quilt and the technology needed to augment the craft were co-developed with the charity. I will come back to the aim and the question at the end of this chapter to make clear the ways in which The Partnership Quilt makes use of digital technologies to support service delivery of sex work support services and the ways in which it promotes sex worker rights. I will also reflect on some of the learning in relation to the ways in which this digital technology was collaboratively developed within the charity to promote wider discussions of sex work.

In this particular project, a varied group of individuals worked together to create a traditional quilt that, with the addition of do-it-yourself (DIY) capacitive touch sensors, also functions as an interactive installation of voices. I collaborated with Changing Lives' Girls Are Proud and Male Action Project (GAP/MAP) where members of staff, volunteers, and services users contributed to the quilt. Furthermore, Kim and Debbie from Six Penny Memories (SPM), two professional quilters, and Janis Meissner (another PhD

student at Open Lab, Newcastle University) also contributed to the quilt. It is hard to say exactly how many people worked on the project as many members of staff and service users joined in on the project with small contributions but did not attend the group quilting sessions. Because of this, I will be using 'we' and 'us' throughout this chapter to make clear and emphasize that this project was not something 'I' did, but rather something that was done together. Having said this, even though it was such a collaborative project, the analysis and conclusions that are drawn from this chapter are based on collaborative reflections (particularly between Janis and myself) as well as my personal reflections.

The data presented in this chapter stems from personal field notes from meetings and reflections on these meetings with stakeholders on this project, pictures and transcribed audio recording of a group reflection including many of those who helped work on the quilt. As such, the quotes that are seen in this chapter stem either from my field notes or the audio-recorded discussion.

7.2 Contextualising the Partnership Quilt

In the Summer and Autumn of 2016 one of the volunteers working with GAP/MAP started a sewing project at a drop-in in Northumberland as she was a quilter who wanted to share her love of the craft with service users. Working alongside one of the members of staff working at this particular drop-in, she began to bring in pieces of fabric, sewing needles and thread, as well as small hexagonal pieces of paper; all of which are materials needed to start making of a quilt. Some of the women began to really enjoy the sewing, coming back every week to complete a new piece. As time went on, they began sewing the individual pieces not only during the drop-in, but also while travelling on public transport, waiting for appointments, or even in the bath.

Many of the members of staff in GAP/MAP, while highly mobile in their working patterns, have desks in a centralized open-plan office. They meet up here for team meetings, planning sessions for overall strategy and service delivery, and to complete their administrative tasks. This centralized working environment allows members of staff to learn about projects others are working on, and to discuss ways in which multiple of the drop-ins could work together. Through these kinds of conversations, the practice of sewing the individual pieces started to spread throughout GAP/MAP. Several of the members of staff learned the basic skills necessary to complete a piece of the sewing and started to introduce the activity in their own drop-ins.

In the autumn of 2016, I was invited by both National Ugly Mugs and

Changing Lives to attend the North East Regional Learning Day. This is a forum for sex work support services in the region to come together to discuss best practice, share experiences, and learn more about some of the research going on in this area. Up until then, I had only heard about the quilt. But while there, I was finally able to see what some of these sewn pieces looked like. Even though I had expressed my interest in the project as soon as I heard about it at one of the early meetings with GAP/MAP in the Summer of 2016, it was not until this Regional Learning Day that I could visualize what this 'quilt project' looked like. Following on from finally seeing pictures of some of the pieces on a member of staff's phone, I began to bring up the quilt more often in conversations with them. From these conversations I learnt that while many were very interested in sewing the individual pieces (both in their private lives and during drop-ins they organize), it was not clear how these individual pieces would ever turn out to be a quilt.

Throughout the Winter, the projects started to take the back seat in service delivery as it is one of the most stressful times of year for GAP/MAP service users and staff, and since the volunteer who had started the project months earlier was no longer able to continue volunteering for the charity. Despite this, some of those involved in the project from the very beginning continued to sew some of the pieces every now and again, without expecting they would ever really turn into a quilt.

After a busy time for both GAP/MAP staff and myself, we met up again in the Spring of 2017 to discuss further potential collaboration following on from the project we carried out in December 2016 (see chapter 6 for more details). At this meeting my friend and colleague Janis and I met up with some of the staff we had known previously, and others whom we had heard of but had not met before. It was at this time that we discussed GAP/MAP plans for the continuation of the project after the volunteer left, and that Janis and I shared some of the ideas we had had in relation to the potential to collaborate on the quilt. A few weeks earlier, Janis had shown me how to make DIY capacitive touch sensors based on her own Master's project (Meissner & Fitzpatrick 2017, Meissner et al. 2018). We used the prototype we created then to show GAP/MAP staff what we had been talking about when we had said in previous meetings that we would like to help turn the quilt into an interactive one.

This reiteration of our interest in the project, and being able to show what we had been meaning when we said we would build DIY sensors allowed us to talk more tangibly about the continuation of the quilt project. Even though the volunteer who had started the project was no longer able to continue it, we moved forward with the limited quilting skills we all possessed. Even though everyone in the room had a rudimentary understanding of what a

quilt was, and how to make the individual pieces that had been made to create the quilt top (a quilting term used to describe the patchwork sewing used as the right side of the quilt), none of us in the room had ever completed a quilt before. Nobody knew what the next steps were going to be to put together the entire quilt top (which was also a word we only learnt months later as we were working towards the completion of the quilt), or even how we would integrate the sensors into the quilt in a way where they were easily accessible enough to fix if and when they broke. In this meeting, we aired many of our insecurities about the project, but seeing the potential for improved wellbeing of service users and in creating an interactive quilt that would be able to play peoples' voices kept us thinking about ways in which we could mediate some of the issues we were facing. At the end of this discussion, we had found interim solutions to our issues: one of the members of staff knew of a group of quilters who would potentially be interested in helping out on this project (this is how SPM became involved); and Janis and I would continue to work towards a design of the interactive quilt to embed the sensors while maintaining the materiality and tactility of the traditional quilt.

Following on from this meeting, we began to work more closely and discussed developments of the project via e-mail. Staff started sewing pieces again and encouraged their service users to get back involved in the project while Janis and I continued to design potential solutions to the issues we were facing with the digital aspects of the quilt. Since neither of us had ever completed a quilt before, this was a hard task which we were not able to fully solve ourselves. Instead, we began to experiment with the sensors themselves, learning about whether it would be possible to add them as a separate layer to the finished quilt and figuring out whether the capacitive touch sensing would work through such a thick layer of fabric, and which pieces of hardware we could use to make the transfer of files onto the quilt easier.

7.3 Project Process

Meetings were organized in collaboration between GAP/MAP staff, Kim and Debbie from SPM, and myself. Since GAP/MAP instigated this project however, their staff carried out the majority of the instigating organisational work. The scheduling for these events and meetings was difficult however, and often were followed up by myself. At the stage where SPM and I joined, many fabric pieces had been collected, but they had yet to be turned into a quilt. Two full-day workshops were organised to bring as many stakeholders of the project together as possible; we called these 'Quilting Extravaganzas'. It was

at these, that we were able to work on the quilt and relax, but also to explore and mediate conflicts associated with the craft traditions and the context we worked in (Feinberg 2017). Being in a space, together, also helped us recognize that while each individual had placed stitches into their individual pieces, these stitches also constituted a collaborative effort; it enabled us to "recognize what might appear to be individual activity as constituently collaborative, developing among materials, people, and workspaces" (Rosner 2012).

Before going into more detail on the choice of name for this project, as well as the process in more illustrative detail, see Figure 7.1 for a rough timeline of the project. From this timeline, we see that the project was started before Janis and I got involved.

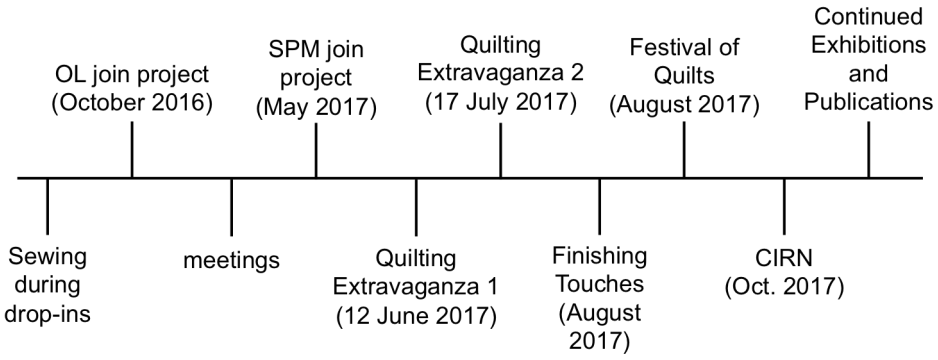


Figure 7.1: Process diagram of the project - OL: Open Lab; CIRN: Community Informatics Research Network Conference Janis and I attended and presented at in 2017

In this section, I detail the process that went into the designing of the quilt once all stakeholders that took part in finishing the quilt were involved; continuing the story that was started above. To do this, I will first provide a quick overview of the reasoning in choosing the name for the project. Second, I go into more detail of three activities that took place to finalise the quilt: Quilting Extravaganza 1; Quilting Extravaganza 2; and visiting the Fat Quarter quilting shop to put the finishing touches on the quilt.

7.3.1 Naming the Project

Those of us involved in the project named the overall project, as well as the final quilt itself The Partnership Quilt. This name was not 'chosen' in a structured attempt to find a name for the project. Rather, this phrase, as well as others such as 'collaborative quilting' or 'digital quilt', were used

throughout the research process. As we were meeting to discuss the project, we often used 'digital quilt' to refer to the quilt, though it did not feel like the appropriate name for it since that was only one small element of the whole project. During the second Quilting Extravaganza, while we were sitting together sewing pieces of fabric, cups of strong tea in hand, we started to talk about what we could name the Quilt. As soon as one of the case workers said something along the lines of *'why don't we call it the partnership quilt?'*, many of us perked up and nodded. This was a name that suited the project well and that described the aim of it: to bring together a diverse group of people to work on a quilt in partnership.

The name works on a number of different levels, also bringing in the partnerships between not only people but larger organisations that were built through the project: the partnership between Changing Lives and Open Lab, as well as the partnership between GAP/MAP (or even Changing Lives more broadly) and SPM, and Open Lab and SPM. Since this was such an intimately collaborative project, it is hard to discern which elements were carried out by whom, as the project would not have been able to take place had not everyone who was involved done their bit of work.

7.3.2 Quilting Extravaganza One

The first quilting extravaganza took place on the 12th of June 2017. After several attempts of organising this half-day sewing session for all the stakeholders to come together to work on the quilt, we were finally able to find a date, time, and location that was suitable. Instead of hosting this event at the drop-in where the quilt was started, GAP/MAP staff were able to find a small space in a Changing Lives property to host the workshop. This was located in a supported housing project close to the city centre. None of the women who lived in this house had been involved in the project before, and neither had the staff member who led this project. None of those involved in the partnership quilt (up until this point) had been at this hostel before. The hostel had very recently taken down a wall on the ground floor of the house to create a 'common room' space for those living there. This was part of why this property was chosen for the quilting extravaganza.

The room was quite small and undecorated, but with lots of natural lighting thanks to the two large windows. From these windows, we were able to see some of the University buildings; including the one Open Lab had recently moved into. When entering the room, the first thing that was visible was a small kitchenette with a kettle and a little fridge. The rest of the small room was filled with a sofa, and some comfortable chairs (as well as some folding chairs that were brought into the room for the quilting



Figure 7.2: Process diagram of the project

extravaganza), a small coffee table, and a small TV. The walls were newly painted white.

The member of staff working at the hostel explained to us that this room was very new, and too plain for her liking. She had been trying to organise some events for the women living there, and was working towards building up relationships with them. As part of this, she wanted to decorate this room with the women. The women living in this hostel were all invited to the quilting extravaganza, but did not join.

We sat around the small coffee table on which we placed all the materials that were needed for the session: the finished pieces, a box of embroidery thread, needles, scissors, and cups of tea (see Figure 7.2). While most of the work took place around this table, for a brief part of this session, I was working on the kitchenette counter to cut out pieces of aluminium foil for the capacitive touch sensors we were going to build for the quilt. These were square pieces of foil roughly the same size as the square backing fabric in the quilt block (see Figure 7.3).

Introductions

My main GAP/MAP contact for this project took part in the first quilting extravaganza and also brought along two service users she had been working with on the quilt – it was stated several times that these two women were the main contributors to the quilt. The woman who worked at the venue was also very interested in digital technologies, so she joined us in the session. This meet-up was also the first time that Kim and Debbie from SPM attended a sewing session. They had met up previously with GAP/MAP staff to discuss



Figure 7.3: Picture of the foil that would be turned into the capacitive touch sensors

the quilt project overall and to begin to work with the pieces that had been finished thus far, but had not met the service users or myself before. Even though my colleague Janis and I collaborated on this project, she was not able to attend the first quilting extravaganza. As such, the only researcher who was able to attend the day was myself. This was the first time that all of us met up together and a chance for us to get to know one another. Even though there was a lot of chatter throughout the session, the two service users who were present were quiet; interjecting only occasionally.

To start off the extravaganza, we began by introducing ourselves. This included our names, and a little bit of information on our background on the ways in which we were involved with the project. These introductions then morphed into a conversation about the ways in which digital technologies would be embedded in the quilt. As mentioned in the introduction, we had been talking about potentialities of this for a long time, but had not had a chance to really address the ways in which this could work. By this point, we were still not entirely clear how the sensors would fit into the quilt but we knew how to make the sensors, which bits of wiring were needed, and what kind of hardware we were using.

Since SPM were also there, I was hoping to discuss with them, the ways in which this hardware could be incorporated into the quilt. To do this, I brought along all the hardware that would be needed to create the touch-interactive element of the quilt (see Figure 7.4), and showed everyone at the extravaganza how this would work. Being able to see, touch, and interact with the hardware made it clearer to others in the project, what Janis and I had been meaning with *'let's make the quilt touch-interactive to raise ser-*



Figure 7.4: The sensor prototype

vice users' voices'. Demonstrating the technology in the room raised many questions, but was perhaps particularly interesting for the woman working at the hostel where we hosted the extravaganza. It was here that she asked whether it would be okay for her to stay for the session as she was quite interested in technologies. This sparked a response from another member of staff, saying something along the lines of: *'I knew she'd be interested in this kind of thing'*.

Finishing the Quilt Block

After the introductions had turned into a demonstration of the technology, we moved on to the task of the day. Ultimately we got together to *'work on the quilt'*, but it quickly became clear that SPM had a clear goal in mind for the 3h workshop we were embarking on: to appliqué all the finished rosettes that had been sewn onto a piece of backing fabric onto a piece of calico (see Figure 7.5 for a detailed overview of all of these parts). This was necessary as not all the squares of backing fabric the rosettes had been sewn onto were perfectly square and the same size. For quilting, precision is an integral part of the project. This means that all the quilting 'blocks' (the individual pattern pieces the quilt is made up of or all the pieces highlighted in Figure 7.5) must be very precise; without this, the quilt would not lay flat or be symmetrical.

We focused on Kim and Debbie to tell us what to do. They were able to instruct us in how to appliqué the finished rosettes onto the calico fabric while we were admiring the different colour-combinations of the rosettes and their backing fabric. First, Kim cut out the backs of the rosettes from the backing



Figure 7.5: Diagram of a Quilt Block

fabric and squared off all of the pieces (see Figure 7.6). Then, these square pieces of patchwork were placed and pinned onto a piece of cream coloured calico that had been carefully cut to size by the professional quilters. Using colourful embroidery thread, the rosettes were then appliquéd onto the calico before the back of the piece was again cut out to reduce the bulk in the fabric (see Figure 7.7).

After we had been instructed, we started to sew. While we were watching Kim cut out the back of the calico fabric to reduce the bulk in the quilting block, we began to talk about the different layers in the quilt. We talked about how *'it's so nice to see all the different layers of the pieces on the back'* of the block, and how *'it's also lovely to know that different people worked on the same piece. The layers are almost like a metaphor for that'*. This statement referred to some of the ways in which the rosettes came together. While many of the pieces were started and finished by the same person, some of the rosettes were in themselves collaborative pieces of patchwork. Even though this collaboration is not visible to those who were not part of it, this is an important part of the process that was involved in the creation of the quilt – collaboration was an integral part of its development down to the individual blocks. As a member of GAP/MAP staff said: *'you can see the different layers of work'*.



Figure 7.6: Pictures of Kim preparing the blocks for us to appliqué. First she 'squared off' the block (left) and then she carefully pinned the piece onto a piece of cream coloured calico that had been cut to size by the professional quilters (right)

7.3.3 Quilting Extravaganza Two

The second quilting extravaganza took place on the 17th of July 2017. The half-day session took place at the main GAP/MAP offices. This time, the aim of the day was slightly different: SPM were to bring the almost finished quilt (they were tasked with arranging all the individual blocks and piecing or sewing together the quilt top), and we were to continue the project by doing a little more sewing, but also by finally attaching the capacitive touch sensors. First, we met in the sofa-corner of the open-plan office where most of GAP/MAP staff work, but then moved into a separate room where drop-ins, training, and other activities such as this one are hosted. This was a large room that contained a few tables and chairs. We pushed the tables together to create a space for us all to sit together to work on the almost-finished quilt, and also created a secondary table where we set up the 'digital station' to make the capacitive touch sensors (see Figure 7.8). The room was not as bright as the one where we hosted the first quilting extravaganza, but also had large windows, though these were made up of stained glass (their offices are in an old converted church). We also moved around the room to make space for the varied tasks we were working on in the session, using other smaller tables and the floor to work on elements of the project.

This session was longer than the first quilting extravaganza, and was attended by more people including more service users and GAP/MAP staff, Kim and Debbie from SPM were there, and Janis was able to attend this session too. Not everyone arrived at the same time, so the introductions took place throughout the session. Even though there was no communication



Figure 7.7: Pictures showing a member of staff using appliqué to attach the rosette onto the calico (left) and the removal of excess fabric from the back of the quit block by Kim (right)

between myself and the service users involved in the project whom I had met roughly a month earlier between the two extravaganzas, the ways in which we interacted had evolved when we met on the sofas in the GAP/MAP office. At our second meeting, we said hello to one another and started to talk almost immediately. We waited only a few minutes, but in this time we had caught each other up on some of the things we had been doing in the last month, and had shared our mutual excitement about the quilt project. Neither the two women nor I had seen what had happened with the separate quilt blocks since we last met, but knew that SPM had worked on the quilt since then. We were excited to see how the different pieces would look together.

As more people started to come up the stairs to the office, we moved into the room where we would be spending the rest of the crafting session. It was here that after we had started configuring the space as described above, more people started to come into the space: a service user from a different drop-in with their case worker, and some of the members of staff who work at the GAP/MAP office.

Seeing the Quilt for the First Time

The main task of today was to create the *digital layer* of the quilt. We made the electrodes, decided where to place them on the digital 'layer' of the quilt, and also added some finishing touches to the traditional quilt by tie-quilting. First, we all sat around the table together, marvelling at the quilt as Kim took it out of her bag and placed it on the large table. The last time anyone except for Kim and Debbie saw the quilt each of the blocks were separate. Some of the women who did not attend the first quilting extravaganza had

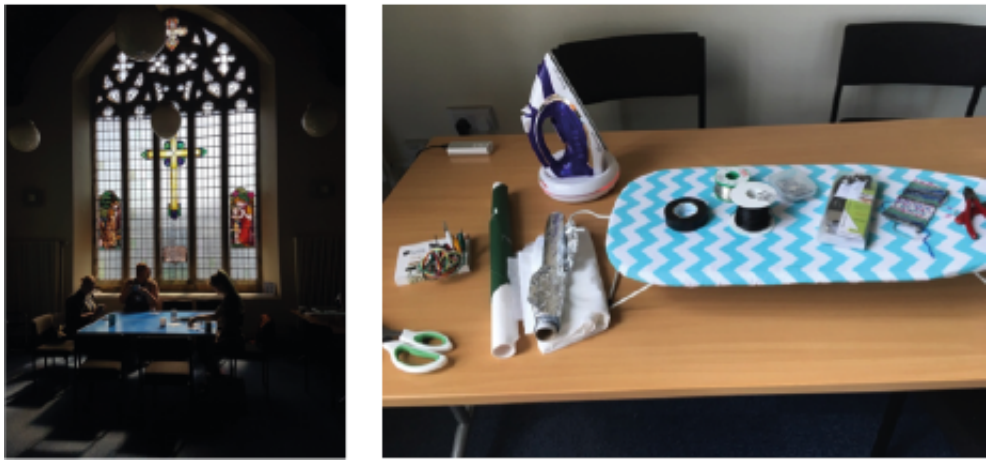


Figure 7.8: The room in which we worked (left) and our secondary work station (right)

not even seen the finished quilt blocks yet. We were all very excited about seeing the arrangement that Kim and Debbie chose for the different rosettes. Once we had all had a chance to take in the arrangement, and had had the chance to touch the quilt, Kim explained to us what she and Debbie had done over the last month: they had arranged the pieces in a way in which, they believed, they were able to showcase all the different colours and colour-arrangements that had been made by those who made the rosettes. Once they had decided on an order, they *joined up* the individual blocks to create the *quilt top* (they sewed together the individual pieces to create the patchwork that is the top layer of the quilt). The outcome of this can be seen in Figure 7.9.

A small detail that was very much appreciated both by GAP/MAP staff and service users was the choice in colour of the decorative thread that was used to highlight the seams between the different blocks. This was a variegated thread, going through different shades of pink, purple, and blue to represent the colours used in the Changing Lives logo.

The quilt was just a little bit smaller than the blue table we were all sitting on, and as such allowed us to interact with it from all sides. This configuration of the space allowed us to simultaneously have space to keep all the materials and cups of tea on the table, but also to have multiple hands and people work on the quilt from various angles at the same time. This allowed us to sew the buttons onto the quilt (which is a technique known as tie-quilting) in different parts of the quilt at the same time (see Figure 7.10).



Figure 7.9: Detail-shot of part of the quilt

As more people started to join this activity, all the chairs around the table started to fill up; everyone was welcomed and introductions were made. Once the chairs started to fill up, people started to complete different tasks: some were sewing on buttons, others started to work on the touch sensors, and others made cups of tea and asked questions to learn more about the quilt. The whole event was very informal and relaxed.

At a point where many of the buttons had already been sewed onto the quilt, Janis and I moved onto the separate table to make the 'digital' element of the quilt: the electrodes. Once we had made a few of the electrodes, Kim and Debbie began preparing them to be attached to the previously prepared large piece of fabric and wadding they had brought along to create the secondary quilt with the electrodes. They did this by ironing a piece of double-sided fusible interface to the electrode: one side of this would stick to the electrode, and the other to the fabric that would make up the digital quilt (see Figure 7.11 for a picture of this process).

This secondary quilt would be attached to the traditional quilt to turn it into the final touch-interactive quilt. This is also part of the reason why we used buttons to tie-quilt the traditional quilt: once both of the quilts were finished, SPM were to add button holes to the traditional quilt and buttons to the digital quilt, to hold the two together. In the same figure, we see eleven (there were twelve electrodes in total) of the electrodes on top of the wadding that was previously ironed onto the backing fabric. This fabric is the same calico that was used to finish the individual quilting blocks in the first quilting extravaganza.

At the same time as we were working on these electrodes, others had



Figure 7.10: A picture showing the quilt and several people working on tie-quilting it at the same time



Figure 7.11: Kim and Janis are making the electrodes (left) which are then placed on the fabric ready to be aligned with the traditional quilt (right)

finished sewing the buttons onto the traditional quilt. At this point, we took a moment to relax and to look at what we had accomplished until now. We placed the traditional quilt next to the piece of fabric that was to turn into the digital quilt (see Figure 7.12).

It was at this point that questions were raised about the ways in which the digital interaction would work. At this point, we were able to demonstrate how it would work, and to show everyone what the electrodes looked like. We also decided which of the sixteen individual rosettes should become touch-interactive. One of the corners at the bottom of the quilt (when hung up) would need to remain non-interactive as the TouchBoard would need to be placed somewhere. But there were three other rosettes that would need



Figure 7.12: The two layers of the quilt lying next to one-another

to remain non-interactive due to the physical restrictions of the BARE Conductive TouchBoard we were using as the computer running hte programme for the electrode to work (there are only 12 pins on one board, which means only twelve electrodes could be attached to it at once).

At this point, we had several ideas about how to choose the rosettes that would become interactive. One of the ideas was that each of the corners should be non-interactive, another idea was to keep the entire bottom row non-interactive, but another idea was to randomly choose three rosettes that would not become interactive. After some discussion of the positives and negatives of each of these possibilities, we concluded to choose three random rosettes. This decision was made for two reasons: because if one of the rosettes broke while the quilt was in use this would not be immediately obvious to those interacting with it; and also because we thought it would be a more interesting experience for those using the quilt to listen to voices to explore the quilt in more detail – that they would have to find out which of the rosettes contained an audio file and which did not. Upon further reflection, this decision also increases the playful element of the quilt, allowing for thematically but not chronologically dependent audio clips to be on the quilt at the same time.

The service users each took a piece of tinfoil (some had been playing with this while we were deciding which strategy we were going to use to choose which of the rosettes would be interactive), and placed these on the rosettes they wanted to remain non-interactive. Once this had been decided, we used the traditional quilt to determine where the electrodes needed to be placed (see Figure 7.13), before pinning and ultimately ironing them onto



Figure 7.13: An image of how we showed which rosettes would be touch-interactive

what would become the *digital* quilt (see Figure 7.14).



Figure 7.14: Pictures showing how we made the electrodes

After all twelve of the electrodes had been attached onto the digital quilt, we placed the traditional quilt back onto the table, made some more cups of tea, and continued to talk about the project. It was here that one of the members of staff started to reflect on the project. Before going into too much detail however, we decided together, that we would record this reflection and use twelve snippets from this as the first iteration of the interactive Partnership Quilt.

Recording the Reflection

Once we had had lunch, had made all the sensors, attached these to the secondary quilt, and had more-or-less finished the sewing on of the buttons to tie-quilt the quilt, we sat around the table looking at our almost-finished artefact. After a brief conversation about recording a reflection, and the ways in which this recording would be used by myself and GAP/MAP service delivery, I placed an audio recorder on top of the quilt in the middle of the table. I switched it on, and re-initiated the reflexive discussion that had started: *"It would be nice to talk about the quilt and kind of how it came about [...] maybe look at some of the pieces that you did and maybe there's a story behind one of them."* Following my stumbling introduction to the recording, a member of GAP/MAP staff started off the conversation:

> We started making this quilt in the Northumberland drop-in up in [anonymous town] and it was because we had a volunteer who was able to show wer [regional slang for 'us'] how to make a start with it and we just, it was really me, [service user], and [service user] who just were like... we just kind of cracked on with it and were just sewing. We never expected it to really turn out to be a quilt, did we?

Using this as a starting point, we discussed various different things. After analysing the transcript and curating 12 clips from it (the same number of audio clips as can go onto the quilt), I focused on three particular areas we discussed: (1) the ways in which the project unfolded to contextualise it in relation to the ways in which this project came about, how it relates to the North East of England in particular and which materials we used; (2) the process of making the quilt itself through collaboration and skills-sharing, mindfulness, and pride associated in the process and outcome of the quilt; and (3) the outcomes of the quilt in relation what can be achieved during drop-ins, personal outcomes of some of the makers involved in the project, as well as ways in which the quilt could be used by GAP/MAP in the future. Details of how this analysis took place can be seen in Appendix A.1 and some of the outcomes of the analysis can be found in Appendix A.4, A.6, or A.7. In this chapter however, I continue to address the process of making the quilt when Janis and I visited the Fat Quarter quilt shop.

7.3.4 Visiting the Fat Quarter Quilt Shop

On July 27th 2017 Janis and I visited The Fat Quarters patchwork and quilting shop in County Durham. It is owned and run by Kim from SPM.



Figure 7.15: A depiction of where the electrodes are placed in relation to the traditional quilt top (left) and a depiction of how the electrodes were attached to the quilt (right)

While Kim and Debbie were working on finishing the quilt, I transcribed the reflection, and openly coded large chunks of it to curate twelve snippets that could be curated to be used as the first iteration of the interactive quilt. Janis and I prepared Janis' portable makerspace (a box of different tools that are easily transported) that contained all the tools and materials we thought we could need. For example, we ensured to bring materials to fix any of the electrodes that may have broken, but also brought along all other materials and tools that were needed to turn the fabric quilt into the interactive installation we had been working towards creating. This included things such as the BARE Conductive TouchBoard, wire strippers, and a soldering iron to connect the sensors to the pins on the small TouchBoard; but also included things such as headphones, a charger for the computer, and an empty guestbook for Kim and Debbie to take along to the Festival of Quilts a few days later where The Partnership Quilt would be exhibited.

When we arrived at the shop, we spent several minutes marvelling at all the colourful quilts that were hung up in the workshop area. We looked at the haberdashery and fabrics that they stock, and explored the back room where Kim hosts quilting classes. Once we had all gotten our cups of tea, we also spotted our own Partnership Quilt in the room. It wasn't entirely finished yet, but Janis and I poured over it nonetheless. We lifted up the corners of the traditional quilt and explored the ways in which Kim and Debbie had used traditional quilting techniques to secure the electronic elements of the digital quilt - how they developed the use of technology with their expert knowledge of traditional quilting. In Figure 7.15, you can see that the square electrodes have been sewn onto the fabric using a straight stitch from a sewing machine. Looking more closely at the digital quilt, we also saw that the wires that lead

from the electrode to the computer had been sewn onto the quilt, this time using a large zig-zag stitch. Janis and I are both crafters ourselves, and as such were very interested in the ways in which traditional quilting techniques were used to augment technological bits of hardware. Kim explained to us that she had decided to sew down the wires and touch sensors because they had started to separate from the backing fabric (the fusible interface was not strong enough, and as such the electrodes had started to come off the fabric), and the wires were too bulky and as such were not laying flat on the quilt.



Figure 7.16: A picture showing how the electrodes were attached to the quilt and where the BARE Conductive TouchBoard was placed in relation to them

Since they had never sewn wires onto fabric before, and since these wires were quite bulky, this process took a long time for Kim and Debbie. Because of this, they had not had a chance to finish the border they had intended to finish by this point. Having said that, they did have a chance to pick out the fabric they wanted to use, and instead of just going ahead with it, wanted to hear our opinion on their choice. On top of turning the digital quilt into something that resembles a traditional (but multimedia) quilt, Kim and Debbie also added a little pocket on the bottom right side. They used some colourful cotton fabric to create this little pocket to make a space for the TouchBoard and spare SD cards to sit comfortably (see Figure 7.16). We had planned, sketched out, and measured the dimensions of this pocket during the second quilting extravaganza.

After having exchanged information on what both SPM and Janis and I had been working on in relation to the quilt since the last time we had met ten days earlier, we began working on our respective parts of the project. Janis and I worked on soldering the electrodes to the TouchBoard, and SPM

started to work on the traditional quilting techniques, such as cutting the digital quilt to the same size as the traditional quilt (see Figure 7.17).

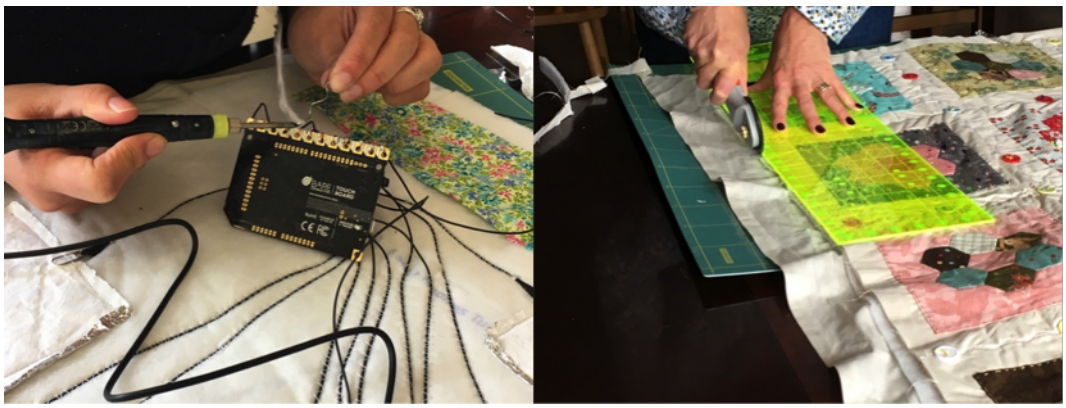


Figure 7.17: Pictures showing the finishing touches of the quilt - soldering and cutting off the rough edges

Once all the electrodes were attached to the board, we cleaned up all the small pieces of wire that we had cut, plugged the TouchBoard into a socket, and plugged in the headphones. The, we were able to test the electrodes by placing our hands over the individual pieces of aluminium foil that had been sewn onto the quilt and listening to the audio clips being triggered by this interaction through the headphones (see Figure 7.18).

After listening to the voices on the quilt, we started to prepare everything for the Festival of Quilts. We discussed how Kim and Debbie could transport the quilt to Birmingham on the train without the wires and electrodes breaking, and explained to them how the TouchBoard works. We showed them how to turn it off and on, and they recalibrated it a few times themselves. As we were talking about this and our plans for the near future, the idea of making a YouTube video for the SPM channel came about. Kim and Debbie brought out their tripod and tablet, and started to set up the pop-up recording tools in their quilting shop (see Figure 7.19). It was clear that they had done this many times before, and while filming, it also became clear that both were very comfortable in front of the camera. Where Janis and I were looking at each other and sliding uncomfortably around in our chairs, both Kim and Debbie sat confidently and talked directly into the camera. The video was posted on the Six-Penny Memories channel the next day (on the 28th of July, 2017[1]). It primarily functioned as advertising for their stall at the Festival of Quilts a few weeks later. The video also contained a brief description of the project, and descriptions of the process involved in making it.

[1]The video can be viewed here: https://www.youtube.com/watch?v=tm8qEUBStc8



Figure 7.18: Pictures showing the touch-interaction of the quilt

Furthermore, it contains a demonstration of the functioning touch sensors. At the time of writing (in February 2019), the video has had 194 views.

After we had recorded the video we were all excitedly talking about the possibilities of the quilt, and what else we could do to share it with the wider public. To support Kim and Debbie in their exhibition space at the Festival, we also provided them with some flyers that contained a brief description of the quilt (see Figure 7.20):

> The Partnership Quilt was made in collaboration between Changing Lives staff, volunteers, and clients as well as Six Penny Memories and Open Lab at Newcastle University. It started out as an activity for sex workers and women who have been sexually exploited to work on during drop-in sessions in Northumberland, and from these humble beginnings, has turned into an interactive piece of art that functions as a living archive of sex workers' stories and experiences of Changing Lives service delivery in the North East of England.

We used similar branding on the postcard as the booklet, report, and other visual publications, demonstrations, and presentations (eg. the installation and presentation at CIRN2017 in Appendix A.6, or our paper presentation powerpoint in Appendix A.15 for more details) to maintain a singular identity of the project. While we were talking about the flyers, we also gave Kim and Debbie an empty notebook with a black marker to take to the Festival of Quilts as a kind of 'guestbook' for visitors of their stall to share their thoughts on the quilt. I did not intend to use these messages as data for the dissertation, but rather, we wanted to collect these responses as a means of showing how far the stories on the quilt had travelled, and to share feedback



Figure 7.19: Picture showing the set-up to make the video about the quilt

on the quilt with everyone who took part in making it – particularly the service users of GAP/MAP.



Figure 7.20: The flyers I created about the quilt project

While in the shop and working on the quilt, we talked about many different things related to quilting, Janis' and my individual research interests, and the ways in which The Fat Quarters and SPM do their work. This conversation evolved into Debbie showing us one of the pattern books they had been working on recently that related specifically to their own upbringing in mining communities in the North East of England. With this pattern book as a starting point, I began to ask more questions about the ways in which quilting is linked to the local area. From previous conversations with them,

I knew they had some expertise in this space as during the reflection in the quilting extravaganza, Kim had said that we were *"carrying on a tradition that's particularly popular in this area"* by using the English Paper Piecing technique to make the majority of the quilt.

Furthermore, seeing the many quilts that were hung up in the space, and being mesmerised by the many different patterns, colours, sizes and types of quilts, we ended up talking about the ways in which different quilts are made and designed. Being in the space where all of these quilts had been made, and hearing some of the stories behind these quilts and the quilting patterns that were used fed into the conversations we had about the histories of the local area; expanding my understanding of the J-OE within which the quilt sits.

7.4 The Quilt

Through the year-long process that GAP/MAP went through to create this quilt, as well as the three collaborative crafting sessions I described above, we created a cuddly quilt that is fully functioning in the traditional sense of what a quilt should be as a blanket. At the same time however, it is also a smart object and digital artefact with interchangeable audio clips to raise the voices of women who are made marginal and stigmatised in society.

The materials that were used to create the quilt allow us not only to easily interact with it through touch, but also create an intuitive interaction – a quilt is something that is supposed to be touched. Furthermore, the digital tools we used are well-documented, relatively cheap, and easily fixed. This makes it easy to exchange the audio files that make up the digital archive, but also support the sustainability of this project - both the traditional and digital elements of the quilt are able to be fixed without much cost. Below, I present the result of the process described above, and address the attention to detail that was used to create it, and reflect on the ways in which the process and the quilt itself engender justice-oriented service delivery for GAP/MAP.

7.4.1 Attention to Detail

The effort and care involved in this project perhaps become most visible in the final artefact in the ways in which people have paid attention to details. Here I want to bring forward three examples of where the choice in materials affected the materiality and meaning of the quilt for those who participated in its making: the choice in fabric, thread, and functional embellishments.

In Figure 7.21, we are able to see almost all of the fabric choices that have

gone into the quilt. These fabrics were not chosen to fit together, but rather each of the flowers is made up of bits and pieces of fabric that were donated to the project by quilting shops. Having said that however, the choices in fabric-combinations for each of the rosettes (as well as the backing fabric) were made by those who made the quilt blocks. Usually these were each completed by one person, but some of the rosettes were made in partnership between various people. The appliqué onto the calico to create the quilt blocks was also sometimes carried out by the same people who made the rosette, but this was not always the case. The attention to detail that was paid to the choice in fabric can be seen in the ways in which the accent colours work together, and how some of the rosettes are made up of only 2 fabrics, while others are made up of up to 8 different fabrics.



Figure 7.21: Picture of a participant working on the quilt

Some of the rosettes also contain little fabric roses (see Figure 7.22) that have been sewn onto individual rosettes. These tiny flowers contribute to the texture of some of the rosettes, adding a little piece of personality and additional detail to the otherwise flat fabric. I would also like to point out that there were roses in various shades of red and pink, and that the woman who sewed the rose onto the rosette depicted in Figure 7.22 took extra care to pay attention to detail by ensuring the rose colour matched the colour of the rosette onto which it would be sewn.

Even though each of the rosettes were made either by individuals or small groups of women, the balancing of the various different rosettes was carried out by SPM. They explained to us that they had tried out various different combinations, but ultimately decided on the layout that makes up the final quilt. Due to the attention paid to the detail of the fabric choices to



Figure 7.22: Picture of a rosette being sewn onto calico

ensure a balanced quilt block and finished quilt, some of the rosettes remained unfinished and were not included in the final quilt. We played around with some ideas of what these could be used for (one was to use them as the hangers of the quilt), but in the end, these remained unused (see Figure 7.23). What is also visible in the same picture are the two boxes of thread that we could choose from to appliqué the backing fabric onto the calico to create the block, and to tie-quilt the blanket by sewing on the buttons.



Figure 7.23: Picture of materials used to quilt

On top of these choices in embroidery thread, a lot of attention to detail also went into the thread that was chosen to machine quilt the blanket. It is hard to photograph this particular detail of the quilt, but when Kim lifted

the almost-finished blanket out of her bag and onto the large blue table at the second quilting extravaganza, she also explained some of the choices in materials and techniques to us. As part of this explanation, she pointed out that she had sewn together the individual quilting blocks. Instead of leaving the three layers of the quilt completely separate for us to hand quilt the blanket entirely, she also told us that her and Debbie had decided to place a decorative machine-quilting stitch over the seams that bring together the quilting blocks. The hands in Figure 7.24 are placed next to these seams. Not only do these seams function as decorative and necessary threads that hold the blanket together, but the choice in thread for these was also deliberate.



Figure 7.24: Detail-shot of the thread used to machine-quilt

Most quilters would choose a thread that compliments or almost disappears in the fabric of the blanket as to not take attention away from the work that has gone into the hand sewing. Kim and Debbie however did not follow traditional quilting rules with their choice in thread, and instead decided on a thread that was variegated: the thread's colours move from blue, to purple, and to pink, just like in the Changing Lives logo. This thread holds the blanket together in the same way that Changing Lives held this project together. It would have been possible to complete a quilt without them (similar to how we could have hand-quilted the blanket entirely), but the materialities of the artefact would be completely different; without the organisation, the various invisible layers of personal and collective wellbeing would not have been at the forefront of the project.

The last detail I want to expand on are the buttons. During the first quilting extravaganza, we had thought about the different ways in which we could attach the two quilts together without compromising the materialities

of the traditional quilt. The best solution to this issue we came up with were buttons. As such, during the second quilting extravaganza we sewed buttons onto the quilt as a form of tie-quilting. Together, we turned the machine-quilted blanket into one that became more personal and something that even more people could be a part in and proud of.

We worked on the quilt simultaneously to add as may buttons as were necessary to fill in all the gaps (see Figure 7.25). Again, the choices in colour were made by individuals to contribute to the balanced quilt in everyone's unique way. These buttons would help keep the quilt together, but would also allow us to attach the *digital* quilt to the *traditional* one without compromising its visual or tactile qualities.



Figure 7.25: Picture showing we worked on the quilt together, at the same time

These materials, tools, techniques, and affordances allow GAP/MAP staff, service users, and volunteers, as well as others interacting with the quilt to easily engage with the tangible outcome in various different ways. The touch-interactivity is perhaps the most obvious of these to listen to the voices embedded in the seams, but it is also possible to change the audio files that are played when interacting with it. The electrodes are also easily accessible which makes them easy to adapt or fix if broken. These different tangible ways of interacting with the finished quilt however are not the only layers that are embedded in the quilt. The path to production, as well as the final outcome described above also bring about intangible layers of the quilt that function as metaphorical stories that are afforded through the quilt's unique mode of production and its materialities (see Appendix A.4 for more detail on the layers of the quilt).

7.4.2 Using the Quilt

The Quilt was completed in August 2017 and has been made use of in a number of different ways since. Once it was finished by SPM, it was exhibited in the 'Fat Quarter' quilt shop in the North East of England. Following this brief exhibition at the quilting shop in County Durham, Kim and Debbie from SPM took the interactive quilt with them to The Festival of Quilts where it was exhibited at the National Exhibition Centre in Birmingham. It was here that 31 people wrote a brief message to all of us who worked on the quilt in the 'guestbook' that I gave to Kim and Debbie when I visited their shop a few weeks earlier. Further to this, Kim and Debbie presented the project at the 2018 Centenary Spring Meeting of the Northumberland Women's Institute (WI). This led to them touring various WIs across the England to discuss how craft and support services can come together. Because of the success of the project, GAP/MAP also endeavoured to find funding to be able to continue to offer quilting groups for their services. Ultimately they obtained funding from the Mother's Union to host a series of quilting workshops in the summer of 2018. It is important to include this, not only to show how far the quilt has travelled, but also to show the impact it has had. We used a very traditional technique that is understood by crafting communities to raise the voices of women who are not traditionally included in these groups. Together, we were able to bring the topic of sex work, and safety for sex workers, into a space where this is usually not the topic of discussion.

The Partnership Quilt has also been exhibited in different formats. For example, Janis and I presented a paper at the Community Informatics Research Network Conference 2017 (see Appendix A.15), and re-appropriated the technologies behind the quilt into an interactive poster that played some of the audio-clips of the quilt at the same venue[2] (see Figure 7.26 and Appendix A.7) Furthermore, the quilt features in a paper by Meissner et al. (2018) titled *A Schnittmuster for Crafting Context Sensitive Toolkits* that explores the different ways in which the DIY electrodes we used for the quilt, are an example of a Schnittmuster (or meta-toolkit) as an approach to "toolkit design that seeks to address these creativity-limiting factors as well as practical entrance hurdles." More detailed descriptions of the electrodes and the project can also be found in the *Making Useful Stuff: Booklets on Local Making* issue titled *The Partnership Quilt* (see Appendix A.16), the XRDS ACM Student Magazine 'Human to Human' issue (see Strohmayer & Meissner (2017) or Appendix A.6), as well as the project report (see ap-

[2] a video of this was posted on the 'CIRN Prato Community Informatics Research Network' Facebook group: https://www.facebook.com/cirnpratoconf/videos/1971233396483751/



Figure 7.26: A picture of Janis' and my poster for the CIRN conference in Prato where Janis is demonstrating the touch-interactivity

pendix A.4). Again, with these multiple outputs in varied venues, we raised issues of sex work, wellbeing, craft, and technologies in spaces these issues are rarely discussed.

7.5 Summary

In this chapter, I described the process and outcomes involved in The Partnership Quilt. This was a project in which I collaborated with GAP/MAP (a sex work support service), Six Penny Memories (professional quilters), and Janis Meissner (a friend and HCI researcher) to craft an interactive quilt. The process in the creation of the quilt was important in relation to personal development, as well as collaboration between the stakeholders; while the outcome, the quilt itself, functions as an interactive installation of the voices of those who contributed to it. In future, this quilt may be used in various exhibitions and training sessions organized by Changing Lives and GAP/MAP more specifically.

The quilt's creation and continued use is and was embedded in the practices of the charity with whom I created it. The documentation of this (through a booklet, report, and the first iteration of audio recordings on the quilt itself) therefore provide us with the material for reflection on the design and use of digital technologies (Feinberg 2017, Gaver 2011, Rosner 2012), the ways in which the values instilled through this project affected the materialities of the project in and of itself (Feinberg 2017). Furthermore, this is similar to concept-things contextualising the quilt and looking at the ways

in which it was produced we collaboratively built a J-OE to engage (among other things) novel spaces in discussions on sex work.

Much like the process of making the quilt, the project overall came out of embeddedness. The quilt engenders the various tangible and intangible layers, as well as materialities involved in the project. The choosing of materials, their assembly into rosettes, the placement of buttons, and ultimately the crafting of the quilt as a whole gave rise to a space for reflection of personal and communal narratives of those involved in the project, creating a space for all of those involved "to represent and redefine their own lived history." (Sellie et al. 2015) Through this, the production of the quilt and the quilt itself become a tangible tool that can be activated to support individual and group empowerment (Sellie et al. 2015). The quilt has contributed to GAP/MAP service delivery, has helped to create bonds between groups and individuals that may otherwise not have met, and continues to share marginalised voices in a respectful yet intimate way.

In the following chapter, I reflect on the different ways in which The Partnership Quilt, but also the Digital Ugly Mugs, and Red Umbrella Archive have contributed to the ways in which digital technologies can support the service delivery of sex work support services and other organisations that support misrepresented groups. I specifically reflect on the learning in relation to the ways in which this digital technology was collaboratively designed, developed, and appropriated within the charity to promote multidimensional justice for their service users.

Chapter 8

Designing in Justice-Oriented Ecologies

8.1 Introduction

Throughout this dissertation I have been trying to understand how digital technologies can be collaboratively designed, developed, and appropriated with and within sex work support services. I have seen these support services as Justice-Oriented Ecologies (J-OEs), and provided a pilot study to develop implications for design on which I then built detailed descriptions of three projects where I collaborated with one of these services to design, develop, or appropriate novel technologies for service delivery. At the beginning of this manuscript, I also provided a detailed overview of the literature and methodology. In this chapter, I want to take a step back from these descriptions, and provide two types of reflections on this work to provide a meta-discussion of J-OEs and the ways in which the three explorations move forward discussions of design with, within, or for charities in HCI. I do this by reflecting on the three explorations, focusing in particular on how I worked within, and worked to learn about the J-OEs I became embedded in. From these two reflections, I draw out ethical and methodological concerns about working with Third Sector Organisations as J-OEs.

These two types of reflections provide two different but connected ways of answering the research question that has been leading me throughout the manuscript: *How can digital technologies be collaboratively designed, developed, and appropriated with and within sex work support services to promote multidimensional justice for their service users?* Here, I answer sub-question 3 specifically, to focus on methodological ways in which we can design such technologies: *What ethical and methodological considerations do we have to*

take into account as HCI researchers when working to design, develop, or appropriate digital technologies with, in, or for sex work support services? I provide a high-level discussion of this question, focusing on the ways in which reflexive practice and action-oriented research (see more on this in chapter 3) can facilitate learning within, about, and for Third Sector Organisations (TSOs), particularly when seeing them as ecologies and agents of justice (see more on this in chapter 2). By bringing in examples from the four chapters that precluded this one, as well as literatures as provided in chapters 2 and 3, I now discuss methodological and tangible potentials for digital technologies for service delivery. To be able to do this, I have split this chapter into two sections: (1) reflections on *working within* justice-oriented ecologies, and what this means for research methodologies and ethics; and (2) reflections on *working to learn about* the specific needs and potentials of specific J-OEs, and how this learning influences the kinds of technologies we design with them.

8.2 Working Within the Ecology

In this section, I reflect on the work undertaken in each of the projects, focusing on the ways in which collaborations were built, and how this influenced the research. While similar kinds of reflections have been addressed in certain aspects of PAR (Gatenby & Humphries 2000, Reid 2006) or reflections on justice-oriented design (Dombrowski et al. 2016, Fox et al. 2016), HCI has yet to fully embrace these kinds of reflexive discussions and the nuanced implications IEs (Nardi & O'Day 1999) (especially when coupled with theories of justice (Fraser 2008)) bring along. Using my framework of J-OEs to frame these reflections, I describe some of the invisible work that is necessary to be able to design, deploy, and appropriate digital technologies with Sex Work Support Services (SWSS) and charities more broadly. Since all actors with the projects relate to one another in different ways, I emphasise multiplicities and context-specific elements of each of the organisations with which I worked. Using language developed to talk about IEs (Nardi & O'Day 1999) alongside interpretations of the collaborations described throughout this manuscript, I tease out specificities of working with the two organisations in relation to the technologies that were used themselves, as well as their functionality within the J-OEs. Building on the findings described in chapters 4, 5, 6, and 7, I developed three concepts to better understand how we can talk about working within SWSSs and other J-OEs: (1) localised translations, (2) synchronised co-evolution, and (3) invested compromise. These address some of the more high-level ethical considerations related to working

within SWSS and charities more broadly.

8.2.1 Localised Translations

Translators and translation are often addressed in HCI and CSCW research (Björgvinsson et al. 2010, Dindler & Iversen 2014, Suchman 2002) as a process between actors within networks (Edwards 2010), ecologies (Nardi & O'Day 1999), or even as the design itself (DePaula 2004). They are also used to discuss the ways in which concepts and ideas are transferred between different actors in an ecology (Nardi & O'Day 1999). In my work, for example, I relied heavily on GAP/MAP staff translating ideas related to The Partnership Quilt and the Red Umbrella Archive to other members of staff as they championed these projects within their organisation to increase and sustain service user and staff involvement. With this example, I begin to understand that direct translations between the researcher and a particular person in a partner organisation are not enough to address the work that occurs within a study in complex spaces or organisations. Rather, my research points towards the importance of translations that occur between different actors within the ecology beyond the (often singular) keystone species (Nardi & O'Day 1999).

Nardi & O'Day (1999) describe the role of the 'keystone species', a single mediating actor, as a translator between the diverse actors within the ecology that is being studied. While their concept is useful to understand the role of translations, working in more complex organisations such as charities or SWSSs may require a more detailed look. Working in messy settings such as charities creates the possibility that each actor becomes a keystone species or translator. With this I mean that at any given time, different levels of translation and gatekeeping are taking place. For example, I was only able to meet with specific case workers or key members of staff in both organisations after others (including middle and upper management) had agreed that the project was of potential use to their service delivery. In the case of The Partnership Quilt, for example, the case worker who co-initiated the project in one particular drop-in group became the gatekeeper (and conceptual translator) for the service users they worked with directly, as well as their colleagues working in similar settings. Further to this, the service users themselves also became gatekeepers of their friends and family as they introduced them to the drop-ins to also contribute to the project.

In these cases it was not only the research that needed to be translated, but also the ways it would fit into existing service delivery (for staff) or how it would support the friends and family of service users. This multiplicity of translation requires me to look beyond the work of the keystone species and leads me to explore the role of the 'translator' from a holistic, relational

(Dindler & Iversen 2014) and dialogic (Fraser 2008) perspective where it is not only one member who translates, but where entire ideas and concepts need to be translated; where Fraser (2008)'s three dimensions ('what', 'who', and 'how') are dialogically responded to through open and trusted collaboration (Le Dantec & Fox 2015). In situations such as the projects detailed here (and other similar PAR projects), researchers may have to take a back seat to allow charity staff to communicate about projects, risks, and possibilities for the use of digital technologies within their organisation (ibid.); as NUM staff often did throughout the design process of their website. Furthermore, in a genuinely participatory project, the aims and foci may shift and methods for data collection will have to depend on these situations (Akama & Light 2018, Light & Akama 2012). Although initially this may seem problematic, being flexible is important for collaborative and justice-oriented research and relates to PAR processes as outlined in chapter 3 (Akama & Light 2018, Reid 2004). Being flexible with research foci or methods can have very positive effects on the impact, process, and meaningfulness of the projects for stakeholders. In relation to the work detailed in this dissertation, this flexibility allowed me, for example, to expand my work to collaborating with GAP/MAP, and to support both NUM and GAP/MAP in diverse and unforeseen ways.

To be able to work in this way however, I had to trust the translation from staff to other staff, and engage in a caring (Light & Akama 2014, Puig de la Bellacasa 2017), dialogical (Fraser 2008), and reflexive (Capous-Desyllas 2014, Cloke et al. 2000) as well as serendipitous way with research partners and stakeholders. To better be able to discuss the invisible work of these multidimensional translations, I developed the term 'translational hops'; representing this kind of trusted and mediated translational work. These take place among various actors who translate certain languages, concepts, or practicalities to a different actor within the wider ecology, who then may go on to also explain this idea to yet another actor.

Translation hops are articulation work at different times; they are the reduction of the control of the researcher but a purposeful activity to engage with and reflect on how other people are doing the work they do. Clarke et al. (2014) state that their involvement in a digital storytelling project helped up-skill participants even though this was not necessarily the aim of the project, but I want to go further than this. I would argue that the presence of researchers and other outside-actors (such as, for example SPM in The Partnership Quilt project or the support service I worked with where sex workers are not members but benefit from NUM services), can facilitate change in organisational (and research) practice. When addressing these translation hops it is necessary to ask ourselves two important questions: *What is lost in these various translations? And what can we gain from the*

different explanations and expressions of the same ideas?

In the discussions and meetings I had with the charities, an array of ideas and concerns were raised in relation to the use of digital technologies broadly, and the explorations detailed above directly. This ranged from the appropriateness of certain tools for their use, to the learning involved to be able to use these tools, as well as their sustainability within the J-OE. Addressing these concerns and possibilities allow us to take responsibility for "what and whom we care for [without being] in charge" (Puig de la Bellacasa 2017). This was particularly seen, for example, in the discussions around the launching of the NUM website. The launch date was changed several times throughout project, to fit in with other developments of the organisation, changes in management, as well as ensuring that it was what was needed at the time; as the researcher, I was not "in charge" (ibid.). Not only did the launch date change, but the goalposts of this project evolved throughout its lifespan as well (and arguably will continue to do so for NUM staff). This example feeds in to what Puig de la Bellacasa (2017) says, as we need to rely on the trust, expertise, and experiences of NUM staff to launch the site. Not only does the website have to work on a technical level, but we also have to work with staff to ensure they trust the new system to do the job it is required to do.

Reflexive questions around these kinds of issues of trust and care in and of themselves, can also be seen as part of the translational work needed to operate within constantly evolving partnerships and relationships between charities and academia. Going back to the example above, I engaged in many discussions with NUM at various levels. For example, I explained (and re-explained) different technical elements of the website to NUM staff, answering questions of security and administrative tasks throughout the various stages of development of the site. On top of this, I also provided evidence in the shape of results from user- and automated testing of the site to staff and the board to continue to translate the work that was being done. Ultimately this led to the translation of technical understanding of the website into the building of trust in the new system. In a sense then, here the ambiguity of terminology (eg. of technical terms such as 'user testing'), and the translational work inherent in the collaboration to be able to carry out the project (eg. communication what was needed between Open Lab, NUM, and hosting provider to place the website on servers of the hosting providers to test it in the system it will ultimately be deployed in), highlights important questions for me to pay attention to when working to design, deploy, and appropriate digital technologies.

By becoming more aware of these kinds of *localised translations*, I unearth spaces of divergent perspectives and positionalities. This in turn helps

me reframe the use of technologies, as well as the (non-physical) artefacts themselves. Taking the launch of the site as an example again, there were multiple types of translation work that took place. For example, the user testing we carried out throughout the winter of 2017 and spring of 2018 meant something different for NUM staff, NUM board members, the developers working on the project, and me as a researcher. Each of these groups not only saw other activities as necessary to be able to do a complete round of user testing, but the types of outcomes needed for each of the different roles we played within the ecology also required different languages. I developed a user testing booklet for each person who was going to test the site. Using the responses from these, I then translated these into language that was useful for NUM staff to feed back to them immediately, as well as various lists of requirements and bugs for the developers. For members of the board, I pulled together the results from both the user testing and the automated testing to provide them with an overview. This practice of reframing of the information to translate it into languages that fit the audience's needs (these localised translations) draws attention to the frame this is carried out in. In turn, this allows me to reflect on the ways in which we answer multi-dimensions questions of justice (see Fraser (2008) and/or chapter 3).

Looking at the ways in which I reframed the information for each group in this particular example provides me with an opportunity to reflect on organisational decision-making structures and how this affects the building of trust in digital technologies. It also allows me to reflect on the space, or J-OE, we want to deploy the technology in, the appropriation of the technologies in these spaces, and the design of the technology themselves. To do this however, I must acknowledge that the ecologies I work with and in are constantly evolving. Below, I address exactly this, and relate it back to the ways in which TSOs and academia can work together to collectively develop J-OEs.

8.2.2 Synchronised Co-Evolution

The collaboration of various systems within a J-OE represents continuous developments and explorations of new relationships and ecologies. Dindler & Iversen (2014) explore the notion of relational agency in this context as a way of describing how collaborative processes can support people (in my case people in charities and academia) in understanding the issues, contexts, and technologies through the appreciation of translations (and translational hops) offered by others. In this way, the role of the researcher is no longer simply that of a 'keystone species' (Nardi & O'Day 1999), but that of a mediator who is able to translate at multiple levels. There is however a

need for mutual learning and translation in these relationships. For example, where 'technologies', 'design', and 'research' need to be translated into language understood by those working in charities, and terminology such as 'risk', 'online platform', or 'service delivery' also need to be translated to academia. In working with charities in this way, the design, development, and appropriation of digital technologies changes through actions and conversations (Reid 2006). Perhaps particularly in the NUM project, staff often communicated among themselves, their board, and the company they use to host their website about the practicalities of carrying out this project with me and Open Lab. For example, they were able to bring up issues, concerns, or questions they had to their co-workers rather than focusing everything on me as a researcher. In this way they were able to use ecology-specific language to communicate with each other to think through any potential risks, harm, or opportunities before sharing a gathered response or idea with me. It is in this back-and-forth of translational work between the different actors in the ecology that I refer to 'synchronised co-evolution', or the understanding that relationships within the collective J-OEs are built on the idea of adapting together.

Localised translations are part of the work that occurs between individuals, while synchronized co-evolution is a conceptual framing of the work that takes place at an organizational level; how organisations change together. Similar to translation hops described earlier as a construction of meaning and reframing, there is a requirement for the construction and maintenance of a pragmatic interdependence in synchronized co-evolution. With this I reflect on the intertwined lives of charities and academia where power is shared equally through a sense of participation parity (Fraser 2008). This emerges as the project develops and mutual understanding is built. What I mean with this, is that projects that are seen as J-OEs can become genuinely collaborative actions that evolve through separate developments of actors together. In relation to The Partnership Quilt for example, this can be explained in the ways in which the project came about and how it continued after my involvement. Throughout the summer of 2016, my personal interests in crafting and the ways in which this could be interconnected to my research started to become more prominent in my own reflections. At the same time, but independently from this, GAP/MAP had started running a drop-in in Northumberland whose purpose it was to create a collaborative quilt. Upon hearing about these disparate developments (evolutions) we were able to bring these two areas together; we were able to engage in a synchronised co-evolution of ideas that brought about a new project built on existing mutual interests, skills, and developments. This synchronised co-evolution continued throughout the quilting extravaganzas where actors had specific

roles, and after the quilt had finished. For example, GAP/MAP were able to use the learning from this project to apply for (and ultimately receive) funding to continue to run a regular quilting group for some of their service users. I was able to use the learning from the project in my research to develop this manuscript among other outputs, and Janis was able to integrate it into her own work in a different way (Meissner et al. 2018). Even though I was personally not able to take part in these follow-up quilting sessions due to other commitments, I continued to work with the organisation and SPM to explore how the quilting group could continue.

As the quilting project was developing, both the charity and I (as well as Janis) became more independent in our relationships. For example in the quilt project Janis and I were tasked with developing and delivering the technology, while charity staff were tasked with organising the quilting meet-ups, and SPM were later tasked with piecing the individual quilt blocks. Despite the independence of these separate but related actions within the PAR process (Reid 2006), we remained connected through mutual trust and care (Light & Akama 2014, Puig de la Bellacasa 2017) as well as our collaborative goals (Fraser 2008). We knew that the development of the technologies (that both staff of the organisation, service users, other researchers, SPM, and I saw different but related values (Fraser 2008, Nardi & O'Day 1999) in) relied on each of us doing autonomous but connected parts of the work. We relied on pragmatic interdependence that allowed us to co-evolve synchronously. This co-evolution expanded as the professional quilters also became more involved and also engaged in some of the separate but connected actions as outlined above. I am particularly referring to the finishing of the quilt here: GAP/MAP members of staff began to think about and organise ways in which service users would be able to interact with the finished quilt in different ways, I curated the audio clips that would be embedded in the quilt, and SPM were tasked with finishing the quilt and taking it to The Festival of Quilts. All of these separate but connected tasks required us to trust one another not only to work towards a tight deadline, but also to do this work thoughtfully, carefully, and in a way that benefited the rest of the people involved in the project.

This kind of relationship supports on-going projects meaningfully (working towards just sustainabilities (Dombrowski et al. 2016)), but it also builds a kind of resilience for when things change. Changes can range from having to re-orientate research foci to align with new funding calls for charities, changes in staffing, or various other smaller and larger changes to the ecology. As detailed in chapter 2, charity funding (and through a knock-on effect also staffing) is under constant threat from neoliberal funding cuts. This means when working on long-term projects in this space there are bound

to be some changes. The resilience we developed together however made it possible for me (us) to adapt to disruptions in this synchronized co-evolution in our relationships with both of the partner organisations.

In the summer of 2017, one of my main contacts in GAP/MAP was moved to a different project, and a little later in the same year NUM changed CEO. It was here, that the initial negative change in the systems (the removal of key stakeholders) resulted in both positive and negative change to the entire ecology. For example, when new stakeholders were added to the ecology, they would bring about potentials for improvements as they brought new areas of expertise and novel insight into projects. For example, meeting new case-workers of the GAP/MAP team provided us with the possibility of engaging in new projects; specifically, this is how The Partnership Quilt project came about. At the same time however, if some of these new stakeholders are key stakeholders (such as a CEO) the launching (or continuation) of a project may have to be moved – for example, we had to delay the launch of the NUM website in part due to changes in organisational structures.

When working with sex work support services, and charities more broadly, there are also a number of different ways the ecologies they work within may change. For example, funding streams may end or new streams of funding may become available in the middle of a research project. This means that project foci may need to change. While this may sometimes occur only on paper (Marshall et al. 2018), other times changes in funding will also result in the need to monitor different types of data. For example, while we were designing the administrative panels of the new NUM website, we had to make changes to the kinds of information we collected on users as new funders required new pieces of information while we were building the site.

There are many more ways in which organisational structures may change throughout the lifespan of a project. I include this information here as a way of making visible how internal and external influences may result in changes in organisational structure, and that these changes not only affect the ways in which the charity works, but that it affects the ways in which the entire J-OE works, which I, as a researcher working in a way as described in this manuscript, am also a part of. As such, changes like the ones described above result in more discussions and synchronized co-evolution of the design space and context. Having talked about trust and care above, I now move on to discuss another way in which we can shape projects when working in a deeply embedded and participatory way with TSOs; through invested compromise.

8.2.3 Invested Compromise

Bringing together stakeholders and the continuous building of relationships (Edwards 2010) are large parts of research processes (Dindler & Iversen 2014), particularly in PAR (Reid 2006). This creates a network of actors within the ecology that cannot be determined solely by researchers, but that must also be determined with the collaborator to ensure ethical PAR conduct and participation parity (Fraser 2008). In doing this, as discussed above, finding a shared language and negotiating a shared vision can be difficult. I want to expand what I mean with this with an example from the development of the NUM website. I have discussed above how language was translated throughout the process, but on top of this, I also learnt that practicalities of deployment are not only translated but also compromised at various levels. For example, towards the later stages of the development, we started to talk about Service Level Agreements (SLAs), Intellectual Property (IP), and Open Source (OS) code. Throughout these discussions, there were a number of compromises that had to be made on all sides of the discussion, as consensus would need to be found not only between myself and my collaborators, but also at organisational levels between Open Lab and NUM management, as well as NUM's existing hosting and support provider, and to a certain degree also between funders. On top of this, the SLA was written in collaboration with the developers who worked on the project, to negotiate the types of support and response times we could provide NUM if anything needed to be adapted on the website. Not only did we have to make compromises to fulfil the needs of everyone involved, but these compromises were made by people who are invested in the project, and its positive outcome.

It is important to work together to match research interests and agendas with collaborators' concerns (Le Dantec & Fox 2015), to work together towards similar visions of justice (Dombrowski et al. 2016, Fraser 2008, Strohmayer et al. 2017). But how much do I want to compromise as a researcher; where do I draw the line as to where the research is no longer what it was initially intended to be; and how do I transparently and candidly express this change to project partners and in publications? For example, from the outset, the re-design of the NUM logo placed strong emphasis on advocacy and decriminalisation, as well as empowerment of those providing and receiving the service. Yet, the translation work and mediation involved in its eventual use (or lack thereof), became complicated when introducing pragmatic concerns about the recognisability of the organisation as well as the rebranding of existing merchandise and training materials. I asked myself: to what extent can I accept that my initial aims and objectives had been changed by the charity? And, perhaps more philosophically, to what

extent should I as a researcher adhere to normative and institutional notions of practicalities that may impact on overall design? Really, I question the importance of accepting compromise. Within the configuration of the ecology, the compromises are not only being made between the charities and academia, but between all actors within the wider ecologies (on both personal/individual and organisational/institutional levels).

There is a conflict between what compromises the actors are wiling to take, give, or make depending who they are, and at what level they identify as people who must safeguard others (eg. staff and volunteers of a charity have a professional and legal duty-of care to safeguard their service users). Looking to the Red Umbrella Archive project, where the simple invitation to attend the service to commemorate International Day to End Violence Against Sex Workers in 2016 was given to me by members of staff showed a significant element of invested compromise from the organisation. This is a highly coveted invitation that is usually only shared with members of staff and some (highly involved) volunteers from GAP/MAP and associated service providers in the region. I talk about this event, and the reasons for making it a private affair more in chapter 6[1]. Here I want to reiterate two reasons why outsiders are generally not invited to these events: (1) it is a reflexive and highly emotive service that remains by and for service users, and (2) it is a safety precaution to protect service users from stigma, violence, and other potential negative influences that may come along with an open invitation to such an event. Janis and I however were not only invited to attend this event, but also trusted to begin to build an interactive archive of peoples' experiences of this day. As such, a mundane task such as an invitation to an event, can sometimes be part of a meticulous decision based in an invested compromise. In this case, GAP/MAP weighed out the positive and negative potential consequences of inviting us, and compromised that based on our investment in the organisation through our continued collaboration on multiple projects, this was a compromise (or perhaps a risk?) that staff was willing to take.

Further to this, the invested compromise can also depend on the investment of the relationship between actors. Service delivery and innovation within this space, are processes that need to be carried out in a caring way (Light & Akama 2014, Puig de la Bellacasa 2017), where stakeholders are in equitable dialogue to work towards participation parity (Fraser 2008). What I mean here is that many decisions that on the surface may seem incredibly simple or mundane, may not always be so simple. They are often tied to mul-

[1]Also see my forthcoming publication for International Journal of Women's Studies as listed in Appendix A.17

tiple layers of participation parity, questions of access or justice (ibid.), trust and relationship-building (Corbett & Le Dantec 2018), and care (Light & Akama 2014). Synchronized co-evolution, invested compromise, and localised translations together allow me to see the two different worlds of charities and academia as a hybrid space. I see them as arenas that are working together, in a synchronized and continuously co-evolving fashion; a space where compromises are found and made in ways that those who are invested in the projects reciprocally benefit of the decisions. These kinds of relationships are based in a communal understanding of individual and shared histories and contexts, which leads towards an understanding of separate but mutual languages through translational work in localized spaces - for example the ways in which we were able to develop a shared understanding through the back-and-forth in the development of requirements documents with NUM as described in chapter 5. This shows the complexity of this research space beyond the usual conversations about 'risk' and 'safeguarding' service users. From this, we can learn that researchers working in complex spaces, and especially when conceptualising these as J-OEs, are tasked with much more than simply carrying out research. While this is by no means a new idea, the discussions around invested compromise can help us understand actions taken by ourselves and our collaborators to progress (or *pause*) (Akama & Light 2018) aspects of a collaborative research project.

8.2.4 Summary

Reflecting on the kinds of compromises that had to be made throughout all the processes described in this manuscript, I was often confronted with the realities of the strange world I as a HCI researcher sit in. It is a world that is at the nexus of innovation in digital technologies and charity sector service delivery; a world where different people come together to design and develop technologies for service delivery and harm reduction in sex work support services. The various different languages that are used, the various different ways in which the different areas of the ecology evolve, and the ways in which we compromise remind me of the strange conflict between these two worlds.

On one hand, I am working in a world of technological developments and innovation, where technologies are often heralded as a way of solving wicked problems (Fitzpatrick 2003). Throughout the time I was working on these projects, I was acutely aware of the trap that is technological solutionism, where technologies can be seen to simplify (or even solve) complex socio-technical, socio-cultural, or socio-ethical issues. Instead of building projects that aim to solve particularly wicked problems (eg. violence against sex workers, the stigmatisation of sex work, or the building of a localised history

of underrepresented voices), conceptualising the research space as J-OEs allowed me to facilitate the development of digital interventions that support on-going, existing, and multidimensional struggles against oppression (Fraser 2008) and that are understood as more than 'tools' for people to use (Nardi & O'Day 1999). Working in a way that allows for localised translations, synchronised co-evolution, and invested compromises in not only the development of technologies, but the development of ideas and projects overall. This can support the development of digital tools and interventions that function as facilitators of holistic learning, service delivery, or care as a potentiality for improvement rather than 'silver bullets' for solving particular 'problems' (Puig de la Bellacasa 2011).

I would argue that the explorations detailed in the previous chapters provide examples of how this can be achieved. The technologies themselves were born out of an initial nuanced and detailed understanding of the design space (see chapter 4) and examples of harm reduction technologies in HCI (Strohmayer & Comber 2015), expertise from staff and service users of SWSS directly (Grenfell et al. 2016, Rekart 2005), as well as sex worker rights (Chateauvert 2013, Nagle 2010), digital innovations in social work (Chan 2016), or personal experiences of service users, staff of charities directly involved in this context, and myself.

On one hand, both charities I worked with saw digital technologies as having potential within their repertoire of service delivery. While NUM were already heavily integrating technologies into their services at the time I got involved, GAP/MAP saw the integration of technologies more as an experimental phase. They saw positive aspects of technologies and collectively decided to indulge in some of the creative processes our collaboration offered. The choices in technologies were however not made based on what was new at the time, but rather based on what was useful (both in the practical user experience and more high-level justice senses). On the other hand however, these charities also exist within their own space where they are tasked with the tremendous responsibility of finding solutions to problems that are very complex, chaotic, and often immediate. Often they are faced by issues that are not immediately resolvable, that may be impossible to solve due to constantly changing, incomplete, or contradictory requirements.

Keeping this in mind is necessary when researching with, in, or for them. As researchers, we need to learn to balance innovation with practicalities of reality. Coming back to the importance of synchronised co-evolution, working in a diverse team provides us with the opportunity of learning from one another in the evolution of elements that are within the J-OE. Seeing the research space in this way, I was able to conceptualise the collaborative environment as one where localised translations, synchrosnied co-evolution,

and invested compromises not only take place but are used to build stronger and more trusting relationships. In such projects then, it could be the role of the researchers to take the opportunities for innovation that technology offers while making sure they fit into the desired (and existing) landscape or ecology of service delivery. While this is a point (Nardi & O'Day 1999) already make, they do not provide tangible ways of being able to do this. One way this would work is to build technologies that allow people who work in charities to continue their ongoing innovation in service delivery. The role of researchers who support this on-going process is manifold, but one of them could be to function as a 'critical friend' that builds on existing practice, while simultaneously questioning and critiquing it through research and design practices and inquiries.

8.3 Working to Learn About the Ecology

So far I have developed and discussed some novel vocabulary to address the workings *within* the ecology to design, develop, and appropriate technology in J-OEs. I now reflect about the meaning of this kind of work in relation to ethical and methodological considerations. This discussion may also be helpful in designing technologies with and for organisations who work in a highly politicised space such as, for example, homelessness prevention and drug services, or women's health service providers.

To do this, I discuss and question the role and involvement of researchers when working with, through, and for charities to design technologies in participatory and collaborative action-oriented projects. I reflect on my own involvement in the research project, continuously questioning the ethics of working with and through charities; again I re-emphasise the importance of in-situ and in-the-moment ethical issues and questions (as raised in chapter 3). Here I would like to take the opportunity to address some of these concerns explicitly, and provide reflexive questions that have been useful for me throughout the process of my studies. I do not provide direct answers to all of these, but have considered these unanswerable questions throughout as a means of attempting to begin to untangle the messy and complex process of the previously described projects. I have attempted to document these considerations through traditional ethnographic techniques such as writing thick descriptions (see chapters 5, 6, and 7) as well as more innovative techniques of qualitative research enquiry beyond data (Augustine 2014) such as quilts (see Appendix A.11, A.12, and A.13) and the development of concept things (see Pierce (2014) or chapter 3). Connecting my reflections back to participation and context in this way allowed me to reflect in more detail

on the ways in which dialogic and caring (Fraser 2008, Puig de la Bellacasa 2017) relationships we (collaborators and I) have developed. In turn, this allowed me (or perhaps read as *us*?) to discuss notions of risk, hybridity, and entanglements.

The previous section of this chapter was an attempt at building vocabulary to begin to unpick this messy web of gatekeepers, participants, or researchers, but here I want to address some of the ethical concerns that come about when working in J-OEs and while using these novel concepts. Before going into detail of this however, I would like to briefly come back to the concept of 'abnormal justice' as outlined by Fraser (2008) and in chapter 2. Particularly when thinking about and designing (digital) infrastructures issues of marginalisation become important (who's perspective are we centering in this design process?). Framing our work around abnormal and multidimensional justice (Fraser 2008), allows us to meaningfully centre experiences and needs of folks who have been made marginal rather than those who traditionally make decisions about what kinds of technologies and infrastructures are important. In a way then, this framing allows us to move away from oppressive infrastructures and algorithms, and instead design these in a way where we not only acknowledge the inherent biases, but where we are able to proactively work towards changing them. To do this however, we must reflect on *what* and *how* we design. When working in justice-oriented spaces, or more specifically to design with, in, or for Third Sector Organisations, this becomes particularly important because of the sensitivity of service users, funders, and service delivery more widely.

Below, I discuss some of the ways in which the two seemingly very different worlds of the the charitable sector and academia can come together to engage in this kind of re-framing to create meaningful and sustainable digital technologies in relation to (1) responsibility of risk when designing and deploying novel technologies; (2) the importance of hybridity of projects that arise out of collaborations; and (3) inevitable entanglements when working in the hybrid space between charities and academia and their value in design work.

8.3.1 Designing for Risk

The ideas of localised translations and synchronised co-evolution help us understand the interactions that take place in the development of J-OEs, and the dedication to valuable, caring, and trusted relationships. Adding to this the value of understanding of contexts leads me to a discussion on designing for and with risks. As a researcher working on socially, politically, or culturally complex spaces, I must take into account the risks I am designing

with. Sometimes I can see these risks as opportunities for design, but I must also always respect the charity's needs for safeguarding. As part of this process of safeguarding, traditionally charities work towards reducing risks. So, working to design with risk, or in risky spaces will always be a balancing act; for example between the risks and possibilities involved in the design, development, or appropriation of digital technologies.

I reflected on where I place myself as a researcher and as 'academia' on the continuum of critic and advocate; being clear to self-declare my standpoint (Harding 2004) and to self-disclose this in an appropriate way with and to all stakeholders in the research. Again, this relates back to the ways in which invested compromise takes shape in these kinds of projects, and how the different worlds come together. Throughout the process, I was conscious of my own level of knowledge on the technical aspects of some of the used digital technologies; which were not always as detailed as I would have liked. I was also cautious with the ways in which I talk about how, for example, the new NUM system could solve some of the problems they were having with the old system while ensuring I do not fall into the trap of technological solutionism. Alongside all of these internal conversations I was having with myself to ensure I spoke appropriately with my collaborators, I also functioned as a 'critical friend' and asked critical questions. My embeddedness within the J-OEs, and the action oriented research processes that were followed by all involved stakeholders supported my understanding of the space (Crabtree 2001), enabling me to ask critical but caring questions. In the NUM project, for example, these questions often related to why they carried out certain tasks in the way they did, but also advocated for continued use of certain aspects.

It may be my role as a HCI researcher to question the 'risks' that charity staff associate with novel technologies in their service delivery, to mitigate fears or apprehension where these may be based in misunderstandings as described in chapter 5. This was particularly apparent when introducing the new Content Management System (CMS) to NUM staff: we decided to change the CMS provider from their previously used 'Wordpress' to the 'SilverStripe' framework. This change would require staff to learn new processes, and to engage in the use of a different framework. It also required the company who provides support for their website to learn a new system. Perhaps unsurprisingly, staff flagged many risks with us throughout the negotiation process between keeping the old Wordpress and using the new SilverStripe framework such as familiarity with the system and having learnt various 'hacks' to get around the limitations of Wordpress. Through many conversations, phone calls, and e-mails between myself, staff, the developers, and the support service provider however, we were able to come to the conclusion

that despite the risks that come with the use of the new system, it provided affordances such as flexibility and ease for continued development on the site that would outweigh the risks in the long-term.

Alongside these relatively mundane and low-risk potentialities, there were also a number of bigger risks involved in the change-over. Particularly in a system that is so intimately tied to the core service delivery of an organisation (the sending of alerts to warn sex workers of potentially dangerous clients), changing the CMS is also closely linked to the ways in which this service delivery is carried out. In the long-run the improvements will hopefully save staff tremendous amounts of time, but the change-over will be a big risk. Coming back to the importance of localised translations here, it was also important not only that this change will technically work but also that staff will trust the system enough to justify the risk they were taking in making this massive change in the ways in which they do their administrative work and service delivery. This also links back to Akama & Light (2018)'s ideas of 'readiness' as described in relation to the research process in chapter 3.

Understanding the histories and contexts of all stakeholders (Dombrowski et al. 2016, Fox et al. 2016, Irani 2010, Le Dantec & Fox 2015) helps us understand the reasoning for charity staff's questions around safeguarding and sustainability. Looking towards some of my collaborations with GAP/MAP, we designed for risk in very different ways. While The Partnership Quilt and Red Umbrella Archive projects were both also intimately entangled with service delivery, the effects of these technologies would not have as big an effect on service delivery as a new CMS would. At the same time however, there were other risks involved in these projects. Some of these related to the sustainability of the projects (how could we continue to build the archive after I was unable to physically be there to help out?), but other also related to the historical context and the kinds of language that were used to describe the projects. Throughout this dissertation, I have talked about sex worker rights and how the red umbrella symbolises some of the struggles to fight for these rights. The Red Umbrella Archive project relates to these struggles, but at the same time it is important to acknowledge the diversity of GAP/MAP service users - which include people who may identify as sex workers, those with experience of sexual exploitation, or those engaged in survival sex. Given the complexity of service users, as well as the stigma attached to sex work, designing a kind of archive in this space can become quite risky. We wanted to collect and share the stories of those who were part of the day, and to do this in a way where regional accents and real voices were heard. We mitigated some of the risks of de-anonymisation with the infrastructure we used for the archive. For example, while the audio recordings would maybe de-anonymise the women to those who knew them, we chose

not to collect any further meta-data such as peoples' names.

Both the researchers and partners have the responsibility to be up to date on new policy and research developments, but at the same time should reflect on and question the existing status quo of these changes; to move towards a research and design space, where we work not only with traditional methods and ideas, but perhaps also those that may be deemed "deviant" (Strohmayer & Comber 2015). During the time of my research for example, changes in 2017 charity law, and in 2018 the GDPR, or the developments and outcomes of the HASC 2015, as well as developments in research in relation to HCI or technologies and sex work (Jones et al. 2017, Laing et al. 2018, Sanders et al. 2018) affected the work we were doing. It was integral not only for the research, but also for developments in service delivery to know about, understand, and reflect on these regardless of whether they supported or contradicted current practice. In the development of the NUM website, for example, this resulted in making changes to the ways in which consent is collected from members about receiving e-mails from the organisation even before launching the new website. Having said this, not all research and policy developments such as the outcome of the HASC panel, may fit in with the charities' or researchers' own policies, politics, or agendas. In cases such as these it is important that a balance is found where reflection, communication, and translation are used to establish a middle ground that is suitable for all. Particularly when this relates to policy or law however, we must adhere to these and work within the confines. While doing this however, it is arguably still the role of the charities to advocate for the kinds of policy or legal change that is necessary to ensure the safety of their service users (Feis-Bryce 2015). In turn, this also relates to the ways in which Fraser addresses justice in a globalising world; where it is not only important to ask for whom, what, and who justice is, but to also explore the frame-setting of justice in and of itself (Fraser 2008). Particularly in a system that Fraser would describe as exuding 'abnormal justice' (see chapter 2), laws and policies play into this frame-setting. Questioning how to design digital technologies to support the uphill battle to achieve justice for sex workers should also include research surrounding rights-related information, and could be something that builds on this manuscript.

8.3.2 Designing for Hybridity

Throughout all of the projects, several compromises had to be made. Through reciprocal learning and sharing of situated knowledge, we (collaborators and I) were able to build relationships that evolved synchronously to continuously develop the project methods, aims, and outcomes. As such, the synchronized

co-evolution of the two systems (academia and the charity, or in the case of The Partnership Quilt three systems including the quilters) in a way led towards invested compromises. When focusing on the importance of contextual framing of justice questions (Fraser 2008) however, I also need to confront my own views of the topics of study. Not only do I need to be clear about them in publications and in relationships (for example at least in the form of researcher-self disclosure), but I also need to actively reflect on these throughout the project cycles (Cahill 2007, Reid 2006). At the same time, I also need to not be afraid to change these based on new learning from and understandings of the ecologies and contexts, or the reframing of first and second order questions (Fraser 2008).

It is those who are invested in the project (because they have supported the projects evolution, or because the project has supported their own evolution) who are able to develop it further. But, when working with charities, how open am I really in my designs, and should I be more or less willing to compromise? For example, The Partnership Quilt project is a result of this kind of co-evolution, compromise, and hybridity. The project came about as part of my on-going engagement with the charity (based on workshops in the summer of 2016) and my work on the Red Umbrella Archive in 2016 and 2017 (see chapter 6). This resulted in a kind of 'readiness' (Akama & Light 2018) for all involved parties to further develop their practice and move towards new engagements. Since the completion of the quilt in and of itself, has continued into a project that the charity, the quilters, and I are involved in. In a meeting between the three parties in the spring of 2018 for example, we talked about developing a toolkit to support others in working on a similar project. This idea came from SPM after they had presented the project at the Northumberland Women's Institute (WI) centenary spring meeting. Simultaneously, GAP/MAP had been in conversation with the Mother's Union to obtain funding to be able to carry on the quilting group past this initial project. The continuation of the quilt project past the original artefact (The Partnership Quilt) required resources and time from all involved parties. In the case of the continuation of the project, GAP/MAP were able to obtain funding to do this. Here we see how the project created a kind of hybridity among the various actors and stakeholders.

In the case for the potential toolkit of the quilt however, we have yet to make concrete plans on how to achieve this. While the quilters (who have published quilting books before) did not see the creation of the toolkit as very difficult, the amount of time and skill it would take to create the resource to develop not only a quilting pattern and instructions for the quilt we made, but to create a toolkit for other services to be able to carry out a project such as this would be mammoth. It would require the expertise from the

four different types of experts in this project (service users, service providers, technologists, and quilters) to come together to create resources that would be understandable for their counterparts of the toolkit. It would also require us to translate each of these sections into language that is accessible to all of those who may be involved in such a project (eg. quilting language must be understood by novices, and technological language by quilters). While we have yet to complete a comprehensive toolkit, we have made available instructions for the quilt in a booklet (see Appendix A.4 and A.16) and have published the description of the Schnittmuster, or meta-toolkit, that we used to create the capacitive touch sensors (Meissner et al. 2018).

Particularly in PAR approaches as outlined above, the charity plays a key role in the development of continued projects and/or project outcomes as a facilitator between the research and service delivery. They also function as a gatekeeper who guards the development of digital technologies in these hyper-localised contexts to ensure their appropriateness (including things such as risk management as discussed previously). At the same time however, members of staff in these organisations also take part as participants in their own right. This became imminently clear in the production of the Red Umbrella Archive, where it was not only service users who took part in the making of umbrellas and archiving of their stories, but staff also picked up craft supplies to share their experiences of the day. As such, working within a participatory framework of J-OEs muddies not only the participation of the researcher in the project, but also those of gatekeepers, stakeholders, and participants. Arguably, it is not necessarily important to always be able to clearly delineate the different roles people play at any given time (I would go as far as to question whether this is even possible), but it is important to reflect on the different roles people play at different times to ensure ethical conduct of research practices.

Coming back to the question I set out at the beginning of this section: when working with charities, how open am I really in my designs, and should I be more or less willing to compromise? I want to respond to this also in a more tangible design-oriented way. If we start at the assumption I have laid out above and in previous chapters that projects need to be useful to our collaborators, and as such require different kinds of work from different stakeholders, and link this with the ideas of hybridity, these projects must also make sense in the academic setting. They must not only be interesting projects to work on, but they must fit into our research agendas, programmes, and as a HCI researcher also my development and study of digital technologies. Technologies need to be suitable to the policies and ideologies of the gatekeeper or charity and therefore must match their plans and risk-management techniques. In turn, this means that as a researcher, I

need to question how much I am willing to compromise my investment of the design based on the interaction of their mediation. This places my previous discussion of technological solutionism into an interesting light. Throughout the time of my PhD studies, I have often asked myself: what happens to my HCI-research when it is inappropriate or not useful to introduce digital technologies? Or when the innovations we came up with are not integrated into the charity's future work?

I struggled with these questions particularly when considering the branding and design identity of NUM. The initial response of the board was that the design should be implemented, but staff saw this differently. Through many discussions we came to a compromise to implement this design in multiple stages to ensure members and visitors of the site would be able to see the novel interface while maintaining essential elements of the original brand identity (the logo and favicon). The new elements that replace these old elements would be introduced at a later point. Even though the new design was based in almost two years of collaborative research with the charity (and even though they appreciated the logo design), I had to compromise the overall design of the new system through several meetings with staff and board members. Discussions like this were often mediated through concept things such as the booklets that described NUM's Standard Operating Procedures (SOPs), brand identity, or other smaller elements of the website. These were meant not only as a resource for NUM staff to be able to use and train others in the use of the new system, but they also functioned as a way of collecting feedback on the system as we were developing it. Through the uses of these concept-things, I am able to show how the methods of data production and analysis supported mutual understanding and hybridity in the co-evolution of the project. This means that it is not only the research that goes through various PAR cycles, but the digital and non-digital as well as tangible and non-tangible artefacts in and of themselves go through cycles of being produced and used as data, analysis, translational work, or relationship-building. As such, they function as hybrid artefacts across various aspects of the hybrid space that we work within to design, develop, or appropriate digital technologies with and for J-OEs.

Thinking about artefacts in this way also relates to the types of digital technologies and tools we develop with and for J-OEs. When designing for hybridity, I mean not only the ways in which the research space and concept-things function, but also the digital technologies that are developed or used as part of the HCI projects directly. Where again, it is important to balance the desire of supporting people against the assumption that technology is able to solve wicked problems such as digital inclusion (Toyama 2011). In a sense then, just like the design process (as outlined in chapter 3), the

digital tools and artefacts themselves also become a means to an end (eg. an artefact for reflection and improving wellbeing) rather than only an end in themselves (Dourish & Mainwaring 2012). The case study of one of the women involved in the production of The Partnership Quilt that was written by one of the members of GAP/MAP staff raises a very similar point: *"As the project grew and developed from a drop in activity to the partnership quilt that it is today, so did Linda*[2] *grow and develop. We could see each week that her stability and her self-esteem was increasing the more she made the time for herself to sew."* (see Appendix A.4 for the complete text written about Linda's development) In one way or another, all the projects that I have talked about in this manuscript operate within these various hybrid spaces (charity-academia and technology-process). Ultimately, the projects that HCI researchers engage in with charities need to make sense in the hybrid space that is the J-OE, while simultaneously constructing other meta-spaces of hybridity through the research process, the various development and testing cycles, and ultimately the use and legacy of their existence.

8.3.3 Designing for Entanglement

Until now, I have discussed that in order to develop meaningful technologies, it is important to design for risk and hybridity, but we must also design for entanglement. Relationships are risky and require reciprocity. At the same time however, it is the understanding of the construction of contexts that provide a need for me as a researcher (and charity staff) to confront my own (and their own) views reflexively (Dombrowski et al. 2016, Fraser 2008, Harmon et al. 2017, Reid 2006). At the same time the development of a mutually constructed understanding of the J-OE leads to different understandings of the technologies we develop (Irani 2010, Nardi & O'Day 1999, Wyche et al. 2015). This means we must whole-heartedly take into account situated contextualization of technologies (Nardi & O'Day 1999), and accept that the reframing of research and justice (Fraser 2008) through PAR (Reid 2006) and social justice-oriented (Dombrowski et al. 2016, Fox et al. 2016, Harmon et al. 2017) lenses of research can (and will) lead to the appropriation of these technologies based on multiple particularities, histories, and reciprocal developments: it is the localized translations and translation hops that help us develop synchronized co-evolutions of the different systems at play in these collaborations to develop a space where those who are invested are able to make compromises on not only the design, but also use and appropriation of digital technologies. In a way then, entanglements are an outcome of a meta

[2]This is a pseudonym for one of the service users

analysis of the work that takes place at different levels, times, and situations within the hybrid space that is a J-OE. It ties together all the actors within it across organisational and other boundaries. By looking at the work we (my collaborators and I) did to design, develop, and appropriate technologies in SWSSs as described throughout this manuscript, I can understand that there are different ways of using technologies, and that a specific technology can mean different things to different people (Nardi & O'Day 1999).

To better understand this, I turn to the work of articulation (Irani 2010, Irani et al. 2010), or how discourse in HCI can create epistemologies, and is a "fundamental characteristic" (Blomberg & Karasti 2013) of work. This means how methods, technologies, or ways of thinking, can affect how we interact with people; or how we engage in dialogic reframing of justice (Fraser 2008). Further to this, I understand that representations of this articulation take different meanings in different contexts. This means that in this J-OE framework the situated, local, and specialised knowledge of charities in relation to how to use the digital technologies which we co-create is what becomes more important than the intended (or designed for) use of the technology itself. This is why we must design for hybridity as well as entanglement. The project or exploration that places the researcher into a context determines the type of framing of the project, situation, or intervention. In the case of the Red Umbrella Archive, for example, the project would not have been able to work without Open Lab as we provided the materials, but would also not have been possible without GAP/MAP as its purpose was to be part of the commemoration of IDEVASW.

By designing for entanglements, research projects where the understanding of co-evolution and hybridity are present from the beginning, can take into account multiplicity (Bardzell 2010, Dombrowski et al. 2016, Fox et al. 2016, Harmon et al. 2017) articulation work (Irani et al. 2010), and can forefront dialogue (Fraser 2008) involved when doing this. In turn, this allows me to build technologies through J-OEs to understand how the artefacts in and of themselves participate in the developments of these projects. Taking The Partnership Quilt, for example, we can see that even from the name itself this project is focused on a particular artefact that was carried out in partnership. I provide more details on the ways in which this name came about in chapter 7, but here want to re-iterate the ways in which the artefact itself represents a kind of entanglement. Just like the various pieces of embroidery thread, wires, and machine sewing became entangled to create the artefact, our stories as women who made this quilt became entangled as well. Even though we all come from vastly different places (geographically, socially, and metaphorically), we came together to create this piece of craftwork. This entanglement however, went further than this project. Only to name some

examples: I joined one of the women on the IDEVASW march in 2017, some of the members of staff organised continued projects, and others have remained emotionally entangled in the various relationships that were built in the year we worked on the quilt. This kind of polyvocality and multiplicity (Bardzell 2010) brings about various potentialities for 'acting' in research in various different ways (Reid 2006) and in confronting the multifaceted and multi-layered assumptions of justice (Fraser 2008) within research, service delivery, and activism.

This takes away the power from the idea that technologies will be able to 'solve' problems, and allows us to build and understand technologies from a different perspective. It allows us to see the use of technologies within the socially constructed environment of multiplicity; to construct novel appropriations and innovations of use for what may be mundane technologies. With this I mean that we can begin to design technologies that are useful beyond their immediate purpose, that can be re-appropriated by others within and outside of the J-OE to fulfil similar but also completely different needs.

Designing for hybridity and entanglement can be very beneficial for the designing of useful technologies. Taking these concepts into consideration helps us design technologies that are meaningful, useful, and that fit into current and planned service delivery of organisations. While this can increase the impact of our work, it also raises important questions about sustainability of research relationships and the notion of *leaving the wild* (Taylor et al. 2013) or ending research relationships. I discuss some of my reflections of this based on my experiences below.

8.3.4 Ending Research Relationships

Working in the ways that have been described throughout this dissertation, particularly in relation to designing for risk, hybridity, and entanglement, also make me wonder about the ways in which research projects end, how relationships end, and what happens to research artefacts, data, and relationships once the researcher leaves the field. This counters but also corresponds to previous points I have made in relation to just sustainabilities (Dombrowski et al. 2016) and the need to design technologies that work within the J-OE in a supportive, sustainable, and useful way.

Working in a way that is as intimately entangled with charity service delivery as I have in the projects detailed throughout this dissertation, I wonder whether I ever really leave the field - or whether it is really possible to stop *care*-ing about these kinds of projects that are intimately tied to the researcher as addressed by Puig de la Bellacasa (2017). Working on such projects in an ethical way almost requires me to see through the project, or

to at least provide documentation and skills to staff to be able to carry on this project without me. Even if I am no longer working with a particular organisation, the research will be part of their identity as an organisation, as well as their service delivery for as long as they are a charity. I mean this on a number of levels. Looking at NUM for example: if they deploy the website, this was an outcome of the research – so as long as they use it, this will be part of their service delivery. On a higher level however, (and as Taylor et al. (2013) point out) the learning they have taken from the project will continue to be part of the ways in which they interact with technologies, how they will continue to innovate their service delivery with the help of digital technologies, and how they enter relationships with technologists in the future. These learning processes will also continue to shape my own future research and work.

When looking at my collaboration with GAP/MAP, I have similar ethical concerns about my work. For example, the work that we did together for the Partnership Quilt is moving on to continue to be part of their service delivery. They have obtained funding from the Mother's Union to continue to host a quilting group and are talking about developing a social enterprise out of this work with service users who are now part of the 'belonging' phase of service delivery (the third part of their service delivery where service users live independently but still want to stay connected). Where do I stand in relation to this new project that was born out of the success of our collaboration? What role *do* I play? And what role *should* I play in this?

In some cases ending a research relationship is easier than in others. For example in both the projects with GAP/MAP, there are clear 'endpoints' where I am able to leave the collaboration (eg. the completion of the quilt) and there are clear ways in which they can continue the projects without me (eg. the continuation of the Red Umbrella Archive). When looking at the entanglement, risks, and hybridity involved in the collaboration with NUM however, this line is much less clear. Documents such as the Service Level Agreement attempt to artificially create these endpoints (or at least the planning for this (Taylor et al. 2013)) of separations where we as Open Lab are able to leave the project, but how does this agreement relate to myself, my own ethics, and the ways in which I hope to continue to support the organisation within and outside a research context? The J-OE concept however further complicates these questions as members of the projects are tied to one another through their activism, advocacy, or mutual values of justice for service users and wider publics (in this case of sex workers) - Taylor et al. (2013) point towards this as well, arguing that these continued relationships could allow us to build deeper understanding of a particular community. Following this, a very positive outcome of these kinds of projects

would be their sustained development and continued evolution beyond the involvement of the researcher.

8.4 Summary

When designing for calculated risks, I base the collaborative projects in the work the charity does as well as the researcher's understanding of the space and expert knowledge of their research area. Through this, researchers are able to work in such a way that not only supports movements towards justice, but that questions the frame of justice we are operating within. One way of operationalizing this is through designing for hybridity. In this way, collaborators and I are able to not only develop projects that are mutually beneficial and useful on a number of levels, but we are also able to look beyond the technology itself. This allows us to explore the ecology in a number of different ways through the design process. In turn this allows us to think more openly about the potentials of reframing (Fraser 2008) and sustaining the evolution of the ecology (Nardi & O'Day 1999).

Working in this risky hybrid fashion deeply entangled me as a researcher in the ecology I strove to design within. It created a messy interconnected ecology that brings together disparate worlds (again, facilitating further potentials for multifaceted hybridity), which provides fertile ground for useful innovation. This metaphor is particularly useful, because even though the ground is fertile, crops (just like research projects) require skilled work to grow. When working in J-OEs, it requires the often difficult and invisible relationship-building work, but also relationship-sustaining work to facilitate useful, interconnected, and meaningful design processes and outcomes.

The vocabulary I developed to learn more about how we work within the J-OEs (localised translations, synchornised co-evolution, and invested compromise) provides some tangible steps towards building these kinds of relationships that foster not only caring and collaborative action (Reid 2006), but also provides all stakeholders of the project with the possibility of becoming 'critical friends' of each others' roles. Here I want to stress that working in an embedded way is a two-way street if we wish to work towards reaching what Fraser (2008) calls participatory parity. Not only do we as researchers embed ourselves in charity service delivery, but we must also work to embed our collaborators into the research setting to support them in becoming 'critical friends' for our work. In this way, relationships in these hybrid spaces become deeply entangled, making it necessary (but difficult) to negotiate the 'ending' of research projects and relationships. Looking towards the next chapter, I reflect on how the learning process described throughout the manuscript

answers the research questions laid out in chapter 1.

Chapter 9

Conclusions

9.1 Answering the Research Questions

Throughout this dissertation I have untangled the messiness of data, relationships, and digital technologies that has been integral to the development of the research. In this final chapter, I will summarise the dissertation, responding to the research questions as laid out in chapter one. After this, I provide a description of academic and non-academic contributions of this work, as well as some of the limitations and future potential avenues for research.

Over the last three and a half years, this work was driven by the overarching research question as outlined in chapter 1: *How can digital technologies be collaboratively designed, developed, and appropriated with and within sex work support services to promote multidimensional justice for their service users?*

I focused on three sub-questions to explore different responses to this question, looking at conceptual, practical, and methodological concerns:

1. What conceptual framings help us better understand the role of 'sex work support services' in the promotion of multidimensional justice?

2. In what ways can research methods in and of themselves support service providers and users to move towards a space that is more just?

3. What ethical and methodological considerations do we have to take into account as HCI researchers when working to design, develop, or appropriate digital technologies with, in, or for sex work support services?

I answered sub-research question 1 in chapter 2, question 2 in chapter 4, 5, 6, and 7, and question three in chapters 3 and 8. In addressing these specific aspects of the over-arching research question, I was able to develop a theoretical framework (Justice-Oriented Ecologies) and was able to adapt PAR and RtD to work within it. On top of this, I have provided three examples of projects that follow the implications for design laid out in chapter 4 as well as the theoretical implications as laid out in chapters 2 and 3.

The re-development of the NUM website for example, provides improvements for the administrative tasks staff carry out on a day-to-day basis. This not only makes their work more efficient, but in the long-term also actively contributes to the reduction of violence committed against sex workers. Through the language and imagery used on this new website, there is also a distinct link to the promotion of sex worker rights.

Working to understand the use of digital technologies to commemorate IDEVASW and designing the Red Umbrella Archive is linked to the promotion of sex worker rights; taking part in the red umbrella march to support the struggle of international sex worker rights activists, joining the emotional commemorative service to remember those who had been lost that year, and archiving the experiences of those who attended to build a hyper-localised archive of the day. Simultaneously, the development of the archive also supports the service delivery of GAP/MAP as it encourages their service users to take part in a reflexive activity to share their experiences of this particular event.

The development and design of The Partnership Quilt was deeply embedded in the service provision and organisational culture of GAP/MAP, making a digital contribution to their service delivery. The promotion of sex worker rights is more subdued in this project, though not any less meaningful than the previous. In this project the promotion of rights is almost subversive in that it is the lived experiences and actions of service users and members of staff who created the artefact, raising and sharing the artistic potentials of a group of women who had been systematically marginalised, stigmatised, and silenced due to their multiple complex needs.

Through the discussion of the conceptual, practical, and ethical concerns related to doing work in this way, I have provided answers to the overall research question from four different perspectives: First, I explore how interdisciplinary literatures have addressed this question, leading to a gap in the literature that sees charities not only as service providers but also as agents of justice. Second, I provide a holistic evaluation of a service provider who already uses digital technologies to provide their core services, to learn from their experiences. Third, I provide three different ways of answering this question by describing three projects that have designed, developed, or ap-

propriated digital technologies with and in sex work support services. Fourth, I reflect on these explorations to develop a meta-analysis of the literature, existing practice, and empirical work. In this meta-analysis I provide a reflexive, methodological response to the question. Through these four reflections, I go beyond the building of tangible implications, and move towards more nuanced meta-implications for design related to how we can work within J-OEs, and how this kind of work can lead to learning about the J-OE.

Throughout the manuscript, I have developed a theoretical framework with which I am able to start disentangling the meaning of design processes involved in developing digital technologies in third sector organisations. Through the framework of J-OEs, I was able to see charities for the complex and interconnected ecologies they are. In doing this, I was able to work with them in collaborative ways to situate technologies within their existing (infra)structures. Through this framework, I attempted to document the socio-technical and human-focused process involved in my collaboration with two UK-based sex work support services. In the pilot study and subsequent three explorations, I documented the processes, providing a personal, situated, and subjective account of what took place.

While PAR and RtD allow us to reflect on the process of research and design, the vocabulary necessary to disentangle relationships between researchers and partners in justice-oriented projects could be more precise. What I mean here is that while we have language to discuss readiness in research processes (Akama & Light 2018), or some language necessary to design technologies in political spaces (Asad & Le Dantec 2015), there is little that addresses the design processes involved when working in third sector organisations (Strohmayer, Marshall, Verma, Bopp, McNaney, Voida, Kirk & Bidwell 2018). By reflecting on the explorations through the framework of J-OEs, and using a combination of PAR and RtD methodologies, I was able to begin to untangle the interconnected, complex, and often messy web made up of technologies, service delivery, politics, and reflections. Based on this understanding, this dissertation has provided three explorations to design, develop, or appropriate digital technologies in two different UK-based charities prior to developing vocabulary that will help others working in this space to better understand their own relationships and entanglements with TSOs. For example, localised translations can help researchers better understand the reasons for potential miscommunications in projects. At the same time, synchronised co-evolution can support the development of these projects into collaborative partnerships where invested compromises become useful ways of moving forward when problems arise.

Reading literatures produced by sex workers, histories of activism, or listening to the ways in which they discuss politics and laws has helped me

frame my opinions in more discursive ways. For example, fore-fronting the politics of sex worker rights movements has helped me build an understanding of the ways in which sex workers operate within a framework of criminality. This in turn re-emphasizes some of the points I made in chapter 2 regarding the political nature of third sector organisations (Feis-Bryce 2015, Kam 2014). If third sector organisations are political actors, and those who take part in their services are in and of themselves also political actors, then I ask myself to what degree service delivery functions as activism? And if we are working in participatory and design-focused ways, to what degree does design-led HCI research function as activism?

Over the last three years, I learnt that not only are international and national politics important, but also that politics are embedded in service delivery, research, and each individual with whom we work. When I take into considerations that charities are political agents (Feis-Bryce 2015, Kam 2014), and that research is deeply political (Asad & Le Dantec 2015, Dombrowski et al. 2016), I quickly saw that the technologies that we produce as HCI researchers at the intersection of these two areas are also inherently political. This means that we have a chance with every piece of technology or research work we do, to work towards worlds that we deem as more 'just', where we try to move away from a system of abnormal justice (which can be read as injustice in this case) and towards a system of multidimensional justice (Fraser 2008, Strohmayer et al. 2019). When we work to design digital technologies (or service delivery more widely) with this ethos in mind, we can see that research and service delivery (or really the intersection of these two) can function as a kind of prefigurative politic; as a kind of 'tacit activism' (Strohmayer et al. 2019). Working in this way can help us move towards using "design processes with the affected communities as a way of pinpointing routes towards and enacting genuine political change to tackle the injustices at their roots, rather than designing technologies in an attempt to rectify some of the symptoms" (Strohmayer et al. 2019).

We have political power as researchers and organisations, and we should be using it. Not only is it important to acknowledge that research and service delivery are inherently political and relate to personal and institutional ethos, but we must also take this into account when designing technologies in these ecologies and ultimately put this ethos into practice. For example, if we as researchers (or as organisations) have an ethos of care, we must ensure this ethos is embedded in the services and technologies we develop. By seeing the design spaces as J-OEs, where meaningful design processes and research outcomes are seen as important, we are able to put our ethos of justice into practice; we are able to engage in tacit activism (Strohmayer et al. 2019) and put the focus on prefigurative counter-politics to work towards a more just

world.

9.2 Outcomes and Contributions

This manuscript contributes to a diverse set of literatures and aspects of service delivery. Here however, I will address the three main contributions: (1) I have developed a theoretical framework that is useful for HCI researchers working to design, develop, or appropriate digital technologies with, in, and for sex work support services specifically, and other third sector organisations more generally; (2) I have developed vocabulary in the discussion to be able to better describe the work involved in developing interdisciplinary, collaborative, and highly localised projects to develop digital technologies with third sector or community organisations; and (3) I have supported the delivery of services through the engagement of staff and service users in design processes for novel interventions in two UK-based charities.

As I was working on the research and this manuscript, it was exciting to see the developments of my own thoughts, and to see my own work develop alongside other HCI literature. Over the last few years, the field has broadened, bringing more political topics of discussion into its corpus. I have been part of this development, working towards better understandings of working with third sector organisations (Strohmayer, Marshall, Verma, Bopp, McNaney, Voida, Kirk & Bidwell 2018) and publishing some of the work that I address in this manuscript, both in academic and non-academic venues. It is exciting to be part of this development in the literature, and to work alongside other researchers to tackle complex societal concerns with the use of digital technology or through design processes involved in the development of novel interventions.

To illustrate the impact some of the work described herein has had on HCI and sex work research literatures, and third sector service delivery and publications, I provide a list of publications I have produced over the last three years in Appendix 9.1. This includes peer reviewed academic publications, as well as non-peer reviewed booklets and reports to aid the service delivery of charities and to produce research outcomes that are accessible to non-academics.

Alongside the publications, the work my partners and I did has impacted on service delivery and those who interacted with this service delivery. For example, the work has supported drop-in sessions with a charity who support women engaged in sex work working form the street in a large UK city (see chapter 4) as well as women who make use of GAP/MAP's recovery centres in Newcastle throughout the summer of 2016, their programme of various

GAP/MAP drop-in sessions across Northumberland, North Tyneside, and Newcastle throughout the production of The Partnership Quilt (Summer of 2017). Furthermore, GAP/MAP were able to obtain funding to continue their quilting sessions in the summer of 2018. The research also supported the organisation and planning of the first march to commemorate International Day to End Violence Against Sex Workers in Newcastle upon Tyne, England and has started the development of a living activist archive based on this event.

Working alongside NUM staff to evaluate and develop their digital services resulted in a change in the way NUM alerts are titled. This ensured the titles were easier to read and more valuable to sex workers. Working closely with NUM made clear that there is potential in improving the ways in which they carry out some of their administrative tasks (e.g. the ways in which they approve new members, the process from receiving a report to sending out an alert, or the ways in which they use disparate pieces of software). The redevelopment of their digital systems affected these tasks, making them simpler for staff and ultimately less time consuming. Furthermore, NUM expanded the ways in which they use their phone checker to also include an e-mail checker that allows their members to cross-reference client e-mail addresses with those in the NUM database. This came out of conversations about potential changes in the use of digital technologies with NUM. This idea turned into a piece of software, and was funded and developed through grants applied for and received by NUM. Lastly, the research and redevelopment of NUM's digital systems was used in consultation with members from a Dutch sex worker rights organisation and a statutory service who are working on developing their own National Ugly Mugs Scheme.

9.3 Limitations and Future Work

Even though the projects (and technologies to a certain extent) were developed in participatory processes, the reflections in this dissertation are based primarily on my own experience. The thick descriptions produced in chapters 4 to 7 are based on my side of the story, and are based on my own experiences. While it is helpful to reflect on researcher perceptions of carrying out this kind of work, this is only part of the picture. The work I describe here is not a full picture of technologies in service delivery. More detailed research could be carried out on the ways in which staff use technologies for their everyday activities such as meetings with service users or planning future events. While I have been successful in relating to some of the everyday practices of staff, particularly those in chapters 3 and 4, and have discussed

at length the thought-process behind my analysis with staff, I would like to carry out activities that are more directly focused on collaborative analysis and reflection. I hope this would help further disentangle the meaning of J-OEs. For example, when the NUM website launches, I would like to sit down with board members, staff, and members to create reflexive timelines of the project, and to engage in activities to imagine futures where the new website is in use. This will hopefully build a more participatory understanding of the research process.

Even though the work discussed in this manuscript explores the design, development, or appropriation of digital technologies in TSOs, the focus is very much on the process involved in creating these projects. Because of this, little space was given to explore the meaning of the technologies themselves, or even the impact the technologies may have had on individuals or the organisations as a whole. This means, I am not able to measure the impact the integration of digital technologies in the three explorations will have on staff, volunteers, or service users. Looking more closely at what this means for the current conceptual framing of J-OEs as outlined above, it becomes clear that this is based primarily on the process involved in producing (digital) service delivery in collaboration with TSOs, their staff, and service users. To continue to build this framework, I would like to place more emphasis on the meaning of technologies within this space. In chapter 4, I began to do this by providing implications for design of digital technologies in J-OEs, but I would like to expand on this work, placing more emphasis on the meaning of technologies such as the Digital Ugly Mugs system, The Partnership Quilt, and The Red Umbrella Archive.

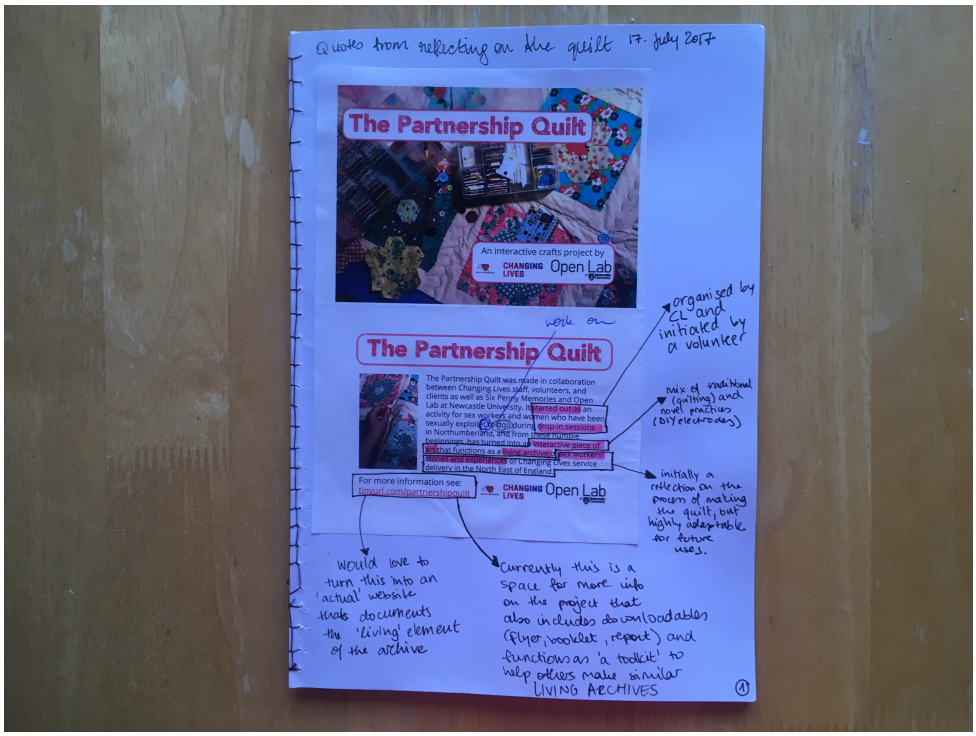
The work I have described is highly localised, subjective, and dependent on the collaborators with whom I worked. This means the results from the empirical studies may not be universally applicable. Having said this, the vocabulary developed in chapter 8 will be helpful to others working to design digital technologies in TSOs or sex work support services specifically. In future, I hope to continue to reflect on the framework of J-OEs in non-UK contexts where legal and justice frameworks may be different. I would also be interested in applying this framework to TSOs or community-oriented bodies that support different groups of people – to expand the framework beyond sex work support services.

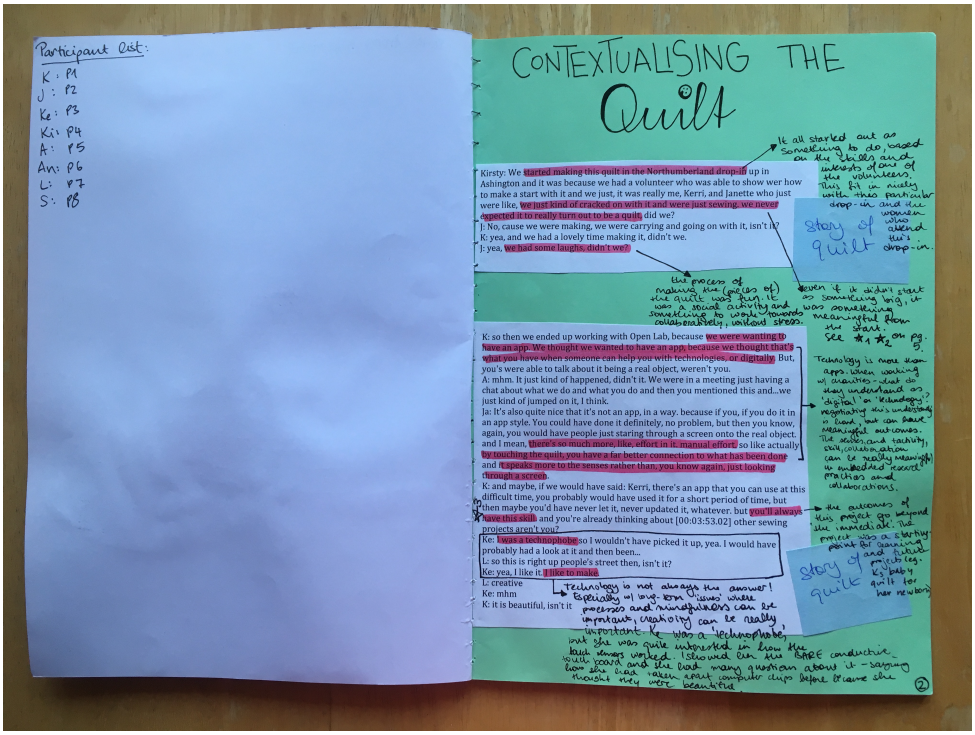
Appendices

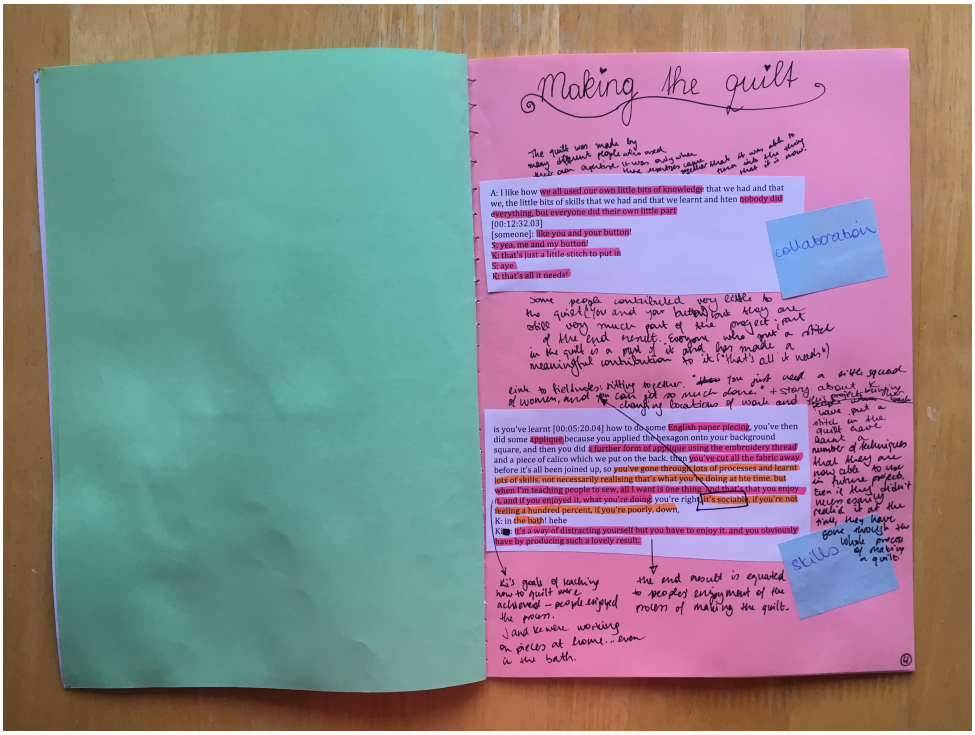
Appendix A

A.1 Some pages of the hand-sewn booklet made to analyse parts of the transcript for The Partnership Quilt

These are only a selection of pages from the booklet that show the types of annotations I made. The change in page colour also indicate the theme of those pages: eg. pages about 'Contextualising the Quilt' are green while pages about 'Making the Quilt' are pink

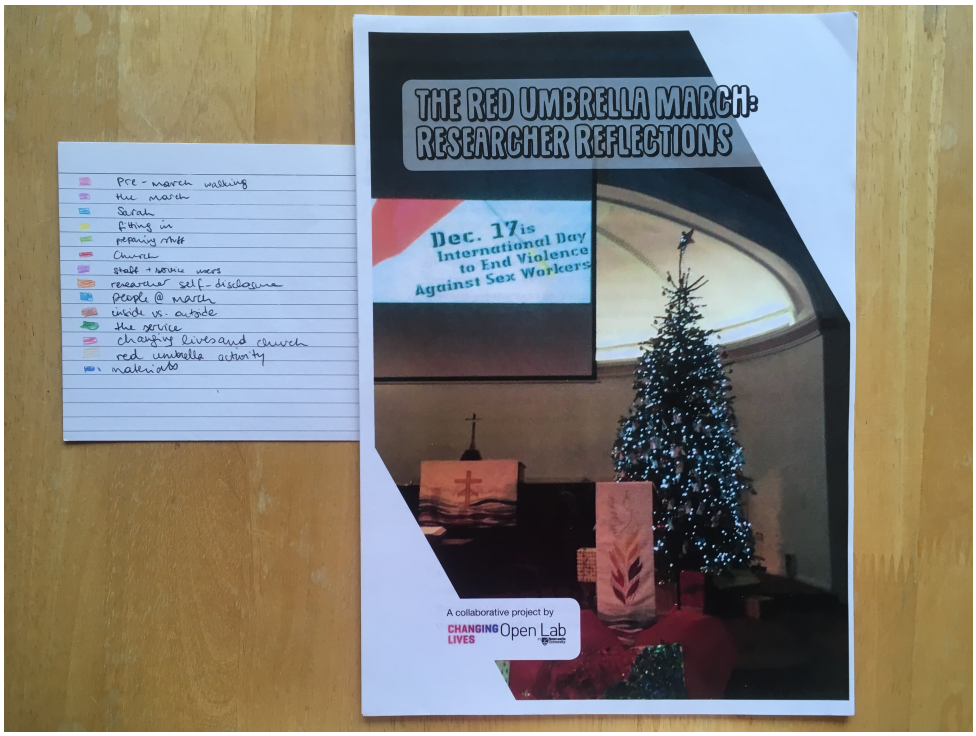


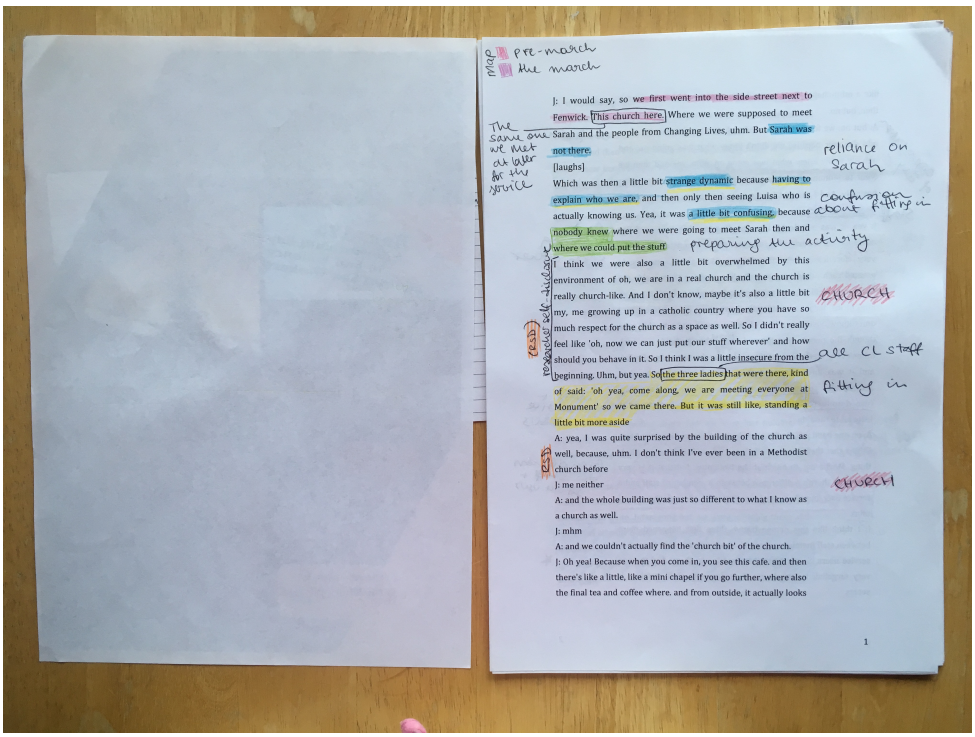

Participant list:
K: P1
J: P2
Ke: P3
Ki: P4
A: P5
An: P6
L: P7
S: P8
CONTEXTUALISING THE Quilt
Kirsty: We started making this quilt in the Northumberland drop-in up in Ashington and it was because we had a volunteer who was able to show wer how to make a start with it and we just, it was really me, Kerri, and Janette who just were like, we just kind of cracked on with it and were just sewing. we never expected it to really turn out to be a quilt, did we?
J: No, cause we were making, we were carrying and going on with it, isn't it?
K: yea, and we had a lovely time making it, didn't we.
J: yea, we had some laughs, didn't we?
It all started out as something to do, based on the skills and interests of some of the volunteers. This fit in nicely with the particular drop-in and the women who attend the drop-in.
story of quilt
the process of making the (pieces of) the quilt was fun, it was a social activity and something to work towards collaboratively, outlook stress.
even if it didn't start as something big, it was something meaningful from the start.
See ★1 ★2 on pg 5
K: so then we ended up working with Open Lab, because we were wanting to have an app. We thought we wanted to have an app, because we thought that's what you have when someone can help you with technologies, or digitally. But, you's were able to talk about it being a real object, weren't you.
A: mhm. It just kind of happened, didn't it. We were in a meeting just having a chat about what we do and what you do and then you mentioned this and...we just kind of jumped on it, I think.
Ja: It's also quite nice that it's not an app, in a way. because if you, if you do it in an app style. You could have done it definitely, no problem, but then you know, again, you would have people just staring through a screen onto the real object, and I mean, there's so much more, like, effort in it, manual effort, so like actually by touching the quilt, you have a far better connection to what has been done and it speaks more to the senses rather than, you know again, just looking through a screen.
Technology is more than apps. When working w quantities - what do they understand as 'digital' in technology? negotiating this understanding is how we can have meaningful outcomes. The skills and tactility, conversation can be really meaningful in embodied records - photos and collaborations.
K: and maybe, if we would have said: Kerri, there's an app that you can use at this difficult time, you probably would have used it for a short period of time, but then maybe you'd have never let it, never updated it, whatever. but you'll always have this with and you're already thinking about [00:03:53.02] other sewing projects aren't you?
the outcomes of this project go beyond the immediate. The project was a lasting part of sewing and quilting practices.
story of quilt
Ke: I was a technophobe so I wouldn't have picked it up, yea. I would have probably had a look at it and then been...
L: so this is right up people's street then, isn't it?
Ke: yea, I like it. I like to make.
L: creative
Ke: mhm
K: it is beautiful, isn't it
Ki's baby quilt for her newborn
Technology is not always the answer! Especially w/ long-term users where processes and mindfulness can be important, creating can be really important. Ke was a technophobe, but yet was quite interested in how the touch sensors worked. I showed her the BARE conductive wools scarf and she had many questions about it - saying how she had taken apart computer chips before & knew she thought mine were beautiful
Making the quilt
The quilt was made by many different people who used their own particular ways of working, but it was only when these separate pieces were joined together that it was able to start telling a story.
A: I like how we all used our own little bits of knowledge that we had and that we, the little bits of skills that we had and that we learnt and hten nobody did everything, but everyone did their own little part
[00:12:32.03]
[someone]: like you and your button!
S: yea, me and my button!
K: that's just a little stitch to put in
S: aye.
K: that's all it needs!
collaboration
Some people contributed very little to the quilt (You and your button) but they are still very much part of the project, part of the end result. Everyone who put a stitch in the quilt is a part of it and has made a meaningful contribution to it. ("that's all it needs")
link to findings: sitting together. "when you just need a wee squeak of women, and you can get so much done." + story about sharing, changing locations of work and
is you've learnt [00:05:20.04] how to do some English paper piecing, you've then did some applique, because you applied the hexagon onto your background square, and then you did a further form of applique using the embroidery thread and a piece of calico which we put on the back. then you've cut all the fabric away before it's all been joined up, so you've gone through lots of processes and learnt lots of skills, not necessarily realising that's what you're doing at hte time. but when I'm teaching people to sew, all I want is if one thing, and that is that you enjoy it, and if you enjoyed it, what you're doing, you're right, it's stectable, if you're not feeling a hundred percent, if you're poorly, down,
K: in the bath! hehe
K: it's a way of distracting yourself but you have to enjoy it, and you obviously have by producing such a lovely result.
skills
Ki's goals of teaching how to quilt were achieved - people enjoyed the process. and we were working on pieces at home... even in the bath.
the end result is equated to people's enjoyment of the process of making the quilt.



A.2 Some pages from an annotated transcript relating to the Red Umbrella Archive

These are only a selection of the pages to indicate the ways in which I coded some of my transcript data. In the first picture, I provide a key for the colours that I used and their corresponding codes.





pre-march
the march

J: I would say, so we first went into the side street next to Fenwick. This church here. Where we were supposed to meet Sarah and the people from Changing Lives, uhm. But Sarah was not there.

[laughs]

Which was then a little bit strange dynamic because having to explain who we are, and then only then seeing Luisa who is actually knowing us. Yea, it was a little bit confusing, because nobody knew where we were going to meet Sarah then and where we could put the stuff.

I think we were also a little bit overwhelmed by this environment of oh, we are in a real church and the church is really church-like. And I don't know, maybe it's also a little bit my, me growing up in a catholic country where you have so much respect for the church as a space as well. So I didn't really feel like 'oh, now we can just put our stuff wherever' and how should you behave in it. So I think I was a little insecure from the beginning. Uhm, but yea. So the three ladies that were there, kind of said: 'oh yea, come along, we are meeting everyone at Monument' so we came there. But it was still like, standing a little bit more aside

A: yea, I was quite surprised by the building of the church as well, because, uhm. I don't think I've ever been in a Methodist church before

J: me neither

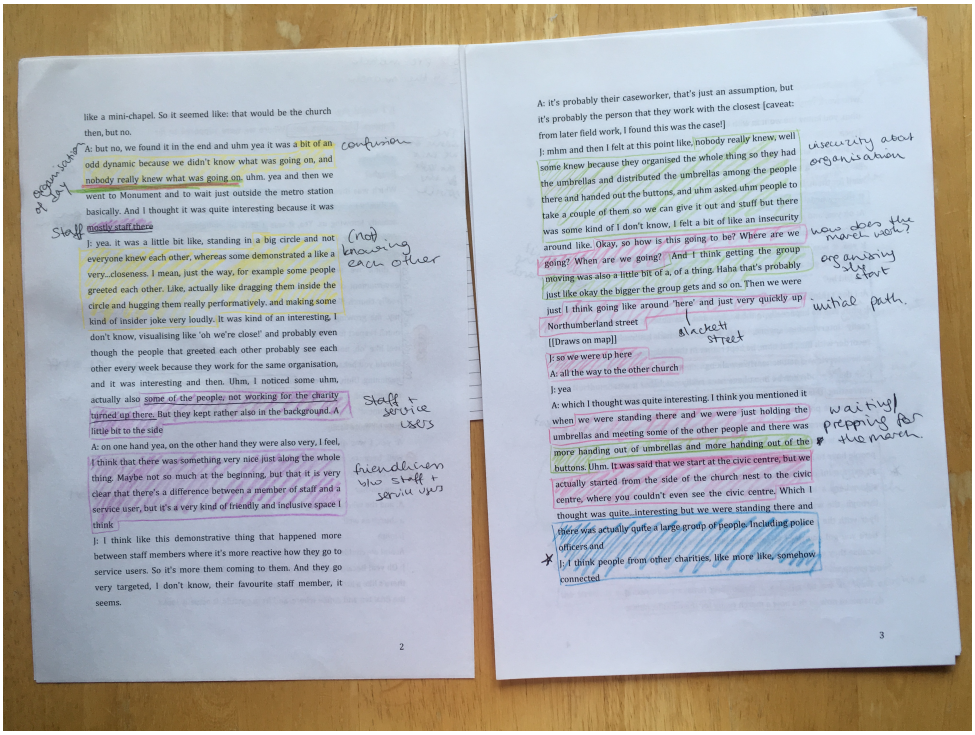
A: and the whole building was just so different to what I know as a church as well.

J: mhm

A: and we couldn't actually find the 'church bit' of the church.

J: Oh yea! Because when you come in, you see this cafe. and then there's like a little, like a mini chapel if you go further, where also the final tea and coffee where. and from outside, it actually looks

1



like a mini-chapel. So it seemed like: that would be the church then, but no.

A: but no, we found it in the end and uhm yea it was a bit of an odd dynamic because we didn't know what was going on, and nobody really knew what was going on. uhm. yea and then we went to Monument and to wait just outside the metro station basically. And I thought it was quite interesting because it was mostly staff there

J: yea. it was a little bit like, standing in a big circle and not everyone knew each other, whereas some demonstrated a like a very...closeness. I mean, just the way, for example some people greeted each other. Like, actually like dragging them inside the circle and hugging them really performatively. and making some kind of insider joke very loudly. It was kind of an interesting, I don't know, visualising like 'oh we're close!' and probably even though the people that greeted each other probably see each other every week because they work for the same organisation, and it was interesting and then. Uhm, I noticed some uhm, actually also some of the people, not working for the charity turned up there. But they kept rather also in the background. A little bit to the side

A: on one hand yea, on the other hand they were also very, I feel, I think that there was something very nice just along the whole thing. Maybe not so much at the beginning, but that it is very clear that there's a difference between a member of staff and a service user, but it's a very kind of friendly and inclusive space I think

J: I think like this demonstrative thing that happened more between staff members where it's more reactive how they go to service users. So it's more them coming to them. And they go very targeted, I don't know, their favourite staff member, it seems.

2

A: it's probably their caseworker, that's just an assumption, but it's probably the person that they work with the closest [caveat: from later field work, I found this was the case!]

J: mhm and then I felt at this point like, nobody really knew, well some knew because they organised the whole thing so they had the umbrellas and distributed the umbrellas among the people there and handed out the buttons, and uhm asked uhm people to take a couple of them so we can give it out and stuff but there was some kind of I don't know, I felt a bit of like an insecurity around like. Okay, so how is this going to be? Where are we going? When are we going? And I think getting the group moving was also a little bit of a, of a thing. Haha that's probably just like okay the bigger the group gets and so on. Then we were just I think going like around 'here' and just very quickly up Northumberland street

[[Draws on map]]

J: so we were up here

A: all the way to the other church

J: yea

A: which I thought was quite interesting. I think you mentioned it when we were standing there and we were just holding the umbrellas and meeting some of the other people and there was more handing out of umbrellas and more handing out of the buttons. Uhm. It was said that we start at the civic centre, but we actually started from the side of the church next to the civic centre, where you couldn't even see the civic centre. Which I thought was quite interesting but we were standing there and there was actually quite a large group of people, including police officers and

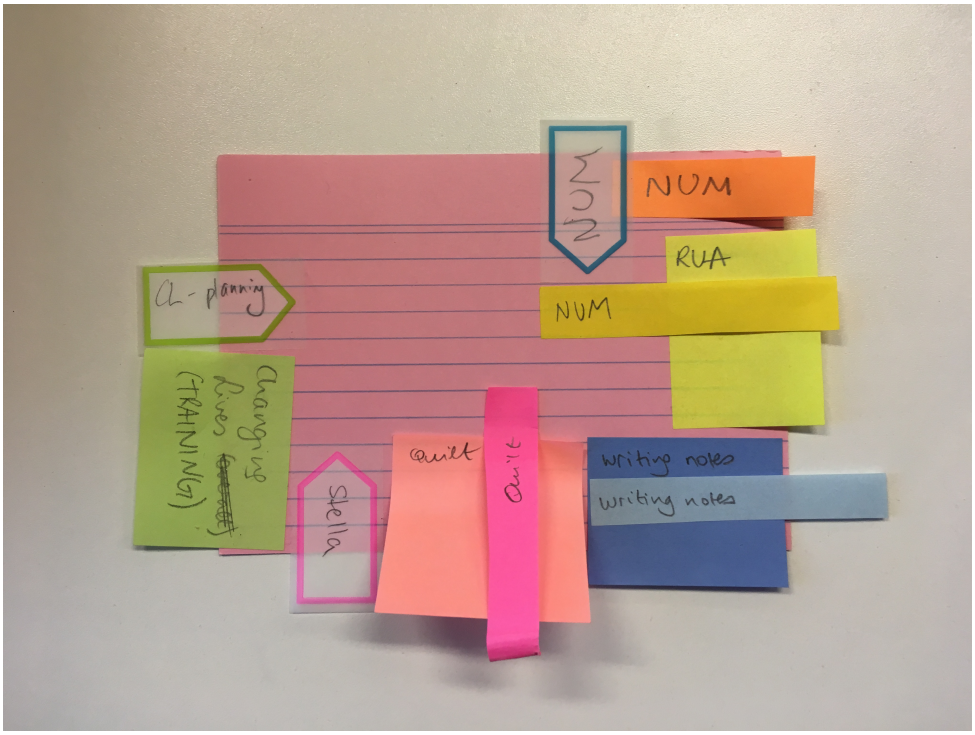
J: I think people from other charities, like more like, somehow connected

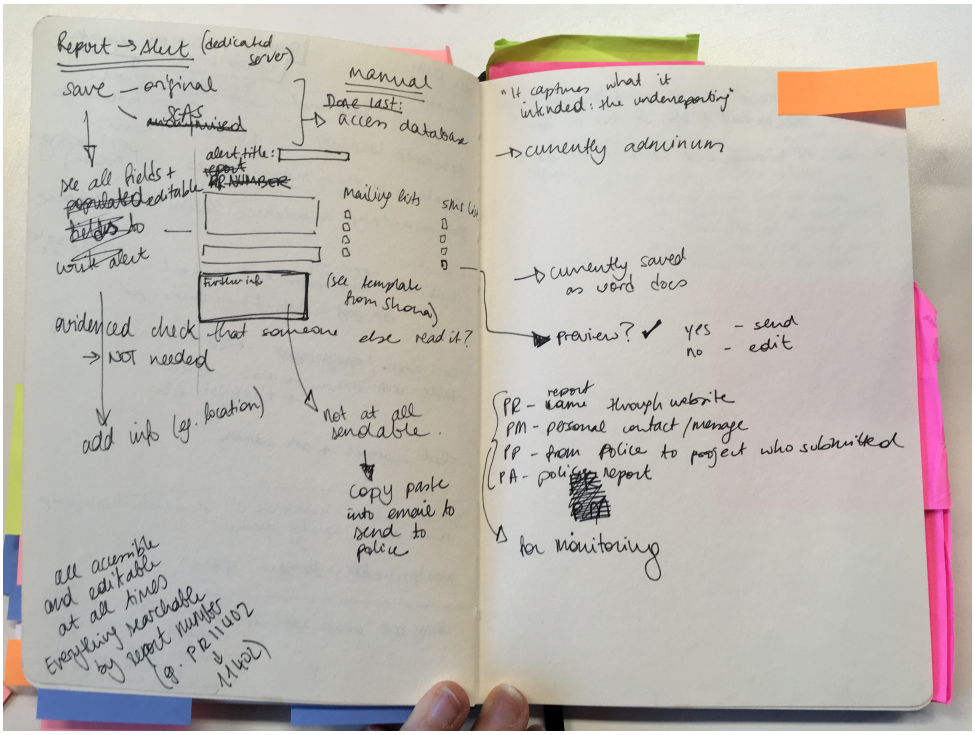
3

A.3 Some pages from my research notebooks

These are only a selection of photos from my research notes. In the first picture I show a collection of some of my notebooks. In the second I show the ways in which I labelled the different pages, and in the following photos show some examples of what some of these pages looked like.




NUM
NUM
RUA
NUM
CL - planning
changing lives (TRAINING)
Stella
Quilt
Quilt
Writing notes
Writing notes


Report → Alert (dedicated server)
save — original
manual
Done last:
access database
alert title:
Mailing lists
(see template from Shona)
evidenced check that someone else read it?
→ NOT needed
add info (eg. location)
Not at all sendable.
copy paste into emails to send to police
all accessible and editable at all times
Everything searchable by report number (eg. PR11402 & MO2)
"It captures what it intended: the underreporting"
→ currently admin nightmare
→ currently saved as word docs
preview? ✓ yes - send no - edit
PR - report name through website
PM - personal contact / message
PP - from police to project who submitted
PA - police report
for monitoring

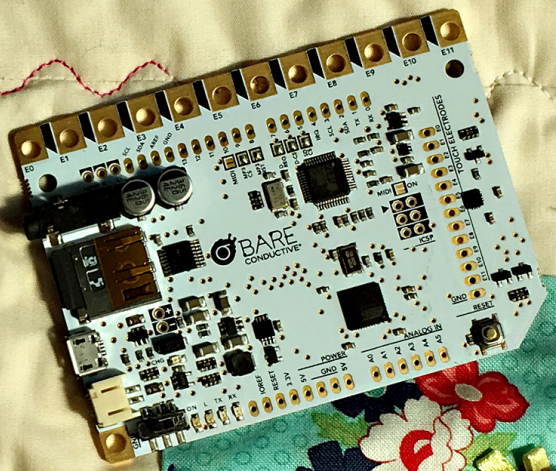
A.4 The Partnership Quilt Report

This report outlines elements of hte process and outcomes of The Partnership Quilt project. It was co-authored by myself, Janis Meissner (another PhD student at Open Lab), and Kirsty Donaldson (a member of GAP/MAP staff). The full report can be found on the pages that follow.

PARTNERSHIP QUILT

PROJECT REPORT

Angelika Strohmayer, Janis Meissner, Kirsty Donaldson



An interactive crafts project by

SIXPENNYMEMORIES

CHANGING LIVES

Open Lab at Newcastle University

For more information visit:
http://tinyurl.com/partnershipquilt



ABOUT THE PROJECT

The Partnership Quilt is a collaboration between Changing Lives, Six Penny Memories, and Open Lab at Newcastle University. It started out as an activity for clients of the Girls and Proud project in Changing Lives to do during the Northumberland drop-in sessions organised by Kirsty, but quickly turned into something bigger – clients began sewing at home, while waiting for appointments, or even in the bath! As Kim and Debbie from Six Penny Memories became involved in the project the individual pieces came together and were shaped into a well-balanced quilt. While this quilt by itself is something all those who put a stitch in it can be proud of, the addition of the secondary quilt is what makes this a truly special project. Angelika and Janis from Open Lab used do-it-yourself, flexible, and low-cost technologies to turn the soft and colourful quilt into a living archive of stories and experiences of Changing Lives service delivery in the North East of England. The addition of quilted capacitive touch sensors turns this traditional craft artefact into a contemporary piece of interactive art: by touching some of the rosettes on the quilt a voice is activated to tell a part of the story that lies in the folds and seams of the quilt.

The materials we used allow us not only to continue to share the story of the quilt, but they allow Changing Lives staff to curate the audio recordings and easily exchange the voices that are shared through the quilt. Like this, it can be used for exhibitions, staff training, or focused one-on-one reflection.

THANKS!

We would like to give special thanks to Ann who was the Changing Lives volunteer who started this project and everyone who has put a stitch into the quilt! We would also like to thank Vlieseline for exhibiting the quilt on their stall at the Festival of Quilts 2017.

Part of this project was funded through the EPSRC Centre for Doctoral Training in Digital Civics (EP/L016176/1)

We see the development, exhibition, and continued legacy of the quilt as a combination of service delivery and advocacy work. Initially it aimed to bring a new skill to Girls and Proud as well as Male Action Project (both projects within Changin Lives) clients and was also seen as a quiet activity to partake during drop-in sessions and in other situations. With the addition of DIY-electrodes that function as capacitive touch sensors, we turned the traditional quilt into a contemporary and interactive piece of art.

As such, the partnership quilt is a collaborative project that combines traditional craft techniques and do-it-yourself technologies to develop a living archive of stories and experiences related to Changing Lives. Researchers, professional quilters, charity staff, and charity service users came together to develop this participatory, collaborative, crafted living archive, and embedded it in local histories and contexts of craft, as well as service delivery of the charity, and interdisciplinary research at the nexus of Human-Computer Interaction, Social Sciences, and Community Informatics. Together, we augmented localised quilting techniques with flexible, low-cost, do-it-yourself technologies in the shape of FlexE-Touch capacitive touch sensors; by touching some of the rosettes on the quilt a voice is activated to tell a part of the story that lies in the folds and seams of the quilt.

Due to our close collaboration with Six Penny Memories, a duo of local professional quilters, authors, and TV-presenters and Changing Lives, the partnership quilt is contextualised in multiple practices. For example, we used quilting techniques that are based in local histories (Ferguson 2011). In the mining communities, which were at the heart of the North East of England's development in the 1930s, "quilting was seen as the respite from work with the warmth and companionship and the gleeful delights of conversations." (Freeman n.d.) Furthermore, the quilt is also contextualised in everyday service delivery of the charity: the project was started during one of the regular drop-in sessions, and grew from there as new collaborators brought in novel areas of expertise. On top of this, this project is contextualised in Angelika's interest in designing technologies with charities to further justice for sex workers and Janis' interest in using 'making' as a tool for empowerment with diverse groups.

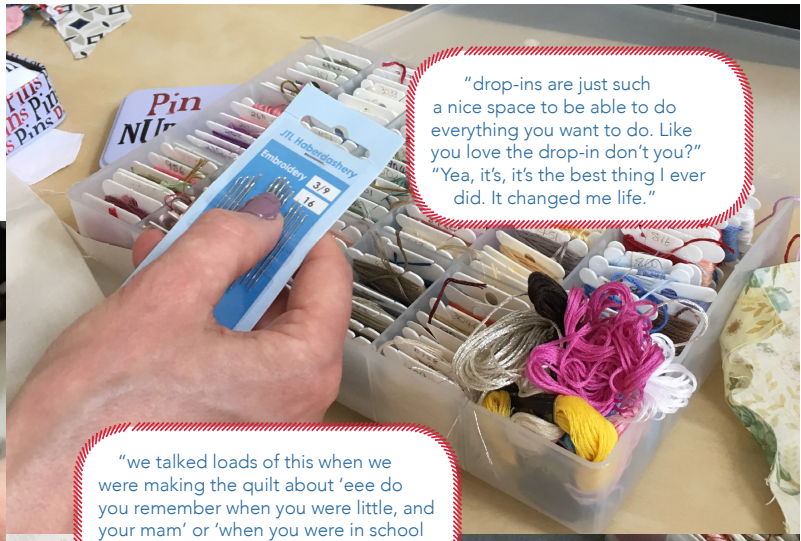
In this report we provide details of the process behind and outcomes of the project. The report also functions as a toolkit for others who wish to develop a similar tool. We start with some pictures and excerpts from a reflexive conversation we had about the quilt once it was almost finished. Following these quotes, we provide a more in-depth analysis of the conversation and the project as a whole. We do this by exploring the ways in which the partnership quilt is made up of various metaphorical and physical layers. This is then followed by instructions on how to create your own digitally enabled quilt. First, we show how to make a DIY electrode, and then explain how to use these to turn a traditional quilt into an interactive one; and how to make use of the BARE conductive touch board to create your own living archive. At the end of the report, we anonymously share the story of one of the quilters that worked on The Partnership Quilt: Linda's story.

QUILTER QUOTES

To start off this report, we want to share a few quotes from the women who made this all possible. These quotes come from a 30 minute collaborative reflection that was recorded on the 12th of July 2017. It took place at the end of the second 'Quilting Extravaganza' we organised, which were days where GAP/MAP staff, service users, the professional quilters from Six Penny Memories, and researchers from Open Lab came together to work on the quilt.



"You cannot think of anything else when you're doing it. You just concentrate on that and you don't realise how long you've been sitting there doing it; and then you've done like 5 [pieces]"

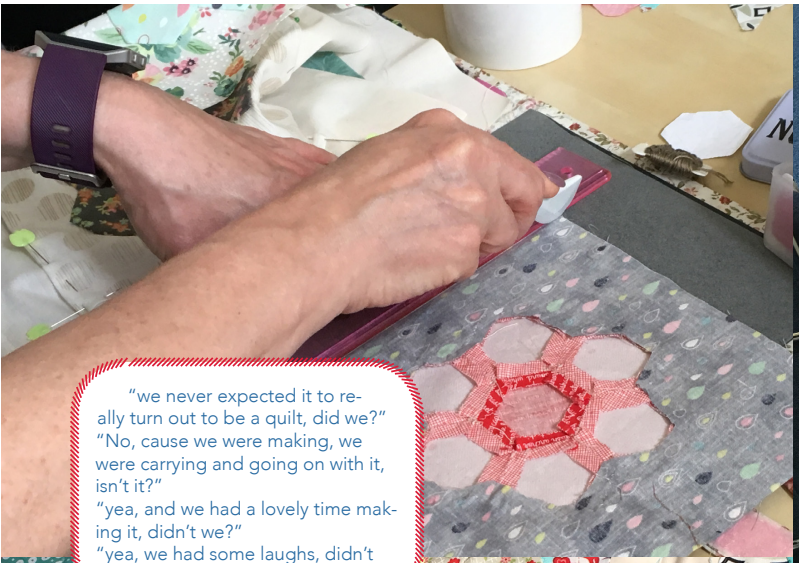


"drop-ins are just such a nice space to be able to do everything you want to do. Like you love the drop-in don't you?" "Yea, it's, it's the best thing I ever did. It changed me life."

"we talked loads of this when we were making the quilt about 'eee do you remember when you were little, and your mam' or 'when you were in school and they showed you how to sew' and the memories that you get"



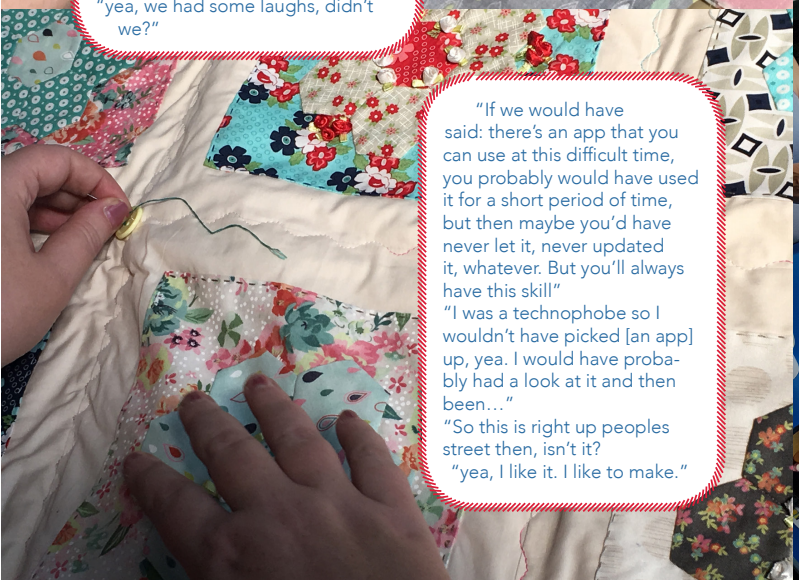
"there's something about a group of women getting together and getting a thing done! […] women are really good at that aren't they? Like, this is what we need to get done and everybody's done a little bit haven't they? And I think that's a beautiful thing!"



"we never expected it to really turn out to be a quilt, did we?"
"No, cause we were making, we were carrying and going on with it, isn't it?"
"yea, and we had a lovely time making it, didn't we?"
"yea, we had some laughs, didn't we?"



"eeeee there's a feminist undertone here somewhere!"



"If we would have said: there's an app that you can use at this difficult time, you probably would have used it for a short period of time, but then maybe you'd have never let it, never updated it, whatever. But you'll always have this skill"
"I was a technophobe so I wouldn't have picked [an app] up, yea. I would have probably had a look at it and then been…"
"So this is right up peoples street then, isn't it?
"yea, I like it. I like to make."



"I always…you know how far yous have come. Because I remember days when we'd been sewing the quilt and it's been tough. We had tough times, but we've sort of sewn our way through it. It's been…"
"We got through it though"
"ehem"
"there are so many layers of stories on it, which is nice as well. The layers of fabric, the layers of stories."


"I don't think the GAP and MAP projects ever come up with anything like this, like, creative, in such a long time! […] it's the first time the project's actually come out with a result like this."
"actually seeing it, I feel a bit like, wowed. Is that the word? […] Getting a group of lasses together"
"and get on with it, innit?! It's a job"
"just a job, keep werselves busy, we've kept ourselves out of trouble and I've got some lovely memories sitting with youse"
"The North East is absolutely steeped in history. We are very well known throughout the world for our quilting. Textiles. Particularly the quilting designs that's the hand quilts. So when you did this running stitch and it's gone through, and this stitch here that's gone through three layers […] When you put your buttons on, you're actually quilting […] So you've, you're carrying on a tradition that's particularly popular in this area."
"I am proud of it, don't get me wrong, I am proud of the quilt now it's finished, just when it wasn't finished"

LAYERS OF FABRIC, LAYERS OF STORIES

A quilt is made up of three layers: the quilt top, the wadding in the middle, and the backing fabric; and sometimes the quilt top is made up of multiple layers of fabric, applique, and sewing in and of itself. On top of these layers of the traditional quilt, The Partnership Quilt augments these traditional layers by fitting it with additional layers of quilted electronics, theoretical underpinning, learning, trust, and experiences. It is these additional layers that make the quilt meaningful beyond its immediate existence. The process of and work involved in the production of it in and of itself, as well as the collaboration that was born out of this project, and the living elements that are afforded through the augmentation of traditional crafts make the quilt an artefact to support Changing Lives service delivery and training beyond its production.

With this, we mean that because of the many different layers involved in the production and life-story of the quilt, the quilt becomes more than the artefact. By looking at the layers of history, work, learning, and experiences involved in its production, we explore the different kinds and types of impact the production, use, and exhibition of the quilt has already had and will have in the future.

Layers of History

The quilt is contextualized in local histories of craft and women's work. Quilting used to be something that was taught in schools in the North East of England, and many of those who put a stitch in the quilt had previously done this in their childhood, but this rarely happens anymore. Many different techniques were used such as English paper-piecing, applique, machine-quilting, and tie-quilting. Using these techniques, we are *"carrying on a tradition that's particularly popular in this area"* according to one of the professional quilters.

In the process of making the quilt, we learnt from one of the professional quilters that *"the North East is absolutely steeped in history. We are very well known throughout the world for our quilting, textiles"*, but this is rarely written down. There is little written history of the quilters in the North East of England, the quilters' attitudes towards their craft, and how it fitted in with the rest of their lives (Freeman n.d.). Freeman addresses this gap in written knowledge by writing down some of the oral history that had been collected about quilters in the North East of England between 1870 and 1930; advocating for the recognition of quilting, knitting, and cake icing that it deserves. They state that it has been argued that "people who possess a written history in our society are accorded a different level of respect from those who lack one" (Freeman n.d.), so with this report we hope to provide a written history of experiences and quilting of those who made The Partnership Quilt.

In the North East of England quilts have a unique history. While 'making a living' from quilting is something many aspired to do, it was the "very bread and butter" (Ferguson 2011) of many quilters in the North East of England in the depression years of the 1930s in the mining communities (Ferguson 2011). The quilts were made mostly in 'pit villages', or villages where mining was the primary source of work for its inhabitants, for the beds of the small terraced houses in which the quilters, their miner-husbands, and children lived. It was here that quilting was seen as a respite from work with the warmth of companionship and the gleeful delights of conversation" (Freeman n.d.).

Layers of Work

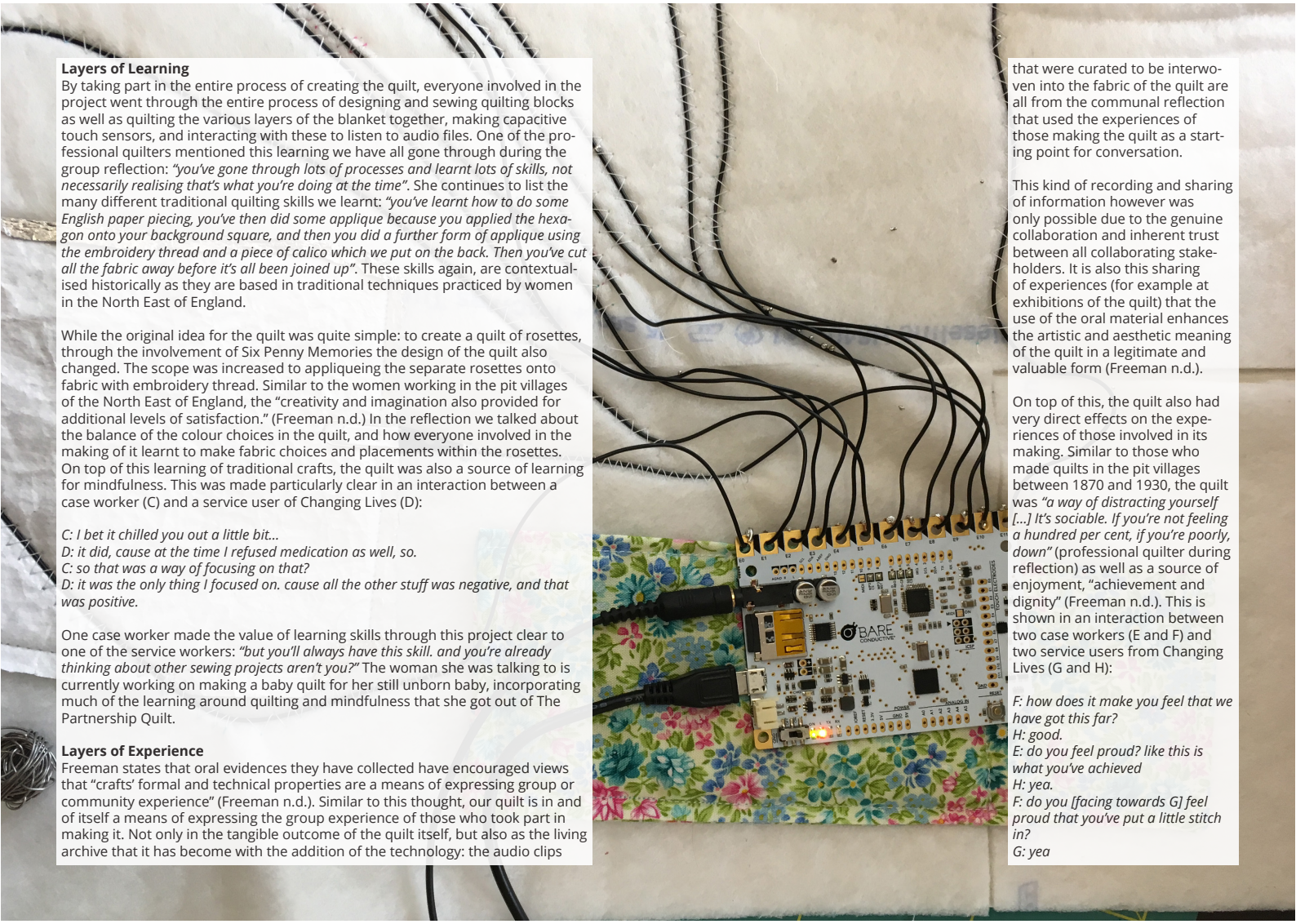
To be able to produce the quilt, multiple layers of work were involved. This includes the work involved in the quilting itself (including the production of each of the rosettes), but also the organisation that was necessary to be able to do this during the drop-in sessions (eg. organising the materials, the drop-in sessions, and coordinating this with other drop-in sessions). The quilt was started in a drop-in in Northumberland by a member of staff and volunteer from Changing Lives, but this quickly turned into a project that multiple case workers and service users worked on across multiple drop-ins organised by GAP and MAP. As one, case worker puts it: *"we just kind of cracked on with it and were just sewing. We never expected it to really turn out to be a quilt, did we?"*

When Changing Lives and Open Lab first came together, it was to discuss the development of an app for the charity to support their service delivery, but through the co-evolution of the project into The Partnership Quilt, we learnt that it was the process itself that was important. As we were sitting around the (almost) finished quilt, reflecting on the integration of the digital technology into the final interactive archive, one of the researchers reflected on the tangible interaction with the quilt: *"I mean, there's so much more, like, effort in it. manual effort. so like actually by touching the quilt, you have a far better connection to what has been done and it speaks more to the senses rather than, you know again, just looking through a screen."* It is the manual effort and labour that has gone into the quilt that makes it meaningful; and this should not be hidden by any digital technology. Instead, we see the technology as part of the experience involved in the interaction with the final product that is the quilt.

The work involved in the production of the quilt was also mentioned in a conversation between a service users (A) and member of staff (B) from changing lives:

A: and get on with it, innit?! It's a job.
B: just a job, keep werselves busy, we've kept ourselves out of trouble and I've got some lovely memories sitting with youse

While the work involved in the quilt was a substantial element of the project, in this extract from the group reflection we see that the creation of the quilt was more than the work involved in its production. It was a genuine collaboration between various groups that facilitated power-shifts in the expression of thought through making.



Layers of Learning
By taking part in the entire process of creating the quilt, everyone involved in the project went through the entire process of designing and sewing quilting blocks as well as quilting the various layers of the blanket together, making capacitive touch sensors, and interacting with these to listen to audio files. One of the professional quilters mentioned this learning we have all gone through during the group reflection: *"you've gone through lots of processes and learnt lots of skills, not necessarily realising that's what you're doing at the time"*. She continues to list the many different traditional quilting skills we learnt: *"you've learnt how to do some English paper piecing, you've then did some applique because you applied the hexagon onto your background square, and then you did a further form of applique using the embroidery thread and a piece of calico which we put on the back. Then you've cut all the fabric away before it's all been joined up"*. These skills again, are contextualised historically as they are based in traditional techniques practiced by women in the North East of England.

While the original idea for the quilt was quite simple: to create a quilt of rosettes, through the involvement of Six Penny Memories the design of the quilt also changed. The scope was increased to appliqueing the separate rosettes onto fabric with embroidery thread. Similar to the women working in the pit villages of the North East of England, the "creativity and imagination also provided for additional levels of satisfaction." (Freeman n.d.) In the reflection we talked about the balance of the colour choices in the quilt, and how everyone involved in the making of it learnt to make fabric choices and placements within the rosettes. On top of this learning of traditional crafts, the quilt was also a source of learning for mindfulness. This was made particularly clear in an interaction between a case worker (C) and a service user of Changing Lives (D):

C: I bet it chilled you out a little bit...
D: it did, cause at the time I refused medication as well, so.
C: so that was a way of focusing on that?
D: it was the only thing I focused on. cause all the other stuff was negative, and that was positive.

One case worker made the value of learning skills through this project clear to one of the service workers: *"but you'll always have this skill. and you're already thinking about other sewing projects aren't you?"* The woman she was talking to is currently working on making a baby quilt for her still unborn baby, incorporating much of the learning around quilting and mindfulness that she got out of The Partnership Quilt.

Layers of Experience
Freeman states that oral evidences they have collected have encouraged views that "crafts' formal and technical properties are a means of expressing group or community experience" (Freeman n.d.). Similar to this thought, our quilt is in and of itself a means of expressing the group experience of those who took part in making it. Not only in the tangible outcome of the quilt itself, but also as the living archive that it has become with the addition of the technology: the audio clips that were curated to be interwoven into the fabric of the quilt are all from the communal reflection that used the experiences of those making the quilt as a starting point for conversation.

This kind of recording and sharing of information however was only possible due to the genuine collaboration and inherent trust between all collaborating stakeholders. It is also this sharing of experiences (for example at exhibitions of the quilt) that the use of the oral material enhances the artistic and aesthetic meaning of the quilt in a legitimate and valuable form (Freeman n.d.).

On top of this, the quilt also had very direct effects on the experiences of those involved in its making. Similar to those who made quilts in the pit villages between 1870 and 1930, the quilt was *"a way of distracting yourself [...] It's sociable. If you're not feeling a hundred per cent, if you're poorly, down"* (professional quilter during reflection) as well as a source of enjoyment, "achievement and dignity" (Freeman n.d.). This is shown in an interaction between two case workers (E and F) and two service users from Changing Lives (G and H):

F: how does it make you feel that we have got this far?
H: good.
E: do you feel proud? like this is what you've achieved
H: yea.
F: do you [facing towards G] feel proud that you've put a little stitch in?
G: yea

THE FINAL QUILT



This is what the final quilt looked like. The fabrics were all donated to the project and are made up of free sample fabrics. The individual rosette fabrics were combined by the women who sewed them, while the 16 pieces were arranged by Six Penny Memories. 12 out of the 16 pieces are fitted with capacitive touch sensors (seen below) that play an audio clip when the rosettes are touched.

The first twelve audio clips that are embedded in the quilt were curated from the 30 minute reflection we recorded at the end of thelast quilting session.

We chose to embed 12 clips, since this is the number of pins the BARE Conductive Touch board has. Working with only one board allows us to exchange the audio files easily, making this quilt a living and constantly changing archive of voices of those working with Changing Lives in the North East of England

The audio clips are all between 30 seconds and 1 min 30 seconds long. Four of them contextualise the quilt in the history and process of its making; six of the audio clips address the making of the quilt; and two of the audio clips address current and potential outcomes of the project as a whole.



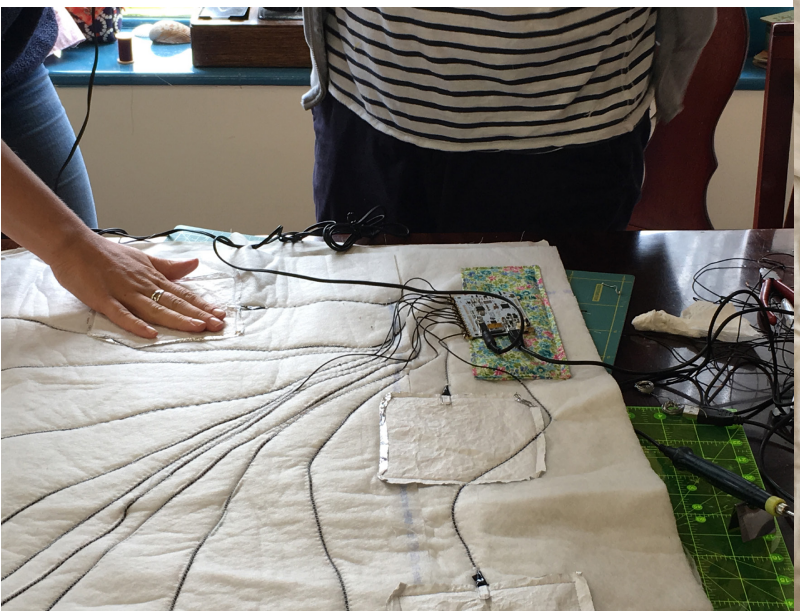


THE LIVING ARCHIVE

We see The Partnership Quilt as a living archive of stories, experiences, and voices associated with the service delivery and activities organised by Changing Lives in the region. When we had almost completed the quilt, we audio-recorded a conversation where many of those who put a stitch into the quilt discussed the stories and meanings behind the quilt. This conversation was then used to curate the first iteration of the archive: 12 short audio clips were curated and cut from the 30 min. recording, to be embedded in the quilt.

The materials we used allow us not only to continue to share the story of the quilt through exhibitions, but they allow Changing Lives staff to curate the audio recordings and easily exchange the voices that are shared through the quilt. The adaptability of the quilt allows for new curations by staff that can be used at exhibitions, but also in training with staff and volunteers, as well as one-on-one reflexive interactions with service users. Since it is a 'living' archive rather than one to which more content will be added to in the future, new content can only be embedded in the physical artefact if some of the current content is removed – if the stories evolve into completely new ones.





HOW TO MAKE AN ELECTRODE



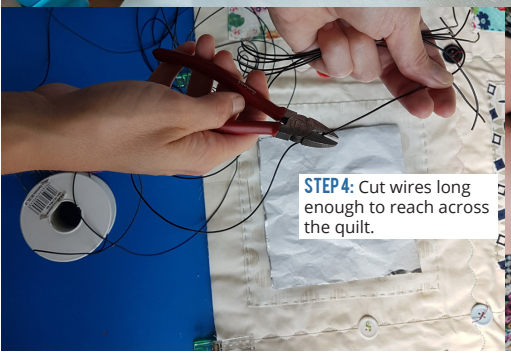
STEP 1: Cut out rectangles from one-sided fusible interlining. Iron these onto aluminium foil.



STEP 2: Cut aluminium foil to size as prepared.



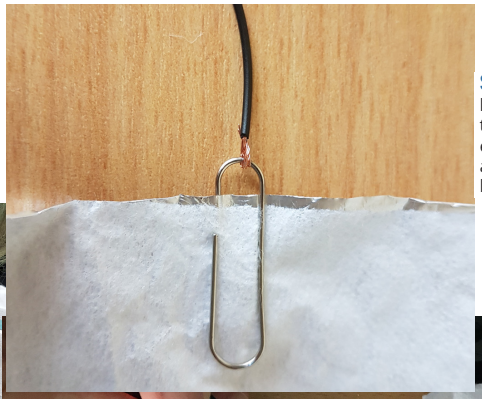
STEP 3: Carefully, slide on a paper clip. Leave some space at the top.



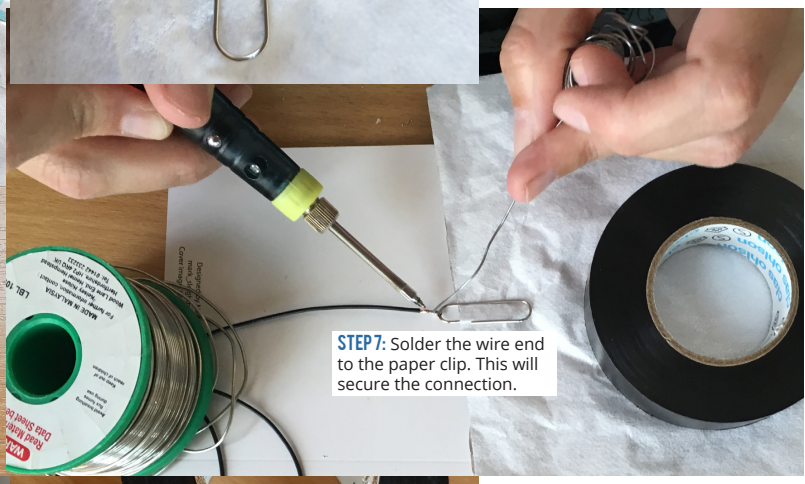
STEP 4: Cut wires long enough to reach across the quilt.



STEP 5: Uncoat the wires.



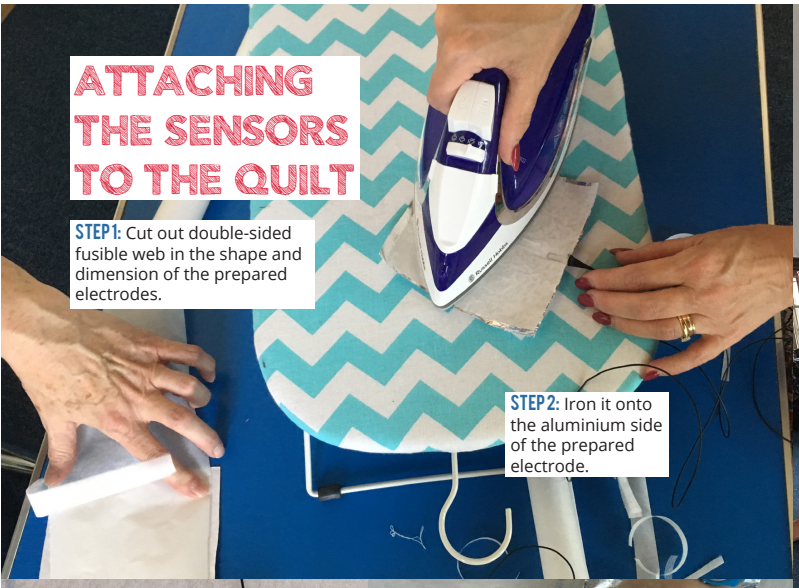
STEP 6: Twist the wire ends to keep the copper wire strands together. Then wrap the wire end around the paper clip top and twist again to secure the loop around the paper clip.



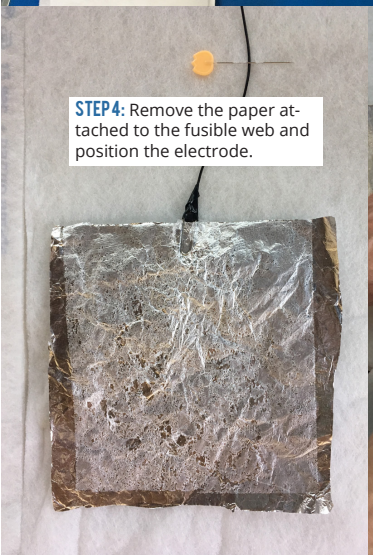
STEP 7: Solder the wire end to the paper clip. This will secure the connection.



STEP 8: Use a bit of insulating tape to protect the soldered connection from bending and breaking.


ATTACHING THE SENSORS TO THE QUILT
STEP 1: Cut out double-sided fusible web in the shape and dimension of the prepared electrodes.
STEP 2: Iron it onto the aluminium side of the prepared electrode.

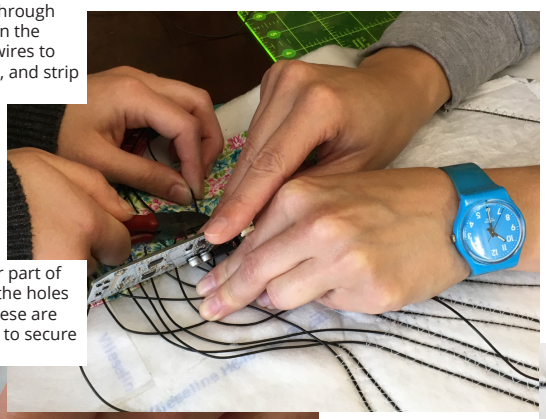

STEP 3:
Decide on which parts of the quilt should be made interactive.


STEP 4: Remove the paper attached to the fusible web and position the electrode.

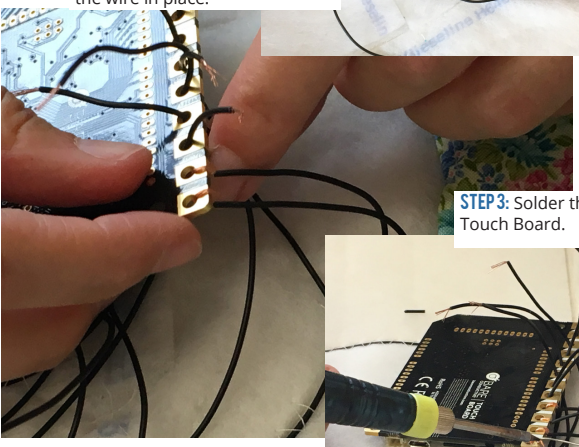

STEP 5: Turn around and iron onto backside layer.

ATTACHING THE SENSORS TO THE TOUCH BOARD

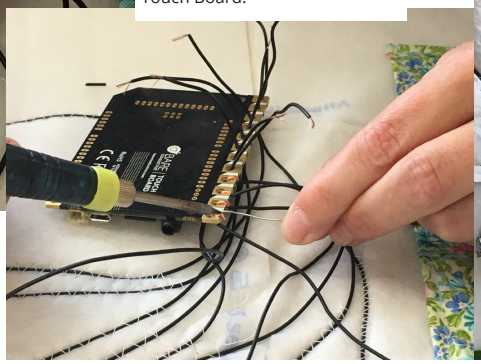
STEP 1: Feed the wires through the appropriate hole on the Touch board. Cut the wires to the appropriate length, and strip the plastic off the end.



STEP 2: Feed the copper part of the stripped wire into the holes on the touch board (these are the pins) and fold over to secure the wire in place.

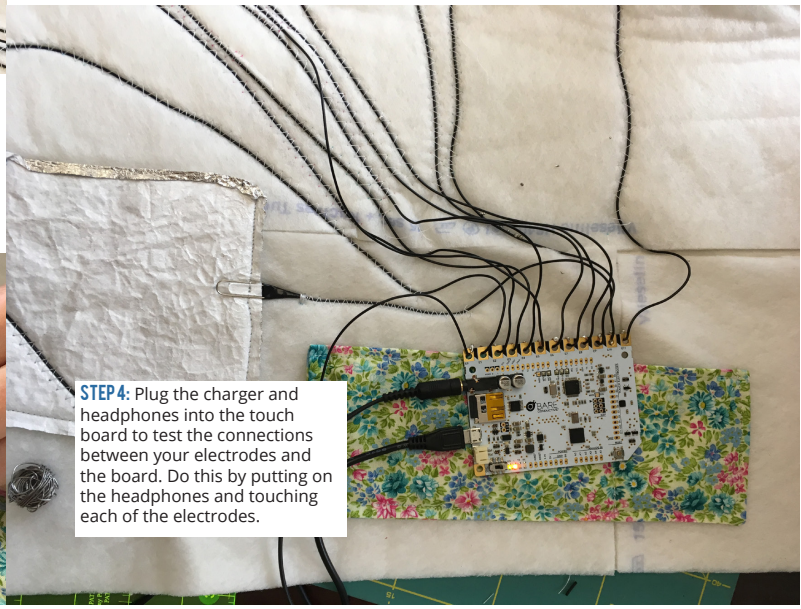


STEP 3: Solder the wire to the Touch Board.



CHANGING THE AUDIO CLIPS ON THE QUILT

STEP 1: Unplug your touch board and take out the SD card. Plug it into your laptop. You may need an adapter to do this.
STEP 2: Open the SD card on your laptop. You will see several files and folders on the SD card. These have instructions of use as well as all the code that makes the touch interaction work.
STEP 3: You will see some .mp3 fils that are titled 'TRACK000' and similar. These are the audio files that play when you touch the electrode attached to the pin on the touch board. Eg. pin 00 plays TRACK000
STEP 4: Rename the audio files you wish to play on the quilt to the same name as the .mp3 file on the BARE Conductive SD card (the 'TRACK000' files). They are case sensitive, so you must copy the name exactly.
STEP 5: Save the BARE Conductive test tracks on your laptop, then delete them from the SD card. Drag your renamed .mp3 files into the BARE Conductive folder.
STEP 6: Remove the SD card from your laptop and plug it into the touch board. Turn on the touch board and test your sensors again to make sure it all works.



STEP 4: Plug the charger and headphones into the touch board to test the connections between your electrodes and the board. Do this by putting on the headphones and touching each of the electrodes.

LINDA'S STORY



Linda first came to our attention when she was living in a B&B in North Tyneside where many vulnerable people end when they need emergency accommodation after becoming homeless. She was in a room near another client of ours who brought her to one of our weekly drop in sessions. Over a number of weeks as we got to know Linda we learned that she had a very complex and traumatic background of which Child and Adult sexual exploitation were a feature for her. We learned that she had recently lost residency of her two children following a decline in her mental health as a result of the trauma she had experienced and that following this she had ended up in a relationship with a male who had subjected her to domestic violence, from whom she was fleeing. We could also see that the B&B setting was very risky and that Linda would be at further risk of exploitation whilst there.

We began working with Linda both 1:1 and within the drop in sessions and she engaged well with this. We were able to find her some suitable housing and stabilise her financial situation giving her a platform to be able to address some of her trauma and really start working on her mental health as well as to reduce some of her vulnerabilities around harmful relationships. Around a year into us working with Linda, we set up a drop in session in Northumberland and Linda decided she would come and check it out. Within those sessions we had decided to try doing some sewing and with the help of a volunteer we learned some basic sewing techniques and decided to have a go at making a quilt. It very quickly became clear that needle-work was something that Linda has a talent for. We provided her with needles, thread and fabric to make use of at home and she came back each week to the drop in with the beautiful pieces she had sewn that week. She would say that she had sewn on the bus, in waiting rooms and even in the bath. She told us how calm and focussed she felt when she was sewing and how it allowed her a much-needed escape from traumatic memories and episodes of anxiety. Over the many months that we spent in the drop in sewing together we explored issues that had arisen that week, discussed memories good and bad from her past and ways of understanding these and we listened to audiobooks about mindfulness and sometimes music as Linda loves music!

As the project grew and developed from a drop in activity to the partnership quilt that it is today, so did Linda grow and develop. We could see each week that her stability and her self-esteem was increasing the more she made the time for herself to sew. She even made things for her sons, which they loved!

Around the same time, Linda began a relationship with an old friend, which quickly became serious despite her worries about allowing another man into her life. Within our weekly sewing sessions we did a lot of work around healthy relationships and strategies for setting boundaries and it was lovely to see her putting these into practice. The couple were however very surprised to learn that Linda had fallen pregnant within a year of getting together. Linda was fearful that her baby would be removed from her care, as her two children had been previously, however she and her partner made the decision to continue with the pregnancy.

Linda has faced this head on and contacted social services to inform them of the pregnancy – she has worked incredibly hard to demonstrate that she has made enormous changes in her life. As a service we have supported and encouraged her with this throughout. When we were asked to report on Linda's progress, we were able to talk about the personal journey she has been on in the time we have known her for. How lovely to be able to say that since those early chaotic days when we first met her till now, that she has worked so hard to change her life and that the partnership quilt is the tangible evidence of the weeks of engagement and hard work on her part in doing so. Linda is now at home with her partner and new baby and all are happy and thriving. I hope that Linda is as proud of herself as we are of her.



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An interactive crafts project by

SIXPENNYMEMORIES

CHANGING LIVES

Open Lab at Newcastle University

For more information visit:
http://tinyurl.com/partnershipquilt

A.5 The Red Umbrella March Report

This report outlines elements of the process and outcomes of The Red Umbrella Archive project as well as the march I took part in. It was co-authored by myself, Janis Meissner (another PhD student at Open Lab), and Sarah Charlton (a member of staff for GAP/MAP). The full report can be found on the pages that follow.



THE RED UMBRELLA MARCH: CRAFTING A LIVING ACTIVIST ARCHIVE

A Project Report by:
Angelika Strohmayer, Janis Meissner, Sarah Charlton

A collaborative project by
CHANGING LIVES Open Lab at Newcastle University

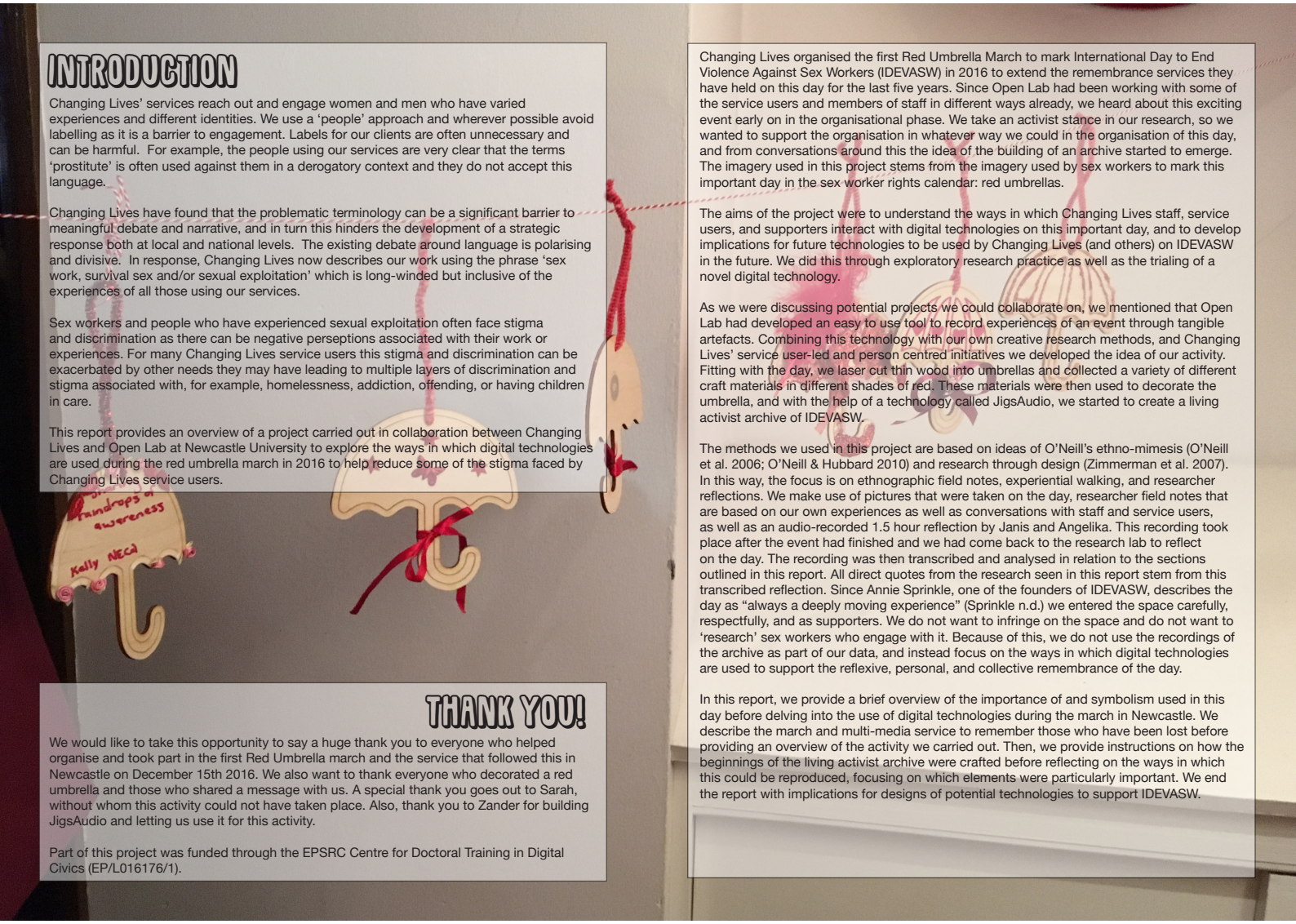
INTRODUCTION

Changing Lives' services reach out and engage women and men who have varied experiences and different identities. We use a 'people' approach and wherever possible avoid labelling as it is a barrier to engagement. Labels for our clients are often unnecessary and can be harmful. For example, the people using our services are very clear that the terms 'prostitute' is often used against them in a derogatory context and they do not accept this language.

Changing Lives have found that the problematic terminology can be a significant barrier to meaningful debate and narrative, and in turn this hinders the development of a strategic response both at local and national levels. The existing debate around language is polarising and divisive. In response, Changing Lives now describes our work using the phrase 'sex work, survival sex and/or sexual exploitation' which is long-winded but inclusive of the experiences of all those using our services.

Sex workers and people who have experienced sexual exploitation often face stigma and discrimination as there can be negative perseptions associated with their work or experiences. For many Changing Lives service users this stigma and discrimination can be exacerbated by other needs they may have leading to multiple layers of discrimination and stigma associated with, for example, homelessness, addiction, offending, or having children in care.

This report provides an overview of a project carried out in collaboration between Changing Lives and Open Lab at Newcastle University to explore the ways in which digital technologies are used during the red umbrella march in 2016 to help reduce some of the stigma faced by Changing Lives service users.



THANK YOU!

We would like to take this opportunity to say a huge thank you to everyone who helped organise and took part in the first Red Umbrella march and the service that followed this in Newcastle on December 15th 2016. We also want to thank everyone who decorated a red umbrella and those who shared a message with us. A special thank you goes out to Sarah, without whom this activity could not have taken place. Also, thank you to Zander for building JigsAudio and letting us use it for this activity.

Part of this project was funded through the EPSRC Centre for Doctoral Training in Digital Civics (EP/L016176/1).

Changing Lives organised the first Red Umbrella March to mark International Day to End Violence Against Sex Workers (IDEVASW) in 2016 to extend the remembrance services they have held on this day for the last five years. Since Open Lab had been working with some of the service users and members of staff in different ways already, we heard about this exciting event early on in the organisational phase. We take an activist stance in our research, so we wanted to support the organisation in whatever way we could in the organisation of this day, and from conversations around this the idea of the building of an archive started to emerge. The imagery used in this project stems from the imagery used by sex workers to mark this important day in the sex worker rights calendar: red umbrellas.

The aims of the project were to understand the ways in which Changing Lives staff, service users, and supporters interact with digital technologies on this important day, and to develop implications for future technologies to be used by Changing Lives (and others) on IDEVASW in the future. We did this through exploratory research practice as well as the trialing of a novel digital technology.

As we were discussing potential projects we could collaborate on, we mentioned that Open Lab had developed an easy to use tool to record experiences of an event through tangible artefacts. Combining this technology with our own creative research methods, and Changing Lives' service user-led and person centred initiatives we developed the idea of our activity. Fitting with the day, we laser cut thin wood into umbrellas and collected a variety of different craft materials in different shades of red. These materials were then used to decorate the umbrella, and with the help of a technology called JigsAudio, we started to create a living activist archive of IDEVASW.

The methods we used in this project are based on ideas of O'Neill's ethno-mimesis (O'Neill et al. 2006; O'Neill & Hubbard 2010) and research through design (Zimmerman et al. 2007). In this way, the focus is on ethnographic field notes, experiential walking, and researcher reflections. We make use of pictures that were taken on the day, researcher field notes that are based on our own experiences as well as conversations with staff and service users, as well as an audio-recorded 1.5 hour reflection by Janis and Angelika. This recording took place after the event had finished and we had come back to the research lab to reflect on the day. The recording was then transcribed and analysed in relation to the sections outlined in this report. All direct quotes from the research seen in this report stem from this transcribed reflection. Since Annie Sprinkle, one of the founders of IDEVASW, describes the day as "always a deeply moving experience" (Sprinkle n.d.) we entered the space carefully, respectfully, and as supporters. We do not want to infringe on the space and do not want to 'research' sex workers who engage with it. Because of this, we do not use the recordings of the archive as part of our data, and instead focus on the ways in which digital technologies are used to support the reflexive, personal, and collective remembrance of the day.

In this report, we provide a brief overview of the importance of and symbolism used in this day before delving into the use of digital technologies during the march in Newcastle. We describe the march and multi-media service to remember those who have been lost before providing an overview of the activity we carried out. Then, we provide instructions on how the beginnings of the living activist archive were crafted before reflecting on the ways in which this could be reproduced, focusing on which elements were particularly important. We end the report with implications for designs of potential technologies to support IDEVASW.

THE RED UMBRELLA

December 17th marks International Day to End Violence Against Sex Workers. The day was initiated by Annie Sprinkle and her colleagues at the Sex Workers Outreach Project USA (SWOP-USA), an American sex worker rights organisation, in 2003 as a response to the Green River Killer. Gary Ridgeway confessed to having murdered 90 women in the Seattle, US area over 27 years. In a public letter, Annie Sprinkle writes: "When Ridgeway was finally caught, I felt a need to memorialize my whore sisters that had died so horribly and needlessly. I cared, and I knew other people cared too. So I got together with Robyn Few, Founder of the Sex Worker Outreach Project, and SWOP members Stacey Swimme and Michael Fowley, and we claimed Dec. 17th as the International Day to End violence Against Sex Workers." (Sprinkle n.d.).

Sex workers, allies, charities, and others have worked across the globe to organise events on IDEVASW for the last 13 years. And in 2016, Newcastle joined the growing number of cities and towns that carry out public events. Changing Lives organised a public red umbrella march and continued their 5-year-old tradition of hosting a semi-public vigil to remember those who have been lost in the last year.

The Red Umbrella is a symbol of resistance to discrimination for sex workers. It was recogenised as such by the International Committee on the Rights of Sex Workers in Europe (ICRSE) in 2005, but was allegedly first introduced in Venice, Italy in 2001. It was used by Tadej Pogacar, a Slovenian artist who collaborated with sex workers, to create the "Prostitute Pavillion" and CODE: RED art installation at the 49th Venice Biennale of Art. As part of this installation, sex workers marched along the geography of the social history of sex workers, using red umbrellas and megaphones to draw attention to the bad working conditions and human rights abuses they face (International Committee on the Rights of Sex Workers in Europe (ICRSE) 2015).

The ICRSE explains the choice of symbolism in a blog post on their website: "Red is a color of beauty and an umbrella is the resistance to sky's and humans' attacks. It symbolizes protection from the abuse and discrimination faced by sex workers everywhere but it is also a symbol of our strength. Continuing this tradition and in honour of all sex workers who dare to resist oppression everywhere, the ICRSE adopts the red umbrella as a symbol of sex worker rights." (International Committee on the Rights of Sex Workers in Europe (ICRSE) 2015)

At the end of this same blog post, the ICRSE asks us to share the imagery of the red umbrella publically, and in her public letter, Sprinkle calls on us all to "Start organizing now!" (Sprinkle n.d.) because we will be glad if we do, signing off "In whore pride solidarity" (ibid.).

TEN WAYS TO PARTICIPATE IN IDTEVASW BY ANNIE SPRINKLE

1. Organize a vigil/memorial/gathering in your town. Simply choose a place and time. Invite people to bring their stories, writings, thoughts, related news items, poems, lists of victims, performances, and memories. Take turns sharing.
2. Organize or attend a candlelight vigil in a public place.
3. Do something at home alone which has personal meaning, such as a memorial bath, or light a candle.
4. Call a friend and discuss the topic.
5. Send a donation to a group that helps sex workers stay safer. Some teach self-defense or host web sites that caution workers about bad Johns. Donate to Sex Worker Outreach Project.
6. Read the Sex Workers Outreach Project www.swopusa.org, Do let others know about any planned Dec. 17 events by listing them on the site
7. Spread the word about the Day to End Violence Against Sex Workers and the issues it raises; blog, email, send a press release, forward this text to others.
8. Attend a Dec. 17th Day to End Violence event/action/memorial. Everyone is welcome.
9. Organize a panel discussion about violence towards sex workers. Procure a community space and invite speakers like sex workers, police, and families of victims.
10. Create your own way to participate. People have done celebrations, Xmas caroling, protests at jails, lobbying at City Halls, naked women reading whore writings, performance art, visual art projects, and other creative, fun and moving things.

The rest of her public letter can be found here: http://www.december17.org/about/from-annie-sprinkle/

DESCRIBING THE MARCH

Changing Lives service users, staff, and volunteers, as well as Northumbria Police worked together to organise Newcastle's first Red Umbrella March in December 2016. This was a client led initiative to show pride in doing sex work, but also to remember those who have been lost throughout the years due to different forms of violence. Here, we describe the day, focusing on the use of digital technologies throughout the build-up to, and the march itself.

As part of our reflection, we drew the path that was taken on the map to the right. The two different colours represent different stages of the march: the pink represents the path taken before the march itself started, and the purple line represents the path taken on the march itself. The circle with the cross in it represents the church in which we met before the march, but it is also the place where the service after the march took place. The triangle that is outlined in purple and coloured in with pink is the location where we congregated before the march and waited for others to join us before it started. It was here that police officers joined the march and that a journalist from a local radio station interviewed some of the marchers.

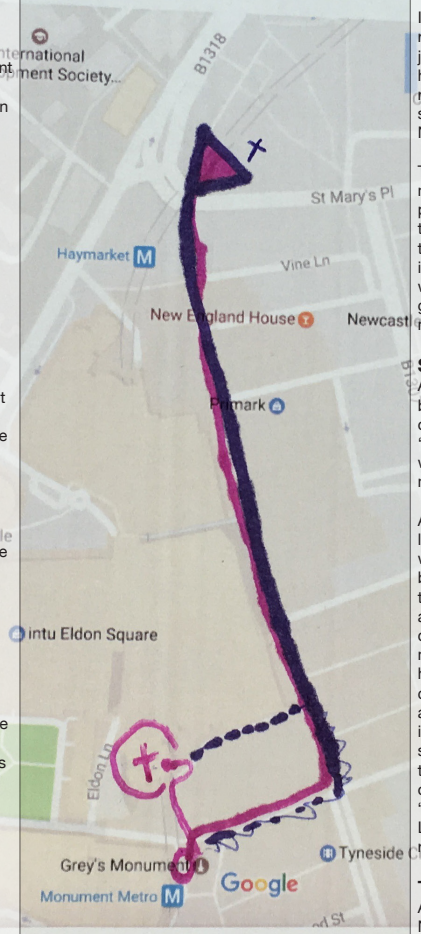
Meeting Up Before The March

The initial meeting point we had decided on was Brunswick Church. There we met some members of staff from Changing Lives, but nobody we knew yet. We were able to leave the wooden umbrellas and red materials for our activity here before heading to Monument to meet the rest of the team from Changing Lives who will be marching. It was here that we waited for Sarah, the member of staff from Changing Lives we knew best at this time. While there, mobile phones were used both by staff and service users to communicate with others either through phone calls or sms. Questions like 'when is x going to arrive?' and 'is y going to join us too?' were common, and were often answered after a look at a phone screen. We also saw that members of staff and service users were standing together, but slightly apart, hugging each other upon arrival, making it clear that the relationships that are built through service delivery are more than traditional case work; that they are relationships between people, bringing to life the people-centred approach that Changing Lives promotes through their website.

Based on our reflection, we were all "standing in a big circle and not everyone knew each other, [but] some demonstrated a, like, a very closeness. I mean, just the way, for example some people greeted each other […it was…] visualising like 'oh we're close!'". Researcher 1 added to this: "it's a very kind of friendly and inclusive space, I think!"

After a small group had collected next to the Metro station at Monument, umbrellas and pins were handed out for people to hold onto until the march itself started. "We were standing there and we were just holding the umbrellas and meeting some of the other people and there was more handing out of umbrellas and more handing out of the buttons." Once everyone that was expected had arrived we started to walk towards Northumberland street, very quickly walking up towards the civic centre. We stopped walking again at the top of Northumberland street where St Mary's Place and the Great North Road meet.

"This whole gathering in front of the statue and how people were positioning themselves. In some ways it was almost like a little mini-protest in itself through togetherness. Everyone is assembled in this kind of mini-square where a lot of people have to go through. And I think it actually got a little bit of an extra mini-protest for some individuals being rather on the side where a lot of people have to squeeze themselves through. They way how they were handing out the information flyer with the pins was almost like a little bit provocative. Like: 'Here you go! You need to take this!' but it was only happening because they were there in their small group surrounded by the big group."



It was also at this point that a journalist from a local radio station as well as police officers met us. The journalist "kept really in the background […] he had his audio recorder with him, but uhm, he kept rather in the background." But we saw him interview some of the people marching while walking down Northumberland street.

The police officers were more integrated into the march: "I liked how the police was even putting on the pins and also taking some pins to hand out and really take part of it. Okay, they were standing a little bit on the side, but they were definitely a supportive part of it." The march itself was led by a police woman. They were also the only ones* who's faces were seen on the group picture that was taken at the beginning of the march.

Starting The March

After we had gathered, pins and umbrellas had been handed out, and everyone had said hello to one another we needed "a little bit of this kind of 'officialness' in some way" to say that the march would start. This was done through the use of a mundane technology: photography.

At a certain point, the following occurred: "there was like 'okay, now we are going to take this group photo with the umbrellas covering our faces so nobody can be recognised.' And taking this group photo before the march starts but at the same time, this served also as an official starting point. So that was actually quite a smart way of actually getting the group really moving." Taking this kind of picture, one of people holding red umbrellas in front of their faces, is a common occurrence at other red umbrella marches across the globe. In this particular case however, it also functioned as a catalyst for the march that simultaneously created an air of oficiality for those taking part. While there was only a minimal use of digital technologies during the march itself, the "trigger for 'okay, now we're all together, let's start. Let's get going' that that was triggered by a camera; a really mundane technology."

The March Itself

After the picture was taken, we began walking down Northumberland street, raising the red umbrellas high as we walked. The path of the march took us down Northumberland Street, and then down a side street towards the church we initially met Changing

Lives staff. It was during this march, that it became clear that this march was something that the service users had helped organise: “on the march it ended up actually being very client lead, which I thought was really nice and it was a nice combination of everything.” The march was attended by service users, staff, and volunteers from Changing Lives, as well as staff from other connected organisations, police officers, and ourselves as advocates for sex worker rights as well as research collaborators of Changing Lives.

As we were walking, different people were walking at different speeds. At this particular march however, the different speeds were very apparent: “the front was walking quite quickly, and then there were some people in the middle and I think where we were [in the middle but towards the back] it was like: ‘Oh they’re going really quick, we should slow it down’ and then in the back they were walking really slowly.” It affected the ways in which the marchers interacted with the surroundings, and the ways in which others walking up and down Northumberland Street interacted with those on the march: “I think those in the back were also doing a little bit more of the information work, because people see them in the front, and then we come slower so we seem to be more approachable in the back.”

Technologies On The March

While it seemed like the only use of digital technology was everyday and private use of mobile phones and smartphones, two other technologies were particularly important during the march: (1) the red umbrellas; and (2) the pins that were attached to a piece of card with information about sex work and the 17th of December.

The red umbrellas were used for the same reason as during the ‘Prostitutes Pavillion’ (International Committee on the Rights of Sex Workers in Europe (ICRSE) 2015) in Venice in 2001: to bring attention to the march. Since the march took place on a busy December Friday, the umbrellas brought about much attention in the shape of looks as well as questions and started conversations from passers-by: “People were handing out the pins and explaining and there were people who came up and asked.” To further stimulate conversations, many of us on the march carried pins (mostly people who were not holding umbrellas, but some people held umbrellas and had pins) that were handed out in a similar manner as flyers would be handed out at other activist marches. Based on our own experience: “the awareness raising actually worked quite well. Some [passers-by] were really eager to find out.”

While the umbrellas were a useful tool for getting attention, it is unclear whether passers-by understood what they were about. While it is a very well known international symbol for sex worker rights in communities associated with sex work, those who do not know much about the fight for sex worker rights are not always aware of this symbolism. This was made clear through some of the interactions we had with passers-by on the march: “there were also a couple of people that you, like, many just realised when they got the flyer and then read the capitalised ‘Sex Work and Sexual Exploitation’ where they were like ‘Oh, Okay! But it’s a pin, so that’s nice’.” It was also through the interaction that it became clear that having not only the flyer but also the pin attached to it was very important: “I think it was quite good that they had the pin on it as well as a little gimmick, because that probably makes a couple of people that would shy away otherwise, you know still keep the set of the pin and the paper.”

The march ended as we walked down the side alley towards the church at which the service was held. Due to the many different speeds and the spread out nature of the march, everyone walked down the side street at different times, many starting to close and pack away the umbrellas as they did so. It was here that “one of the staff members said actually: ‘oh it would be nice to have a group photo again in front of the church’ but then half of them were already in” the church.



CRAFTING A LIVING ACTIVIST ARCHIVE FOR IDEVASW

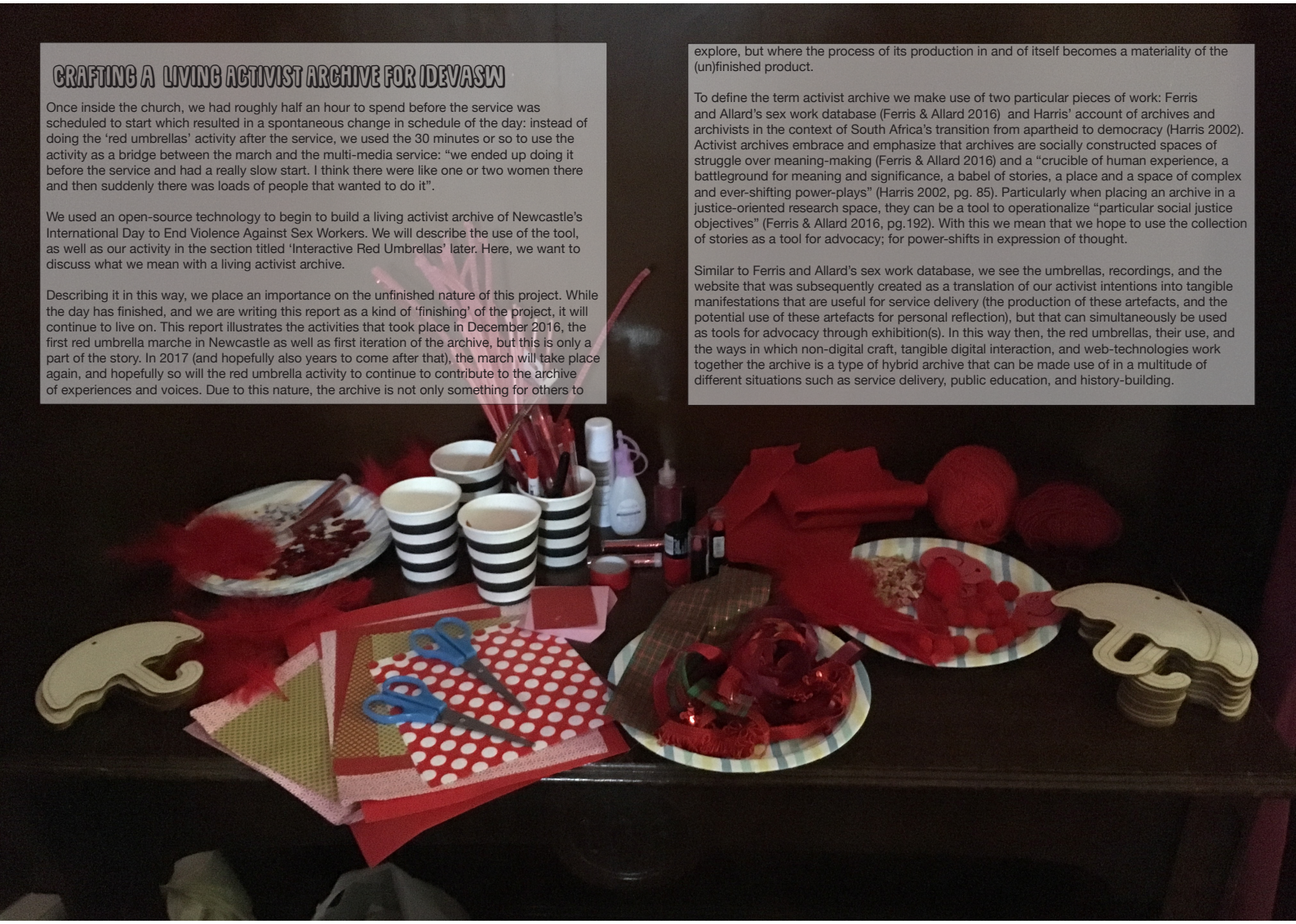
Once inside the church, we had roughly half an hour to spend before the service was scheduled to start which resulted in a spontaneous change in schedule of the day: instead of doing the 'red umbrellas' activity after the service, we used the 30 minutes or so to use the activity as a bridge between the march and the multi-media service: "we ended up doing it before the service and had a really slow start. I think there were like one or two women there and then suddenly there was loads of people that wanted to do it".

We used an open-source technology to begin to build a living activist archive of Newcastle's International Day to End Violence Against Sex Workers. We will describe the use of the tool, as well as our activity in the section titled 'Interactive Red Umbrellas' later. Here, we want to discuss what we mean with a living activist archive.

Describing it in this way, we place an importance on the unfinished nature of this project. While the day has finished, and we are writing this report as a kind of 'finishing' of the project, it will continue to live on. This report illustrates the activities that took place in December 2016, the first red umbrella marche in Newcastle as well as first iteration of the archive, but this is only a part of the story. In 2017 (and hopefully also years to come after that), the march will take place again, and hopefully so will the red umbrella activity to continue to contribute to the archive of experiences and voices. Due to this nature, the archive is not only something for others to explore, but where the process of its production in and of itself becomes a materiality of the (un)finished product.

To define the term activist archive we make use of two particular pieces of work: Ferris and Allard's sex work database (Ferris & Allard 2016) and Harris' account of archives and archivists in the context of South Africa's transition from apartheid to democracy (Harris 2002). Activist archives embrace and emphasize that archives are socially constructed spaces of struggle over meaning-making (Ferris & Allard 2016) and a "crucible of human experience, a battleground for meaning and significance, a babel of stories, a place and a space of complex and ever-shifting power-plays" (Harris 2002, pg. 85). Particularly when placing an archive in a justice-oriented research space, they can be a tool to operationalize "particular social justice objectives" (Ferris & Allard 2016, pg.192). With this we mean that we hope to use the collection of stories as a tool for advocacy; for power-shifts in expression of thought.

Similar to Ferris and Allard's sex work database, we see the umbrellas, recordings, and the website that was subsequently created as a translation of our activist intentions into tangible manifestations that are useful for service delivery (the production of these artefacts, and the potential use of these artefacts for personal reflection), but that can simultaneously be used as tools for advocacy through exhibition(s). In this way then, the red umbrellas, their use, and the ways in which non-digital craft, tangible digital interaction, and web-technologies work together the archive is a type of hybrid archive that can be made use of in a multitude of different situations such as service delivery, public education, and history-building.



CRAFTING OUR LIVING ACTIVIST ARCHIVE

The Red Umbrellas activity was developed in collaboration between Changing Lives staff and us as researchers. It incorporated elements of digital technologies as well as crafting. We had been working alongside some of the Changing Lives staff for roughly half a year before this day to get an understanding of the ways in which the organisation functions, what kinds of activities they incorporate in their service delivery, and to get to know some of the service users prior to this day. Based on this exploratory work, we designed a creative activity that would allow for individual introspection, while also providing a space for exchange and support among those working on the activity at the same time: "it was still quite a low barrier to get engaged for people who were doing it. […] they found it kind of natural to do [the activity] and I think that's also really because of the [existing service delivery]. They could really relate to it, and I think they had a very positive impression of it". Carrying on from this reflection, we also compared this activity to some of the activities we had heard about or witnessed ourselves from previous Changing Lives service delivery: "If you look at the photos from the workshops [organised by Changing Lives] as well, a lot of them are about card making, crafting, or something like that. And I think that's kind of why we chose that activity as well, because the whole technology was previously just used with writing on it, or drawing on it, and I specifically chose not to do that because I knew of that history of [service delivery] and the making."

Prior to the day, we borrowed one of our colleagues' JigsAudio tool (an open-source digital tool that allows one to record an audio message that is digitally linked to a tangible artefact using RfID technologies). We laser cut umbrella shapes out of 3mm plywood and placed an RfID sticker on the back of each of these. Then, we collected various craft supplies and pens in different shades of red to decorate the wooden umbrellas.

In the church, we placed the supplies on a small table close to the entrance and set up the cardboard JigsAudio tool in a small nook next to this table. We used this little nook to create a little bit of privacy for those wishing to record an audio message to their crafted umbrella. We increased the privacy of the corner by placing a piece of fabric as a curtain to cover the area. Furthermore, we used red and white twine as a pop-up exhibition space in the private nook to display the finished umbrellas. In the little nook, participants placed the umbrella on top of the cardboard box. To start the recording, they pressed a button on the cardboard JigsAudio. Once the recording was finished, they pressed the button again to stop the recording. Then they hung the umbrella on the twine next to the other finished umbrellas.

All in all, we collected 15 decorated umbrellas; these were all decorated by women who either provide or use services the GAP project provides. Not all of these umbrellas have audio recording associated with them, and some have multiple recordings.

The crafting of the umbrellas took place in a very small space with little opportunity for sitting down other then a few small steps. Despite this less than ideal space, people used the activity as a time to calm down in silent making. It was only after some of the members of staff also joined the activity that it became "far more chatty."

This mix of introspection and chatting resulted in umbrellas that care had gone into. They were not something that people 'just made' but rather they are artefacts that were produced with thought and care. "there was a lot of the more sophisticated looking things [more artistic than crafty materials such as paint and paintbrushes, for example]. You know, they could have just taken like a brush and acrylic paint and it would have been done in like two seconds, like just smear it over and 'here we go!' But no, they wanted to have the glitter gluing up there, they wanted to have the little flowers in very even spaces between it. And it was not just the bow being attached on it, [it had to be] on the right, the exactly the right place, they also had to have like little flowers on them as well" A particular instance of this was when a woman wanted to do an umbrella and hang it directly next to the one her daughter had made. As she went to hang it up, one of the roses that was glued onto the umbrella that was already hanging in the makeshift exhibition space had "slightly fallen off and was stuck to the glitter rather than the place it was supposed to be. And we went and fixed it right away, because it needed to be perfect."

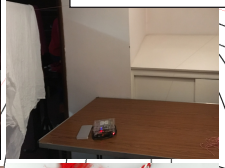
On top of this care, some of the women who made umbrellas also wanted the umbrellas to be perfect: "I think the one who gave up was actually, she wanted to make a heart-shaped glitter thing and the glue didn't stick equally, so, after she saw like 'oh my god! This doesn't look like a heart at all!' and just like 'no'. So there was a lot of perfectionism."

Based on the care and perfectionism involved in the creation of the living archive, we believe that those who took part in the activity "definitely produced something that has some kind of value and can't just be some quick something. It is, they definitely created some kind of meaning in it. It's just hard, I don't think that, maybe the recording is not the right way to really get this kind of meaning out of it."

Step 1: decorate the wooden umbrellas with red craft supplies



Step 2: record an audio clip to the umbrella using JigsAudio





Step 3: display the umbrellas that have embedded recordings



Step 4: link pictures of the umbrellas and the embedded audio files up via the JigsAudio website

A MULTI-MEDIA SERVICE FOR REMEMBRANCE

While the use of digital technologies was small during the march, and the red umbrella archive built on existing technologies, the most surprising use of digital technology took place during the service. This was a multi-media experience that incorporated various different digital and non-digital technologies in a "a smart church" to structure an interactive, service user-led, people-centred, remembrance service for the lives of service users from GAP and MAP who had been lost in the last year. This service was made up of poetry readings, sharing of stories, a (sadly cancelled) musical performance, and three activities dedicated directly to remembrance.

Throughout the day, there was a back-and-forth between the ways in which the activities throughout the day were curated: "there was an interesting dynamic of now, is this now a march really for the outside, public awareness raising, or is it more like, a gathering or an event that happens in the outside but is actually more for strengthening the inside?"

While the march was "down a busy Northumberland Street, [so] it was for awareness, [but] I think it was with the combination of 'you know what no, I'm going to do this, I'm going to do this walk!' but also to show others", the service was clearly an activity that was meant for those who were present. While it may make sense that the march was an activity that focused the importance on those 'outside' the organisation, it was also something that was created for those 'inside' the organisation. Not only was this a sentiment that we as researchers felt throughout the day, but it was also something that the priest mentioned towards the beginning of the service: 'you've been out, you've done the thing for outside, you've raised awareness. You've shown people what you've done, but now this is for us. And this is for the community, and for togetherness, and for you as an individual.' (not a direct quote) Following this, she also shared the following sentiment: 'I don't know if you've been here before, but if you haven't you're welcome here'.

Not only did the red umbrella activity make use of digital technologies, but the "smart church" itself had a multimedia suite:
Researcher 1: "at the back there was a projector and a woman sitting on a laptop that had all the slide shows and videos and music on it."
Researcher 2: "no, the music was coming from the priest's smartphone! because she was turning down the music manually with her smartphone"

Activities for Remembrance

Throughout the service, different kinds of pop music were played through speakers: "Robbie Williams played a lot, but I thought it was nice to have that. And I thought it added a different layer to the whole service." For us researchers, this took away the feeling that we were in 'a church' while adding to the introspection and remembrance that was the focus of the day. This was particularly useful but also clear in the three activities that were particularly focused on remembrance: (1) the lighting of candles; (2) the angel activity; and (3) the displaying of the names on a slideshow.

Attendants of the service were invited to light a candle and place it at the front of the line of chairs in remembrance of someone who had been lost in the last year, or as a symbol of remembrance for themselves. All attendants (police, staff, volunteers, service users) helped each other out in handing out the small candles. Then people started to get up and move towards the front of the church where someone was stood with some lighters. The candles were lit and carefully placed on the floor in the shape of a heart.

Another activity that was carried out for remembrance was one that we call the 'Angel Activity' in this report. Attendants were given a piece of paper that, when folded and cut in a certain way, turned into an angel. They were encouraged to write a message to someone they were thinking about onto this piece of paper, shape it into an angel and to then, one-by-one, hang this up on the Christmas tree that was placed at the front of the church. From looking at the Christmas tree, it was clear that this was an activity that the priest had carried out with others before as the church "already had some on the tree." Bringing this example back to the discussion we had earlier that asked whether the day was an activity that was made for those 'inside' the charity or for others 'outside' the organisation to learn more about the day, we see that this is a complex and multi-layered discussion that can be explored further. This quiet, introspective activity was one that was made for 'inside'; for the individuals who were present at the service. Hanging these up publicly on a Christmas tree where others had already shared these messages however also brings this activity into the realm of 'outside' the charity metaphorically (in sharing a thought with someone who may never see it) and visually (in placing it on the Christmas tree alongside angels of others they do not know and, again, may never meet). Witnessing this activity and feeling the air in the room at the time, we as researchers reflected on this activity: "it definitely served it's purpose: there were a lot of tears. Very silently, but they were there. And I think it was quite impressive to see how many people really had a message for someone to write on the paper angel to then hang it up."

The third activity that was directed at remembrance was a very quiet one. Unlike the others, this one did not contain an element of moving or creative output. Instead, this activity was a way of commemorating all those who had died in the last year directly. The multi-media suite of the church was used to share a slideshow of names of people who had been lost in the last year. Contrary to the previous audio-cues for introspection through music or readings, "they commemorated all the people that had died this year, it was nice to not hear the names being said out, but to just have some nice music and to look at the screen where they just appeared: white writing on black screen, just the names of people. I thought that added a quite different perspective to it."

At the end of the day, after the service, our activity, and the food and drinks reception that followed these were over, we had the chance to chat with the priest. As we were cleaning up the glitter and feathers from the red umbrella activity, she came over to find out more about what we had done. It was here that she told us that this was the first time she had lead this service. While the church was known to Changing Lives staff and service users, she did not know exactly what to expect from the day; which is why she welcomed everyone so dearly at the beginning and the end of the service where she shared a brief prayer (the rest of the service had been very non-religious despite being held in a church) with which she shared the following sentiment: 'okay, you can take it as if you want to' The two researchers also reflected on this topic, as can be seen in the exchange below:
Researcher 1: "I think it's a collaboration that's been going on for years, because everyone knew where they had to go once they got in the building"
Researcher 2: "and also the pictures from last year they had a lot of pictures from in the church, actually, so it seemed like last year's Christmas party or something like that"
Researcher 1: "I think everybody kind of knew the space, and the space knows them"



CONCLUSIONS

Throughout the day technologies were used in different formats and to different ends. In this report, we have described the ways in which digital technologies were used throughout the first red umbrella march in Newcastle. We also reflected on the ways in which these different digital and non-digital technologies were used before and during the march, as well as the ways in which they were integrated into the service that followed. To create a reflexive and introspective bridge between the activist activities on the march and the multi-media remembrance activities, we crafted a living activist archive. Technologies had different functions for individuals and Changing Lives as a charity based on the events that happened on this day, as well as the meaning of this day as a whole: they were catalysts, agents for layering experiences, and were able to support reflection and retrospection.



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For more information on Changing Lives and GAP/MAP, please visit www.changing-lives.org.uk or call 01912738891

A collaborative project by

CHANGING LIVES Open Lab at Newcastle University

A.6 Article for XRDS Magazine

Janis Meissner and I co-authored a magazine article for the XRDS Winter 2017 issue titled *Human to Human* on The Partnership Quilt project. The full article can be found on the pages that follow.

"We Had Tough Times, But We've Sort Of Sewn Our Way Through It:" The Partnership Quilt

Using capacitive touch sensors and traditional quilting techniques lead to the collision of seemingly disparate worlds and resulted in the creation of the Partnership Quilt, a living archive of voices in the shape of an interactive piece of craftwork.

By Angelika Strohmayer and Janis Meissner

DOI: 10.1145/3155128

Quilting is about making connections and establishing relationships between different parts. The craft process involves sewing several textile layers together to create a thicker padded fabric. However, in the case of our recent involvement in the Partnership Quilt, the connections also emerged on a collaborative level. The collective act of sewing simple rosettes and quilting blocks turned into an interactive piece of art by bringing different and disparate expert knowledge together. We as human computer interaction (HCI) researchers and interaction designers worked alongside the quilting designers from Six Penny Memories,[a] as well as staff and service users from Changing Lives,[b] specifically Girls are Proud (GAP) and the Male Action Project (MAP). Changing Lives is a U.K. based charity focused on those deemed "vulnerable"—the homeless, people suffering from addiction, and the unemployed. The GAP/MAP projects specifically provide people-focused services to support those engaged in sex work, survival sex, or anyone experiencing sexual exploitation. Through this collaboration, we combined elements of social-care practice, professional quilting skills, as well as interaction design tools to produce a living archive of experiences from the women GAP supports, alongside those who support them.

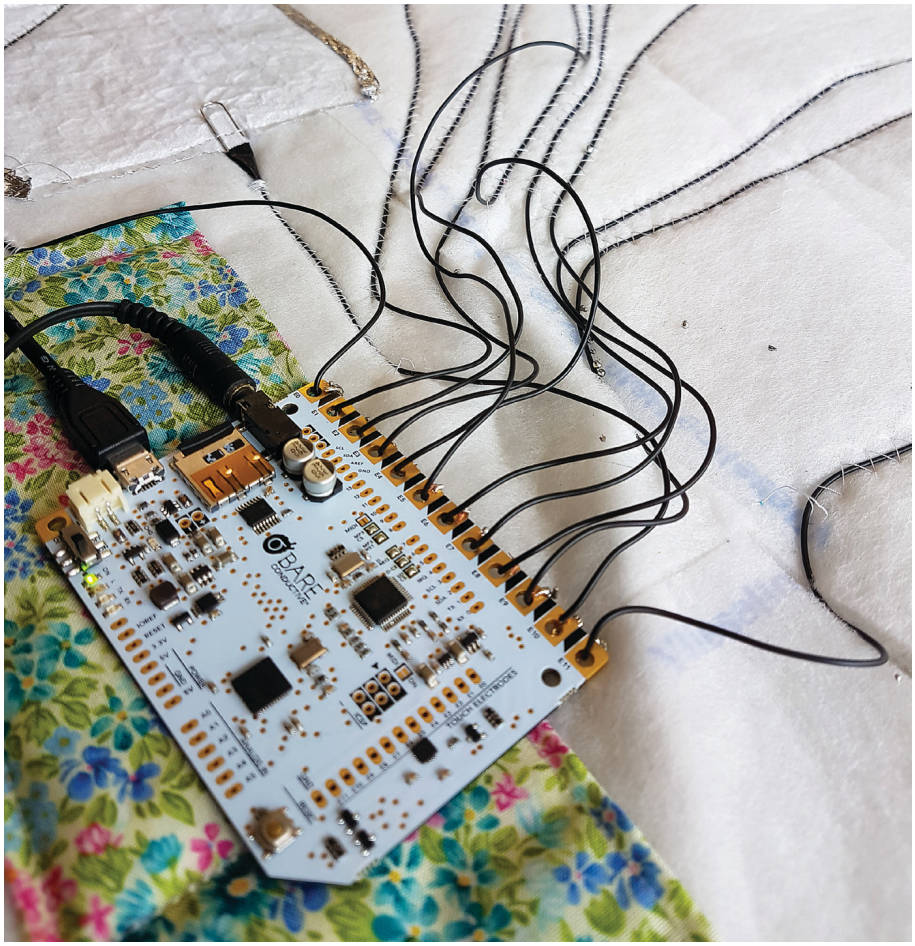
THE FIRST STITCH

The quilt is contextualized in local histories of craft and women's work. Quilting used to be something that was taught in schools in the North East of England, and many of those who put a stitch in the quilt had previously done this in their childhood, but the type of teaching they spoke of rarely happens anymore. Many different techniques were used to construct the quilt, such as English paper-piecing, applique, machine-quilting, and tie-quilting. Using these traditional techniques, the women "[were] carrying on

a https://six-penny.com
b http://www.changing-lives.org.uk

Photo courtesy of Angelika Strohmayer and Janis Meissner





a tradition that's particularly popular in this area."

We introduced the idea of turning the quilt blocks into capacitive touch sensors to be able to share experiences of making the quilt with others who interact with it. One of our goals in our overall work is to alleviate stigma in stigmatized groups. People engaged in sex work are often stigmatized. Through the quilt project, it's process and outcomes, we hoped to work toward advocacy tools to reduce stigma (e.g. public exhibitions of the quilt) and share personal well-being strategies focused on self care (e.g. sewing). Almost simultaneously, Six Penny Memories were introduced to the project. They are a duo of professional quilters and designers who have written several books, appeared on quilting TV, and have authored hundreds of quilting patterns.

PUTTING THE PIECES TOGETHER

We organized two days to come together as part of what we called "Quilting Extravaganzas" to sew fabric hexagons together and tie-quilt, solder, and attach the layer of low-cost DIY capacitive touch sensors to the traditional quilt. After which, we audio-recorded a group reflection on the creation process and our feelings toward the quilt made up of the voices of many of those who partook in the creation of it. This recording was later edited into 12 individual audio clips that were then transferred to the quilt.

Following these days, we visited the quilting shop from where Six Penny Memories work to witness how they integrated their traditional skills into the digital layer of the quilt. Six Penny Memories were able to quilt the sensors we made from tinfoil and wires soldered to paper onto the fabric, and attached a small pocket as the new home for the BARE Conductive Touchboard (a commercial microcontroller specialized for capacitive touch sensing). A week later, the charity staff and women from GAP also visited the shop to explore the audio-recordings triggered by interacting with the finished quilt.

In the end, the quilt was constructed by a group of women over what ended up being roughly one year. It consisted of various phases that were carried out during drop-in sessions, two days of work during the Quilting Extravaganzas, and work carried out by individuals in their respective homes and/or workspaces. The entire project included: (1) the sewing of individual rosettes; (2) the appliquéing of these rosettes onto a background fabric; (3) the joining up of these squares and machine quilting to place the backing, wadding, and the quilt top; (4) the creation of the quilted layer of capacitive touch sensors and tie-quilting of the traditional quilt; (5) the attaching of the Touchboard with the embedded audiofiles from the reflection; and (6) the edging of both quilts. To be able to go through each of these six stages of the production of the quilt, "we all used our own little bits of knowledge," but ultimately as one case worker put it, you "just need a little squad of women, and you can get so much done."

Once the quilt was nearing its last stages during the second Quilting Extravaganza, we sat around a large table, the quilt laid out in front of us, and a cup of tea in hand, to marvel at our accomplishment and reflect on what we had done. It was here we recorded a roughly 30-minute discussion of many of those involved in the quilt. During this discussion, we reflected with many different aspects of the quilt such as the history of it, the techniques used, as well as the different experiences we had in the crafting of it. One of the women who produced many of the rosettes said one of her sons had taken two rosettes that she had sewn together and placed them on his pillow at night. The group encouraged her to sew them onto his pillow, to which she responded: "He won't let us! He carries them around everywhere. They go in his pocket, in his school bag, he just carries them everywhere." Another woman stated the quilt "needs to be used, doesn't it?", urging us all to continue to interact with it.

Twelve extracts from the recordings were cureated to be shared with the wider public through the touch interaction on the quilt: When one of the rosettes on the quilt is touched, one of the audio files starts to play. Four of

Photo courtesy of Angelika Strohmayer and Janis Meissner

these extracts contextualize the quilt historically, six discuss the making of the quilt, and two address some of the outcomes that we have either already achieved or hope to achieve in the near future with the quilt.

Since then, the quilt has been exhibited at the Vlieseline stall at the Festival of Quilts in Birmingham, UK. On top of exhibiting the quilt for amateur and professional quilters at the Festival of Quilts we are also working on exhibiting it in a venue closer to those who put a stitch in it so they can go to take their friends and family to see the work they have done. Furthermore, the charity aims to use the quilt not only for public education at these private, public, or semi-public exhibitions, but also as a continued form of service delivery. Since we used a combination of DIY sensors and the out-of-the-box touch board, it is quite simple to change the audio files that are triggered through the touch of a rosette; to transform the interactive piece of art into a living archive of voices of those involved in the process. As such, charity staff are keen to explore different ways in which the recording of audio and interactions with the quilt could be used for staff and volunteer training, one-on-one reflection with clients, or the sharing of their services with other charities and members of the general public.

REFLECTING ON THE QUILT

While the quilt is being used in exhibitions and will be used for training and reflexive purposes in the future, we want to sidestep to reflect a little bit on the quilt as an object, as well as the process behind the making of it. Just like the layers of fabric and wadding that are in the quilt, it has layers of stories and experiences meticulously sewn into it with each stitch and button.

The quilt was a chance for the local women to sit together quietly during the drop-in session, while carrying out an activity. It was, however, also an opportunity for people to stay in touch after these drop-ins. The first Quilting Extravaganza day took place more than a month after the caseworker who had been a driving force in starting the project was moved to work at a different drop-in center. As such, the day was a chance for the case worker and those women to continue to be engaged with each other despite the changes; the case worker said, "It's nice to be able to get back into this project [...] it's the first time I've seen these lasses in more than a month because I no longer work at their drop-in." This sentiment continued at the second Quilting Extravaganza a month later: "This quilt has almost been a little community link for us that's kept us together," explained one of the women.

Not only has the quilting project provided a space for social interaction, but it was also an opportunity for learning new skills. By taking part in the entire process, everyone involved in the project went through the entire process of designing and sewing quilting blocks, as well as quilting the various layers of the blanket together. On top of these traditional skills, the process of creating, wiring, and attaching DIY capacitive touch sensors to fabric were also mastered by those involved. Another caseworker, who had heard a lot about the quilt in the office, supported the project by making blocks at the drop-in center she's responsible for. Without ever having seen the quilt before, she responded very emotionally when the artifact was finally in front of her. As she struggled to find the right words, she concluded: "I feel a bit like, wowed. Is that the word? Like, like what you've just said. Getting a group of lasses together [...] I don't think the GAP and MAP projects ever come up with anything like this. Like, creative, in such a long time!"

While there are a few very tangible skills involved in the process of making the quilt that those involved learned, it also supported the women emotionally. This can be seen in the following extract from our collective reflection from when we were nearing the end of the project:

Caseworker: "I bet [the sewing] chilled you out a bit..."

GAP client: "It did, 'cause at the time I refused medication as well, so [...] it was the only thing I focused on. 'Cause all the other stuff was negative, and that was positive."

On top of these personal experiences of making the quilt and the emotions toward it, it was also seen as an example of what can be achieved for a drop-in on a broader level. Drop-ins are a common type of service delivery promoted by sex work support services and other charities. They are sessions that take place regularly, and for one of the women who took part in the drop-in where the quilt was developed, the drop-in is an opportunity for "just having a laugh and that" or an opportunity for some fun. As one woman explained, "to get out and, just for a couple of hours, yea, those couple of hours do go fast don't they?" Although drop-ins are usually not targeted toward a long-term goal, this particular drop-in started to revolve around the quilt. Each session, the women would sit together to sew some rosettes for the quilt. Initially, they were sewing simply for the purpose of sewing, for the mindfulness involved in the activity: "When we first started to make the quilt I didn't think we'd ever get to this far. To this thing," another shared. However, as the project continued to progress, and when Six Penny Memories and Open Lab became involved, the quilt started to become a more tangible goal to work toward; something to be proud of.

In the end the quilt was a chance for people to come together to work on something collaboratively and creatively, while simultaneously having a space for individual, mindful practice. A case worker sums the concoction of emotions, craft, and collaboration that went into the process, outcome, and continued use of the Partnership Quilt as something that helped: "[We] keep werselves busy, we've kept ourselves out of trouble, and I've got some lovely memories sitting with youse."

Biographies

Angelika Strohmayer is a Ph.D. student in the Centre for Doctoral Training in Digital Civics at Open Lab, Newcastle University. She is interested in the ways in which digital technologies can be designed for support services to aid their service delivery while simultaneously being useful for advocacy work and the sex worker rights movement.

Janis Meissner is also a Ph.D. student in the Centre for Doctoral Training in Digital Civics at Open Lab, Newcastle University. As maker technologies give individuals an opportunity to develop their own objects and tools, Janis is interested in exploring the ways in which these technologies can empower different communities.

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A.7 Poster presentation at Community Informatics Research Network (CIRN) Conference

In October 2017, Janis Meissner and I co-presented a poster on The Partnership Quilt project at the Community Informatics Research Network Conference (CIRN) in Prato, Italy.

The Partnership Quilt:
An Interactive Living Archive of Sex Worker Voices

Angelika Strohmayer and **Janis Lena Meissner**, Open Lab, Newcastle University, UK

Open Lab at Newcastle University · SIXPENNYMEMORIES · Digital Civics · fem power tech · CHANGING LIVES

Introduction

The Partnership Quilt is a collaborative project that combines traditional craft techniques and do-it-yourself technologies to develop a living archive of stories and experiences related to a charity in the North East of England. Researchers, professional quilters, charity staff, and charity service users came together to develop this participatory, collaborative, crafted living archive. It is embedded in local histories and contexts of craft, as well as service delivery of the charity, and interdisciplinary research. Collaboratively, we augmented localised quilting techniques with flexible, low-cost, do-it-yourself technologies in the shape of FlexE-Touch capacitive touch sensors [1]. The addition of these quilted capacitive touch sensors turn the traditional quilt into a contemporary piece of interactive art: by touching some of the rosettes on the quilt a voice is activated to tell a part of the story that lies in the folds and seams of the quilt.



The Partnership Quilt

Context

Due to our close collaboration with local professional quilters (Six Penny Memories) and a local charity that supports sex workers and people who have been sexually exploited (Changing Lives),The Partnership Quilt is contextualised in multiple practices. For example, we used quilting techniques that are based in local histories [2]. For the mining communities, which were at the heart of the areas' development in the 1930s, "quilting was seen as the respite from work with the warmth and companionship and the gleeful delights of conversations." [3] Furthermore, the quilt is contextualised in everyday service delivery of the charity: the project was started during one of the regular drop-in sessions, and grew from there as new collaborators brought in novel areas of expertise. On top of this, this project is contextualised in Angelika's interest in designing technologies with charities to further justice for sex workers and Janis' interest in using 'making' as a tool for empowerment with diverse groups.



A Living Archive

We see The Partnership Quilt as a living archive of stories, experiences, and voices associated with the service delivery and activities organised by Changing Lives in the region. When we had almost completed the quilt, we audio-recorded a conversation where many of those who put a stitch into the quilt discussed the stories and meanings behind the quilt." This conversation was then used to curate the first iteration of the archive: 12 short audio clips were curated and cut from the 30 min. recording, to be embedded in the quilt. The materials we used allow us not only to continue to share the story of the quilt through exhibitions, but they allow Changing Lives staff to (re-)curate the audio recordings and easily exchange the voices that are shared through the quilt. The adaptability of the quilt allows for new curations by staff that can be used at exhibitions, but also in training with staff and volunteers, as well as one-on-one reflexive interactions with service users. Since it is a 'living' archive rather than one to which more content will be added to in the future, new content can only be embedded in the physical artefact if some of the current content is removed – if the stories evolve into new ones.

Interacting with the Quilt



Work

The quilt is made up of multiple layers of diverse kinds of work. For example, we used English Paper Piecing techniques to create rosettes, appliqued these onto backing fabric, and continued to work towards the production of the final physical artefact that is the quilt. On top of this sewing work, much hidden labour went into organising the collaboration to create the living archive: there was work involved in the organisation that was necessary to be able to create the living archive during drop-in sessions, in the two 'Quilting Extravaganza' sessions where we spent the whole day quilting, or even in the collection of free fabric and other materials to make the project possible. As one of the case workers involved put it: "we just kind of cracked on with it and were just sewing. We never expected it to really turn out to be a quilt, did we?" Through this process, we learnt that the work involved in the making of the quilt itself was also incredibly important. As we were sitting around the (almost) finished quilt, reflecting on the integration of the digital technology into the final interactive archive, one of the researchers reflected on the tangible interaction with the quilt: "I mean, there's so much more, like, effort in it. manual effort. so like actually by touching the quilt, you have a far better connection to what has been done and it speaks more to the senses rather than, you know again, just looking through a screen." It is the manual effort and labour that has gone into the quilt that makes it meaningful; and this should not be hidden by digital technologies. Instead, we see the technology as part of the experience involved in the interaction with the quilt; an element that enhances the work involved in its production.

Learning

Throughout the process of making this living archive, everyone involved was a learner as well as a teacher. Changing Lives staff and service users, as well as the professional quilters from Six Penny Memories, and we as researchers learnt new craft and mindfulness skills, and were able to pass on our "little bits of knowledge" to work on, learn from, and complete The Partnership Quilt. Through the organic process of the growing network of people who were involved with the project, the scope changed as well. For example, the techniques used in the quilt were increased from English Paper Piecing to include appliquéing the separate rosettes onto fabric with embroidery thread when Six Penny Memories got involved.

Six Penny Memories taught us all tips and tricks for quilting (even if some of us already knew how to quilt), service users shared their experiences with us and shared local stories of the histories of sewing in their own families, Changing Lives staff taught us all lessons about mindfulness and service delivery, and we as researchers were able to teach others about do-it-yourself capacitive touch sensing and its potential for integration with traditional craft techniques. One case worker made the value of learning skills through this project clear to one of the service users: "but you'll always have this skill, and you're already thinking about other sewing projects aren't you?" On top of this learning process, and similar to the women who used to make quilts in the region in the 1930s, the "creativity and imagination also provided for additional levels of satisfaction" [3] among those involved in the process.

Experience

Oral evidence collected by Freeman provides the view that "crafts' formal and technical properties are a means of expressing group or community experience." [3] Based on this, our quilt is in and of itself a means of expressing experiences of the group who took part in crafting and making it. Through this it is not only the tangible interactive quilt itself, but also the tacit experiences embedded within this (eg. the stitches in and buttons sewn onto the quilt) that are part of the experience of its creation. With this we mean that the work involved in its making has supported learning processes, which are part of the experiences shared through the "little community link [...] that's kept us together" that is the quilt. Furthermore the curated audio clips that have been embedded and interwoven with the fabric of the quilt are audible manifestations of the materiality of the tacit experiences involved in the making of the quilt. Adding to this, the recording and sharing of this information was only possible through the shared and organic development of experiences in the project. Similar to those who made quilts in the pit villages between 1870 and 1930, the quilt was "a way of distracting yourself [...] It's sociable. If you're not feeling a hundred percent, if you're poorly, down" (professional quilter during reflection) as well as a source of enjoyment, "achievement and dignity" [3]. Looking beyond the immediate making of the quilt as an experience, we also see that through the sharing of this project with those who were not part of the makers (for example through exhibiting the quilt, or even through interactive posters such as this one) the use of oral experiential materials enhance the artistic and aesthetic materiality and meaning of the quilt in a legitimate and valuable form [2].





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Snyurl.com/thepartnershipquilt

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A.8 Article written about the Digital Economy Network Summer School Workshop

In the summer of 2016 Manu Hohenkamp-Brueggemann, Vanessa Thomas, and I organised a workshop on research ethics at the Digital Economy Network summer school hosted by Open Lab. As an outcome of the workshop, we worked with the workshop attendants (Matthew Marshall and Nataly Birbeck) to turn our reflections from the workshop into a journal article. This article was presented at the EAD conference and later published in The Design Journal. The full article can be found on the pages that follow. See Brueggemann et al. (2017) for more details.

A.9 Quilt Now article featuring The Partnership Quilt

Kim and Debbie from Six Penny Memories started writing a regular column for the Quilt Now magazine in April 2018. They used their inaugural feature in Issue 49 to write about their involvement in The Parntership Quilt.





5 MINUTES WITH

Quilty catch up with

SIX PENNY MEMORIES

Sit down with a cuppa as Kim and Debbie from Six Penny Memories share what's going on in their quilty world

Welcome to our first column! We thought it would be good to start with a wonderful charitable project we have been lucky enough to be involved in. Kirsty at Changing Lives, a national charity based in the North East that has been supporting vulnerable people for over 45 years, asked us to be involved with a sewing project she was running at a drop-in centre for female sex workers.

During the sessions in Northumberland the women had started sewing English paper-pieced hexagon blocks by hand with a volunteer. The hexagon flowers had been appliquéd onto background fabric of different sizes and ribbon, flowers and buttons had been added. Unfortunately, the volunteer pulled out of the project and Kirsty and the ladies involved needed some help.

The finished Changing Lives quilt

Our first job was to make all the blocks the same size while keeping the flowers centralised. The squares were appliquéd by the ladies onto 200-threadcount calico squares using a running stitch. There were a number of barriers to overcome; the ladies were naturally cautious about who we were, but it was amazing how sewing and coffee can break down walls and everyone left having not only enjoyed it but looking forward to the next session. Eventually the quilt top was sewn together. The ladies decided they would like to quilt it themselves and used buttons to tie the quilt, adding a decorative feature.

During one of the sessions Janis Meissner and Angelika Strohmayer from the Open Lab at Newcastle University were able to add an exciting element to the quilt. They taped the group talking about their experiences and how the project had affected their lives and, after some initial reluctance, once the women started sewing they relaxed shared their experiences. The recordings were edited into 30 seconds of dialogue and transferred onto touch board, using Vlieseline H640 fusible fleece and calico as a background. Wiring and aluminium foil was soldered to touch sensors and the wires were sewn in place. The sensors were positioned so that when the quilt was placed on top of the high-tech background, the hexagonal flowers could be pressed and the voices of the women heard.

The quilt has been displayed throughout the North East and we have talked about it to over 700 women at the Northumberland WI Spring Council. The collaboration between Changing Lives staff, volunteers, clients, Six Penny Memories and Open Lab at Newcastle University has been amazing. What started as an activity for exploited sex workers turned into an interactive piece of art that functions as a living archive of the womens' stories, experiences and how sewing can really change lives.

SIXPENNYMEMORIES

Find out more about Kim and Debbie, see what they're sewing and visit their shop at **www.six-penny.com**

OUR FAVOURITE TOOLS

Pinking scissors are a must in your sewing box! The Prym Universal pinking scissors have serrated blades that prevent fabric fraying and larger handles with plenty of room for your fingers. Use code **QNPS05** to get 10% off at **www.six-penny.com**

A.10 Changing Lives Press Release

In August 2017 Changing Lives put a press release on their website about The Partnership Quilt. This can be seen on the following page.

INTERACTIVE QUILT TELLING STORIES OF WOMEN WE SUPPORT SHOWCASED AT NATIONAL EVENT

Women who have previously worked as sex workers, or who have experience of sexual exploitation, have created an interactive piece of art to document their stories which will be displayed at this year's Festival of Quilts in Birmingham.

Women who are receiving support from outreach services in the North East have created a patchwork quilt during their drop-in sessions, which has been turned into a digital art-piece in partnership with Open Lab at Newcastle University and Six Penny Memories.

Titled 'The Partnership Quilt', this contemporary piece of interactive art uses quilted touch sensors to create a multi-sensory storytelling experience. By touching a rosette on the quilt, a voice is activated to tell a part of the story that lies in the folds and seams of the quilt.

Clients, staff, and volunteers of Changing Lives' Girls are Proud project (GAP) have collaborated with PhD students from Open Lab at Newcastle University, and local business Six Penny Memories, to produce the quilt and document their experiences of sex work and sexual exploitation in the North East of England.



The Partnership Quilt, created by women who attend Changing Lives' GAP drop-in service in the North East, was showcased at the Festival of Quilts in Birmingham this month.

GAP is an established support service for women with experience of, or at risk of, sex work, 'survival sex', and sexual exploitation. 'Survival sex' is a phrase coined by Changing Lives to describe instances where a person will sell sex to satisfy basic needs, such as shelter or food.

This month, 'The Partnership Quilt' will travel from the North East to Birmingham to be displayed at the annual national Festival of Quilts event. It will then return to its home in the North East to be used in therapeutic support sessions and training that Changing Lives delivers.

Changing Lives has over a decade of experience in offering specialist support for women who have experience of sex work or sexual exploitation, with a similar project running to support men with these experiences in the North East too.

Like 1 Tweet 3 Share 0 Pin 0 G+ Share 4

POST DETAILS

TAGS

NEWS

POSTED

9 AUGUST 2017

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Site delivered by CARGO

Changing Lives is the operating name of The Cyrenians
Registered Charity No. 500640 | Registered Company No. 995799 | Registered in England

A.11 A small quilt made about The Partnership Quilt project

I made this small quilt to reflect on The Partnership Quilt project.





A.12 A small quilt made about the Digital Ugly Mugs project

I made this small quilt to reflect on The Digital Ugly Mugs project.







A.13 A small quilt made about the Red Umbrella Archive project

I made this small quilt to reflect on The Digital Ugly Mugs project.





A.14 Interview Schedule

I developed an interview schedule for sex workers and one for staff in sex work support services. These were very similar, so I only provide one of these here. These questions were used as a rough guide for the semi-structured interviews.

Interview Schedule – Sex Workers

Website usage

- How do you engage with the website?
    - which areas of the website do you use most often
    - which areas do you not use very often, but when you need to use them feel that they are really important
    - do you ever visit the UKNSWP website?
        - Which parts?
- When do you usually access the website
    - Before starting work
    - During work or just before an in / out call?
    - At other points?

Technology use

- From your survey, I can see that you usually access the website xxx, why is this the case?
    - Would you like to access the website from a different kind of deveice like a tablet or smartphone?
        - What are your reasons for doing this?
- What types of technology do you have with you when you're working?
    - Anything you do before you go
    - While you're at work
    - After you finished an in / out call?

Anything else

- Is there anything you'd like to say about the current website?
- Is there anything you'd like to see on a new version of the website?
- Is there anything you'd like to say about NUM as a whole?

Would you be interested in staying in contact about the development of projects with potential future consultations around the design and layout of the new website?

A.15 CIRN conference presentation

In October 2017 Janis Meissner and I co-presented a paper at the Community Informatics Research Network (CIRN) Conference in Prato, Italy. Our slides can be found on the following pages.

The Partnership Quilt:

An Interactive Living Archive of Sex Worker Voices

Angelika Strohmayer, Open Lab, Newcastle University
Janis Meissner, Open Lab, Newcastle University

Open Lab at Newcastle University | SIXPENNYMEMORIES | CHANGING LIVES | fem power tech | DC Digital Civics

The Partnership Quilt

- Partnership
- Collaboration
- Embeddedness

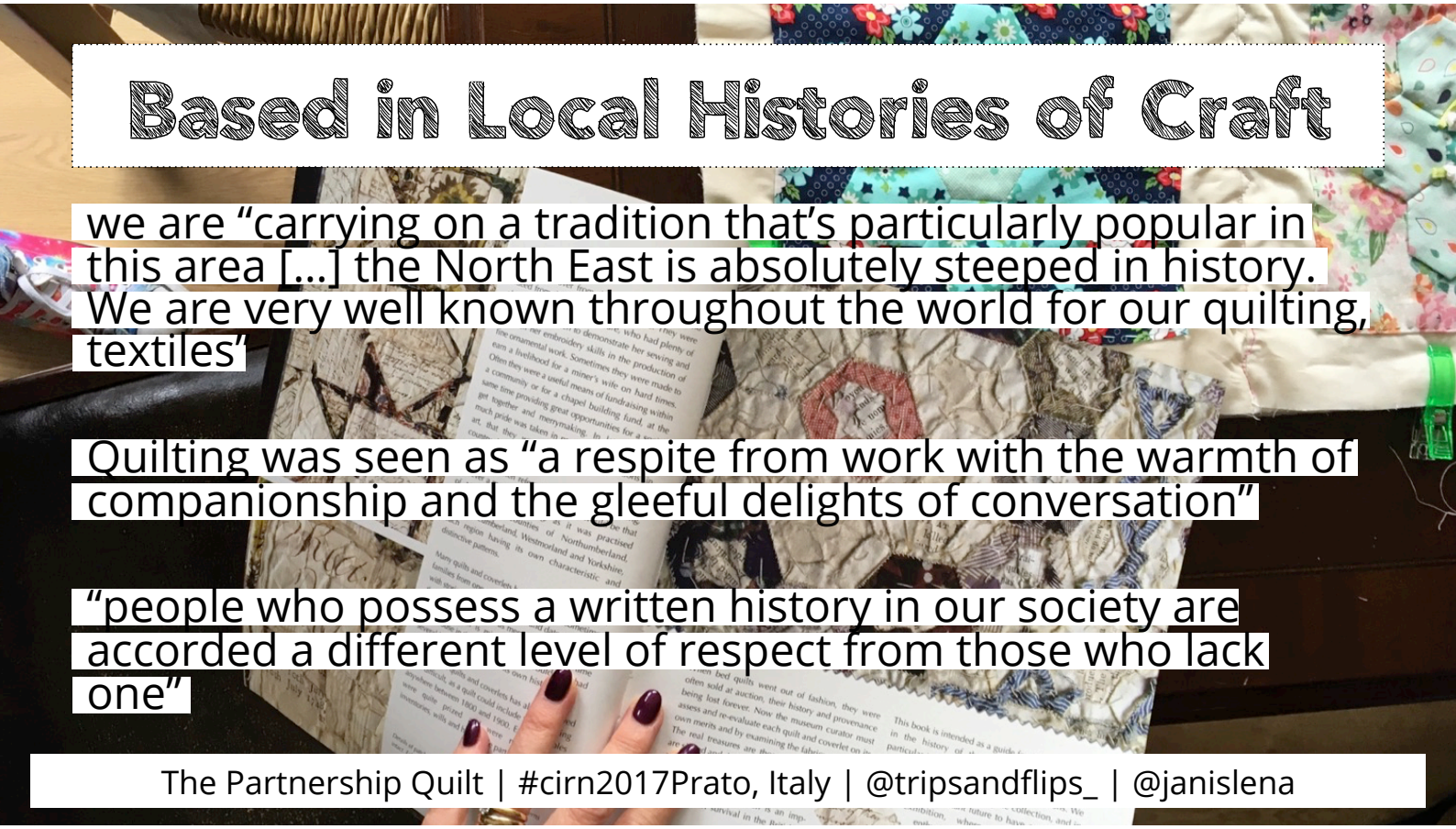
- Hybrid Craft to create an Interactive Archive



Based in Local Histories of Craft



The Partnership Quilt | #cirn2017Prato, Italy | @tripsandflips_ | @janislena



Based in Local Histories of Craft

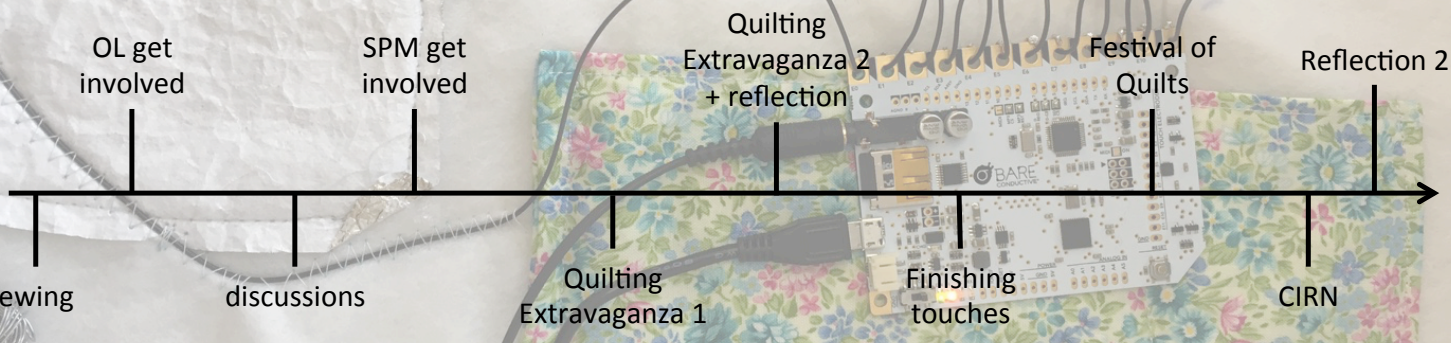
we are “carrying on a tradition that’s particularly popular in this area [...] the North East is absolutely steeped in history. We are very well known throughout the world for our quilting, textiles”

Quilting was seen as “a respite from work with the warmth of companionship and the gleeful delights of conversation”

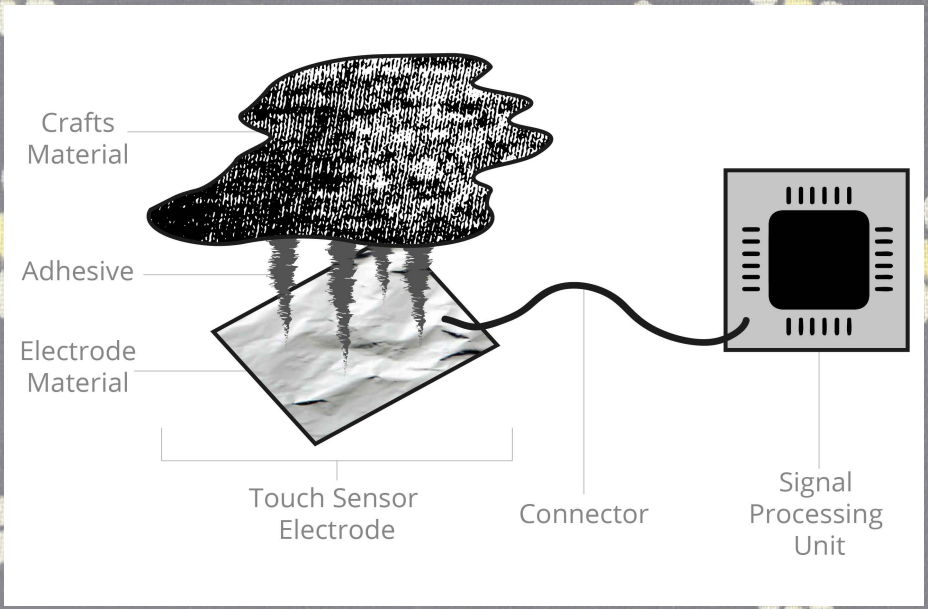
“people who possess a written history in our society are accorded a different level of respect from those who lack one”

Research Process and Methodology

- Feminist and Social Justice-oriented methodologies
- Research through Design



FlexE-Touch: DIY Capacitive Touch Sensing





The Partnership Quilt | #cirn2017Prato, Italy | @tripsandflips_ | @janislena

Materials and Materialities



The Partnership Quilt | #cirn2017Prato, Italy | @tripsandflips_ | @janislena

Materials and Materialities

- Scrap / free fabric
- Sewing thread and needles
- Embroidery thread
- Webbing and interface
- BARE Conductive Touch Board
- Tin foil
- Paper clips
- Wires
- Solder and soldering iron



Crafting the Archive



The Partnership Quilt | #cirn2017Prato, Italy | @tripsandflips_ | @janislena

Digitizing the Archive



The Partnership Quilt | #cirn2017Prato, Italy | @tripsandflips_ | @janislena

Quilting Layers

Tangible Layers

- The Quilt Sandwich
- The Digital Quilt
- Tangible Interaction
- Archival Practice

Metaphorical Layers

- History and Craft
- Work
- Learning
- Experience

The Living Archive as

...Stitches, Folds, Buttons
...Embedded Practice
...Content Curation
...Hybrid Craft

Is there value in NOT archiving?



The Partnership Quilt | #cirn2017Prato, Italy | @tripsandflips_ | @janislena

Thank You, Any Questions?

Angelika Strohmayer, Open Lab, Newcastle University
Janis Meissner, Open Lab, Newcastle University

Open Lab at Newcastle University SIXPENNYMEMORIES CHANGING LIVES fem power tech DC Digital Civics

See http://tinyurl.com/ThePartnershipQuilt for more info and downloads

A.16 Making Useful Stuff: The Partnership Quilt

While Janis Meissner and I were working on the quit project, she was making a series of booklets on communities of making for her own research project. This series of booklets was called *Making Useful Stuff*.

Together, we made a booklet on The Partnership Quilt.

MAKING USEFUL STUFF

BookletsonlocalMaking





ABOUT THE PROJECT

The Partnership Quilt is a collaboration between Changing Lives, Six Penny Memories, and Open Lab at Newcastle University. It started out as an activity for clients of the Girls and Proud project in Changing Lives to do during the Northumberland drop-in sessions organised by Kirsty. Quickly this turned into something bigger – clients began sewing at home, while waiting for appointments, or even in the bath! As Kim and Debbie from Six Penny Memories became involved in the project the individual pieces came together and were shaped into a well-balanced quilt. While this quilt by itself is something all those who put a stitch in it can be proud of, the addition of the secondary quilt is what makes this a truly special project. Angelika and Janis from Open Lab used do-it-yourself, flexible, and low-cost technologies to turn the soft and colourful quilt into a living archive of sex workers' stories and experiences of Changing Lives service delivery in the North East of England. The addition of quilted capacitive touch sensors turns this traditional craft artefact into a contemporary piece of interactive art: by touching some of the rosettes on the quilt a voice is activated to tell a part of the story that lies in the folds and seams of the quilt.

The materials we used allow us not only to continue to share the story of the quilt, but they allow Changing Lives staff to curate the audio recordings and easily exchange the voices that are shared through the quilt. Like this, it can be used for exhibitions, staff training, or focused one-on-one reflection.

THANKS!

We would like to give special thanks to Ann who was the Changing Lives volunteer who started this project.
We would also like to thank Vlieseline for exhibiting the quilt on their stall at the Festival of Quilts 2017.

Part of this project was funded through the EPSRC Centre for Doctoral Training in Digital Civics (EP/L016176/1)

QUILTER QUOTES

"we never expected it to really turn out to be a quilt, did we?"
"No, cause we were making, we were carrying and going on with it, isn't it?"
"yea, and we had a lovely time making it, didn't we?"
"yea, we had some laughs, didn't we?"



"You cannot think of anything else when you're doing it. You just concentrate on that and you don't realise how long you've been sitting there doing it; and then you've done like 5 [pieces]"



"drop-ins are just such a nice space to be able to do everything you want to do. Like you love the drop-in don't you?" "Yea, it's, it's the best thing I ever did. It changed me life."

"we talked loads of this when we were making the quilt about 'eee do you remember when you were little, and your mam' or 'when you were in school and they showed you how to sew' and the memories that you get"

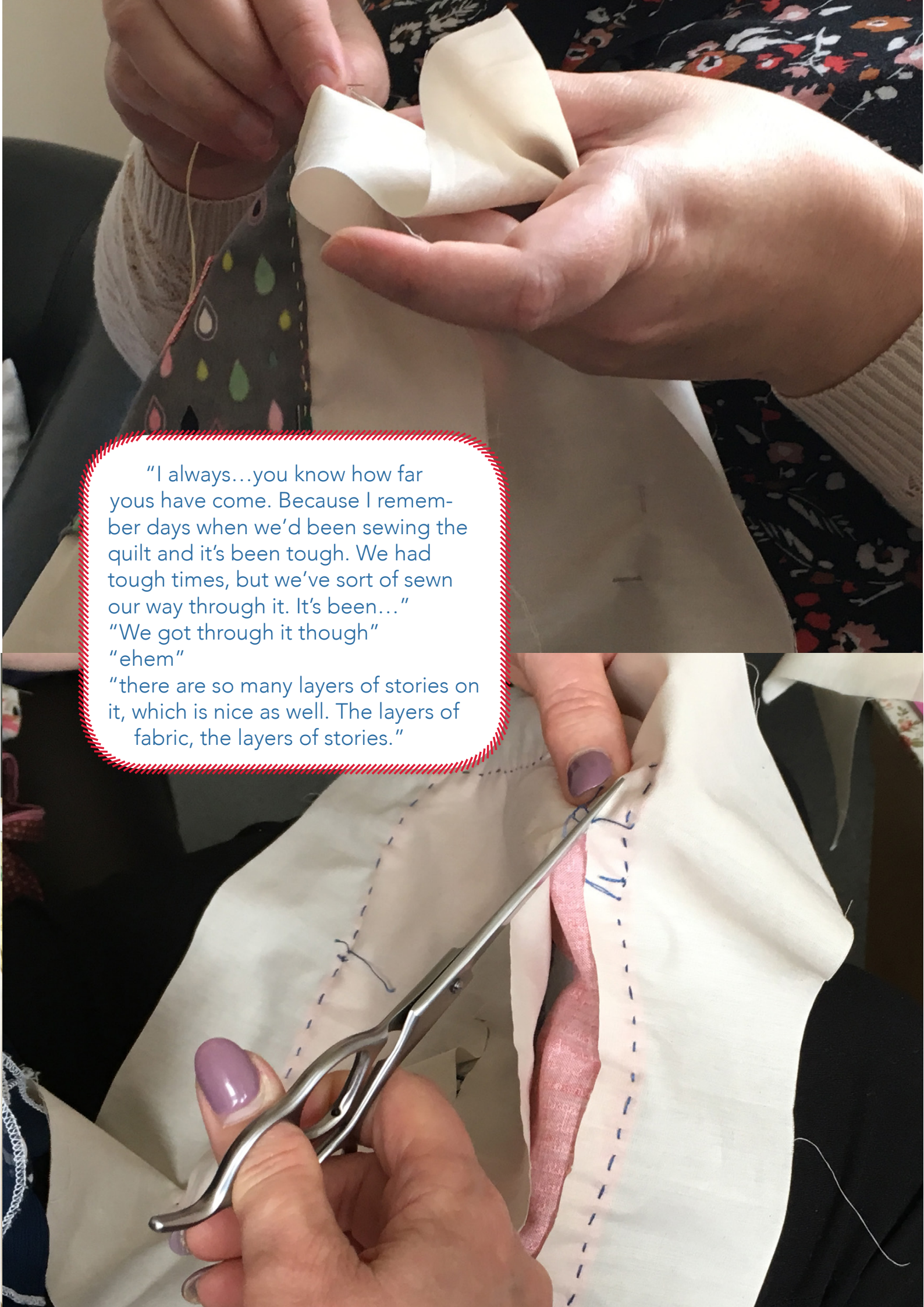
"there's something about a group of women getting together and getting a thing done! […] women are really good at that aren't they? Like, this is what we need to get done and everybody's done a little bit haven't they? And I think that's a beautiful thing!"



JUNE SESSION

STARTING TO ASSEMBLE THE QUILT

"I am proud of it, don't get me wrong, I am proud of the quilt now it's finished, just when it wasn't finished"



"I always…you know how far yous have come. Because I remember days when we'd been sewing the quilt and it's been tough. We had tough times, but we've sort of sewn our way through it. It's been…"
"We got through it though"
"ehem"
"there are so many layers of stories on it, which is nice as well. The layers of fabric, the layers of stories."

JULY SESSION



"The North East is absolutely steeped in history. We are very well known throughout the world for our quilting. Textiles. Particularly the quilting designs that's that's the hand quilts. So when you did this running stitch and it's gone through, and this stitch here that's gone through three layers […] When you put your buttons on, you're actually quilting […] So you've, you're carrying on a tradition that's particularly popular in this area."



FINAL QUILTING

"If we would have said: there's an app that you can use at this difficult time, you probably would have used it for a short period of time, but then maybe you'd have never let it, never updated it, whatever. But you'll always have this skill"

"I was a technophobe so I wouldn't have picked [an app] up, yea. I would have probably had a look at it and then been…"

"So this is right up peoples street then, isn't it?

"yea, I like it. I like to make."

ATTACHING THE SENSOR ELECTRODES


"I don't think the GAP and MAP projects ever come up with anything like this, like, creative, in such a long time! […] it's the first time the project's actually come out with a result like this."
"eeeee there's a feminist undertone here somewhere!"

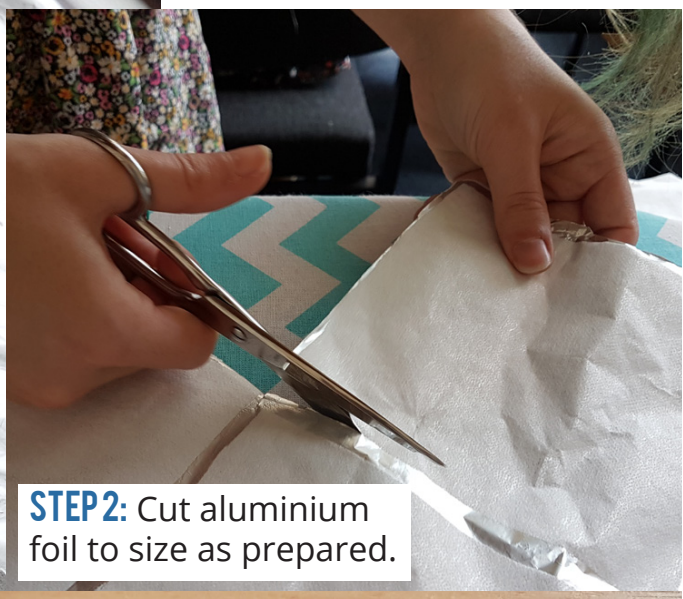


"actually seeing it, I feel a bit like, wowed. Is that the word? […] Getting a group of lasses together"
"and get on with it, innit?! It's a job"
"just a job, keep werselves busy, we've kept ourselves out of trouble and I've got some lovely memories sitting with youse"

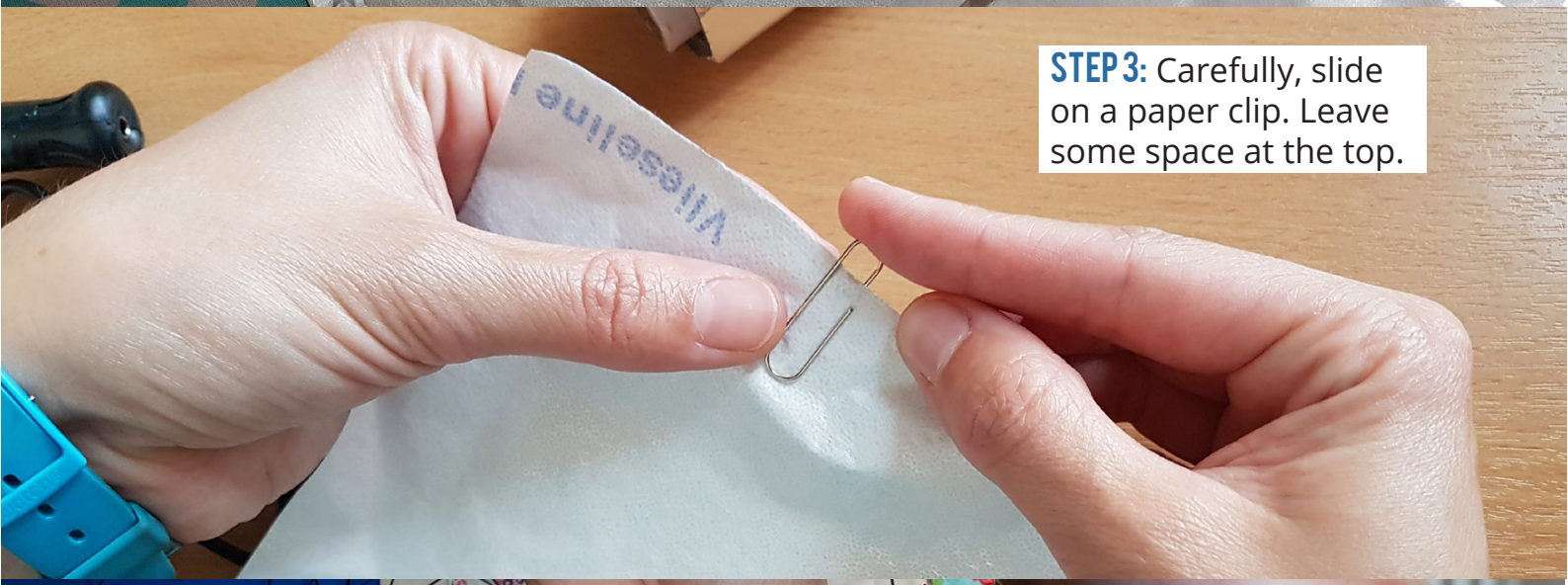
HOW TO MAKE AN ELECTRODE



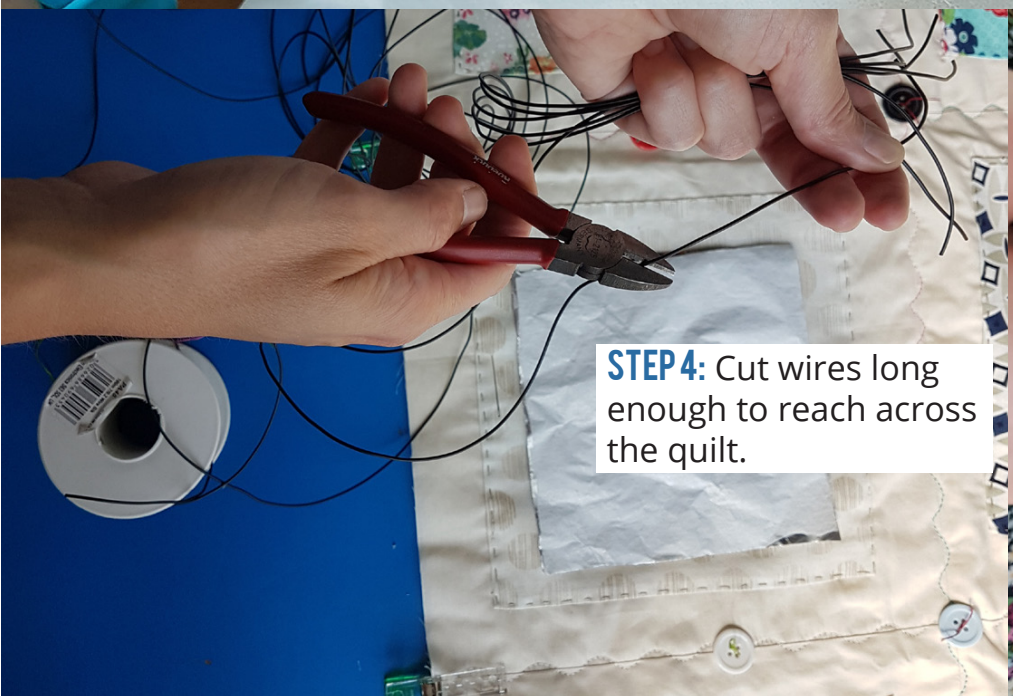
STEP 1: Cut out rectangles from one-sided fusible interlining. Iron these onto aluminium foil.



STEP 2: Cut aluminium foil to size as prepared.



STEP 3: Carefully, slide on a paper clip. Leave some space at the top.



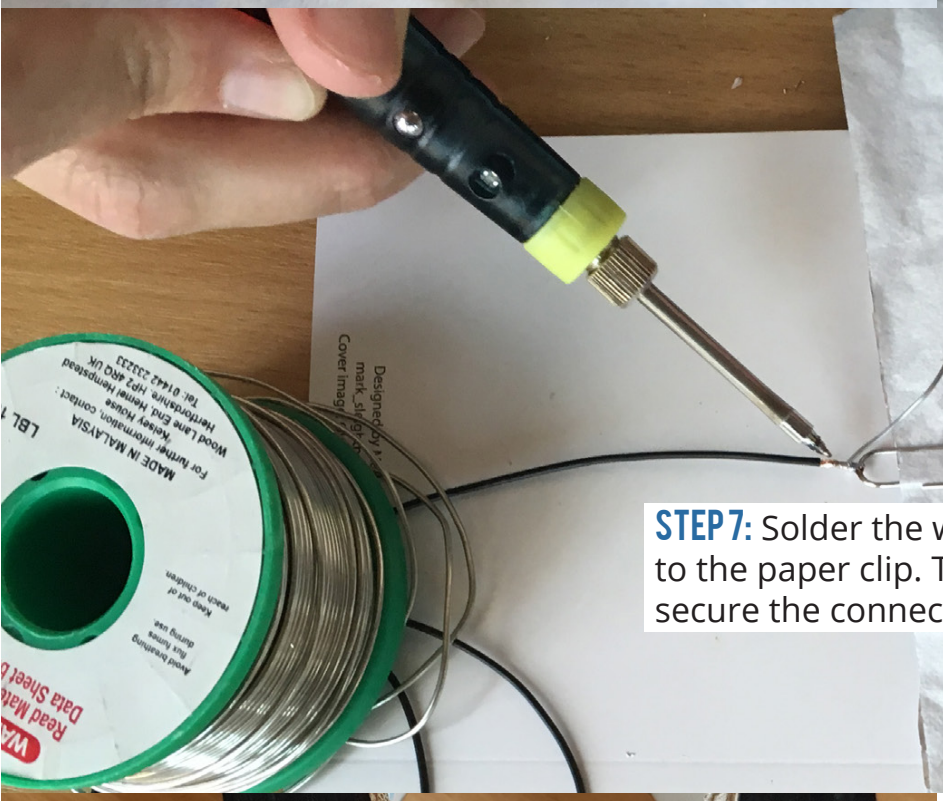
STEP 4: Cut wires long enough to reach across the quilt.



STEP 5: Uncoat the wires.



STEP 6: Twist the wire ends to keep the copper wire strands together. Then wrap the wire end around the paper clip top and twist again to secure the loop around the paper clip.





STEP 7: Solder the wire end to the paper clip. This will secure the connection.

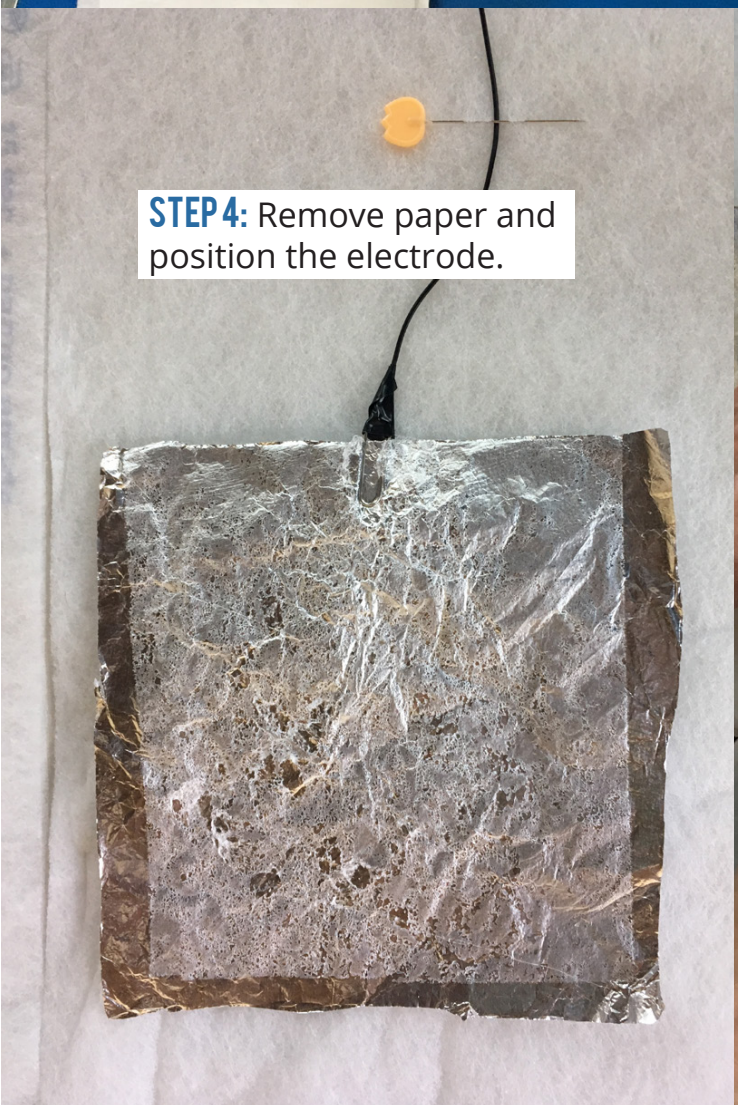


STEP 8: Use a bit of insulating tape to protect the soldered connection from bending and breaking.

ATTACHING THE SENSORS TO THE QUILT

STEP 1: Cut out double-sided fusible web in the shape and dimension of the prepared electrodes. Iron it onto the aluminium side of the prepared electrode.

STEP 2: Iron it onto the aluminium side of the prepared electrode.



STEP 4: Remove paper and position the electrode.



STEP 5: Turn around and iron onto backside layer.


STEP 3:
Decide on which parts of the quilt should be made interactive.


The Partnership Quilt
An interactive crafts project by
SIXPENNYMEMORIES
CHANGING LIVES
Open Lab
at Newcastle University
For more information visit:
http://tinyurl.com/partnershipquilt
For more information on CHANGING LIVES, GAP AND MAP visit:
http://www.changing-lives.org.uk/

A.17 List of Publications

A list of publications related to the work carried out to be able to produce this manuscript in academic and non-academic settings.

Peer-Reviewed Academic Publications

- Strohmayer, A., Meissner, J. (under review) The Partnership Quilt: An Interactive Living Archive of Sex Worker Voices. In Special Issue 'Art and Archive' Curator: The Museum Journal.

- Strohmayer, A. (forthcoming) Using technologies to commemorate International Day to End Violence Against Sex Workers in the North East of England. In Special Issue 'Feminist and Women's Studies Association Student Essay Competition' International Journal of Women's Studies

- Bellini, R., Strohmayer, A., Olivier, P., Crivellaro, C. (forthcoming) Mapping the Margins: Navigating Ecologies of Domestic Violence Service Provision. CHI '19 Proceedings of the SIGCHI Conference on Human Factors in Computing Systems.

- Strohmayer, A., Clamen, J., Laing, M. (forthcoming) Technologies for Social Justice: Lessons from Sex Workers at the Front Lines. CHI '19 Proceedings of the SIGCHI Conference on Human Factors in Computing Systems.

- Strohmayer, A., MacArthur, C., Spors, V., Muller, M., Vigil-Hayes, M., Alabdulqader, E. (forthcoming) CHInclusion: Working towards a more inclusive HCI Community. EA CHI '19 Proceedings of hte SIGCHI Conference on Human Factors in Computing Systems.

- Strohmayer, A., Laing, M., Comber, R. (2019). Justice-Oriented Ecologies: A Framework for Designing Technologies with Sex Work Support Services In: Susan Dewey, Isabel Crowhurst, Chimaraoke Izugbara International Handbook of Sex Industry Research. Routledge.

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- Brueggemann, M.J., Strohmayer, A., Marshall, M., Birbeck, N., Thomas, V. (2017). Reflexive Practices for the Future of Design Education: An Exercise in Ethno-Empathy. The Design Journal: An International Journal for All Aspects of Design. 20 (Issue sup1).

Non-Academic Publications

- Strohmayer, A., Nappey, T., Jenkins, E., Anderson, R. (January 2018). National Ugly Mugs: Design Justifications, Special Operating Procedures, and Rationale.

- Nappey, T., Strohmayer, A., Jenkins, E., Anderson, R. (January 2018). National Ugly Mugs: Brand Guidelines.

- Strohmayer, A., Meissner, J. (December 2017). "We had tough times, but we've sort of sewn our way through it": The Partnership Quilt. XRDS: Crossroads. ACM.

- Strohmayer, A., Meissner, J. (December 2017). The Partnership Quilt: Project Report.
- Strohmayer, A., Meissner, J. (December 2017). The Red Umbrella March: Potentials for Technologies.
- Strohmayer, A., Meissner, J. (2017) The Partnership Quilt: An Interactive Living Archive of Sex Worker Voices At Community Informatics Research Network (CIRN) Conference. Prato, Italy: Paper Session and Poster/Interactive Installation
- Harley, Laing, M., Campbell, D., Strohmayer, A. (2017) TransActions: A Project with Trans Sex Workers (project report)
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