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The Soft Touch

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The Soft Touch. Design vs. Disruption

Soft touch
n. A gentle way of handling someone or something.

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Abstract: Loneliness is a growing endemic social condition that can be deeply harmful to health and wellbeing, particularly for ageing populations, who, consequently, may be at greater risk of developing depression, Alzheimer's and cardiovascular disease (Campaign to End Loneliness, 2016). Contributing to a PhD study that employs a soft design approach* towards connectedness – the antithesis of loneliness – twelve older adults were invited to experience an interactive e-textile prototype, the 'Dundee Conversation Quilt'. Designed by individuals with experience of loneliness to prompt dialogue and interaction, the quilt reflects three core values that participants have consistently identified as being key to social connectedness: *identity, heritage and storytelling*.

Despite the relative success of the group activity sessions, in this paper we will discuss a situation where disruption, distraction and – at times – discomfort prevailed during a workshop where the Dundee Conversation Quilt was tested. Hosted by a local charitable organisation and up against adverse environmental factors including an unexpectedly hot climate and last minute changes to the workspace and facilitation team, this workshop presented challenges outwith the researchers' control, and to the potential detriment of participant wellbeing. We unpack this demanding workshop journey, reporting on the workshop design; its' successes in providing opportunity for connectedness; its' derailments - and the implications of these disruptions.

*gentle, sensitive and responsive to participant needs and experiences

Keywords: Workshop Design; E-textiles; Participatory Design

1. Research Context

As inherently social creatures, the sensory experience of feeling socially connected to others is key in sustaining our psychological and physiological wellbeing. Whilst previous studies have advocated the use of the Internet and Internet enabled devices in combatting older adults' feelings of loneliness (Cattan et al., 2005; Cotten et al., 2013; Shapira et al., 2007), digital interfaces may not instigate meaningful or physical interactions that are fundamental in engendering and maintaining

connectedness (Kaye & Goulding, 2004). Designing for connectedness requires creativity and sensitivity, a 'softer touch'.

1.1 The Problem with Loneliness

Loneliness is defined as a subjective experience where a gap exists between an individual's desire for connection and the reality of their connections (RCGP, 2018). By definition, to 'be lonely', reflects an individual or subjective experience, and there are various causes or triggers that may prompt loneliness. Older adults are considered to be at greater risk as a result of specific age related changes in their life (e.g. decline in health and physical activity, changes in social circles, death and bereavement) and life transitions (e.g. retirement, downsizing or moving into assisted living accommodation and illness or disability). Other risk factors include having cognitive or sensory impairment(s), being an older carer, having little or no contact with neighbours and living alone (Loneliness Research, 2016). In a recent survey conducted by Age UK, 86% of people aged 65 years and over express dissatisfaction with their interpersonal relationships (the lowest rating of all age groups surveyed), and 49% of the same group identified television or pets as their main companion (Davidson & Rossal, 2015).

Several interventions or strategies are employed in tackling loneliness and improving social and mental wellbeing. These include supporting older adults in improving their social skills, enhancing social support, increasing opportunities for social interaction, and addressing poorly adaptive social cognition (Masi et al., 2010). This is often provided through third sector and social prescribing services such as befriending which put an emphasis on group and social interaction aiming to support individuals in reconnecting with their family, friends, peers and wider community. The PhD research study 'Textile Connections' takes inspiration from these interventions and has created e-textile prototypes that; encourage one-to-one or group interaction; focus attention on the task and participants at hand; and encourage interpersonal and social exchanges such as conversation, to softly mediate harmful experiences such as loneliness.

1.2 The Opportunity in E-textiles

Textiles are ubiquitous within all cultures, found in a whole host of products and applications that accompany us through our lifetimes, crafted or incorporated into objects for utility, comfort, care and communication (Author, 2017). This research considers e-textiles - a field where the various physical, visual and tactile experiences of traditional textiles are combined with digital components including power, light, sound and small computers - as soft tools for connectedness.

'E-textiles' are textile substrate that is married with electronic elements, including metal-based yarns, to support electric conductivity and enable computation (Berzowska, 2005). Typically this comprises sensing (e.g. biometric or external) communication (often wireless), power transmission (e.g. wireless charging devices), and interconnection technologies that enable sensors or information processing tools to be networked together within a textile (ibid). As such, e-textiles can provide various sensory and social experiences that can positively affect wellbeing. For example, in phatic - or social - and haptic research and development, sensors and responsive devices are integrated into textiles to emit heat, pressure or light (Cho et al., 2015; Vetere et al., 2005). Whilst these innovations will never replace the physicality of person-to-person interaction, these assimilations allow e-textiles to extend and emulate physical, verbal and non-verbal interactions that are important exchanges in developing social and emotional connections key to wellbeing (Kaye & Goulding, 2004), and potentially support individuals who are experiencing loneliness.

2. Approach

The research within which the workshop was conducted, undertakes an empathic Participatory Design (PD) approach, engaging users and being responsive to their needs and aiming to, "enable older adults to contribute in a meaningful, empowering, and cognitively engaging [ways] to the design of new technologies" (Davidson & Jensen, 2013). Quality relationships have been built through a gradual process of user engagement and volunteering, and attention has been paid to the affective and emotional quality of user experiences (Wright & McCarthy, 2008). Additionally, in alignment with the position of Mattelmäki & Battarbee (2002), a sympathetic outlook has been employed, focused on: "*seeing and understanding users from their own position and perspective, and as people with feelings rather than test subjects".* The researcher practically applied this to the study through dialogue with participants (e.g. in fieldwork to understand current experiences), and imaginative activities (e.g. role-play with participants to understand possible future user experiences).

2.1 Designed with Care

Today there is strong argument for the involvement of possible end-users in design research and product development, as reinforced by several authors; "collaborative [design approaches] provide certain meaningful and rewarding engagements [for] participants" (Briggs-Goode et al., 2016); and "one of the greatest assets of PD has been to… [shift people] from being merely consulted, to actively asked to step up [and] take the pen in hand" (Robertson & Simonsen, 2013). As designers increasingly create means for enacting our social interactions and act as the bridge between end users and the design process, we have a duty of care (Light & Akama, 2014). Care ethics theorists describe care as being inbuilt within our bodies, natures and social mores (Toombs et al., 2015). This is particularly pertinent to the sphere of ethics and politics in PD practice, where designers are described as 'custodians for care' and the focus is beyond the design of objects or services an upon future societal relations (Light & Akama, 2014).

2.2. Ethics

The workshop was conducted with the ethical approval of Duncan of Jordanstone College of Art & Design Research Ethics Committee. A risk assessment for the workshops was conducted as part of this with the school health and safety officer. The workshop was audio recorded and photographed to capture discussion around and physical interactions with the quilt.

Participants who volunteered to take part in the workshop described were all aged 70 years and over and able to give full informed consent for their participation in this activity. All participants were service users of charitable organisation, Food Train Friends, who provide companionship, group activity and telephone befriending to people aged 65 years and over in Dundee. Participants were supported by service volunteers as they undertook the various tasks within the workshop. As a volunteer with this service, the researcher has full approval to work with older adults under the Protecting Vulnerable Groups scheme.

A survey combining a wellbeing scale (WEMWBS, Universities of Warwick and Edinburgh, 2007) and a Social Connectedness scale (Lee & Robbins, 1994), as well as transcriptions of conversation analysed against the Five Ways to Wellbeing model (Aked & Thomson, 2011) were used to understand mental and social wellbeing during the activity.

2.3 The Prototype

Grounded in PD practice this project has created e-textile prototypes through workshops comprised of low-tech, playful, tactile and visual craft activity (Mattelmäki et al., 2014). Textile crafting is recognised as beneficial to mental and social wellbeing, providing makers the opportunity to learn new skills, challenge themselves, meet other makers and build relationships (Kenning, 2015). In a workshop setting it also provides opportunity for analysis via prototyping, knowledge exchange and feedback.

Prior to the evaluation workshop, in a series of linked workshops with nine older adults who have experience of loneliness, participants took inspiration from existing social rituals and activities to explore applications for e-textiles as catalysts for connectedness. Particular inspiration was taken from the sights and sounds of the participants' shared hometown; their past occupations and routines; and the nostalgia around local icons and goods, including the local heritage in textile production. Within these sessions, participants discussed and identified representations of 'place' and 'heritage' within textiles including wall hangings and quilts, and brainstormed sounds associated and evocative of their hometown. Consequently, the Dundee Conversation Quilt was created by merging various visual and tactile properties offered by the soft textile medium – familiar and ubiquitous in our everyday lives - with responsive sound features (Figure 1).

Fig 1. Project participants devised a quilt design inspired by their hometown, to encourage conversation and reminiscence between their peers. The final prototype features hand-drawn images and tactile embellishments linked to the individual characteristics of each patch.

Designed for use in a group activity, the quilt can be shared on a table or across participants' laps. Sounds and songs from the city are embedded into hand-illustrated and embroidered fabric patches depicting scenes from the city using a Bare Conductive touch board and speaker. By listening to the sounds together, participants are encouraged towards storytelling, sharing, conversation and relationship building towards connectedness. Each patch has five associated sounds which play randomly when touched, e.g. a jute mill inspired patch was assigned the sound of a loom running, sound bites of traditional weaving songs, spoken word or phrases evocative of the mills. Users initiate the sounds by touching the conductive buttons – or touch sensors – stitched into each patch with conductive thread. The imagery and sounds integrated into the design stem from participants' identification of core themes they identified as key to connectedness; identity; heritage and

storytelling. Embodying stories, sociality and a sense of place within the quilt echoes the values of traditional quilting; often composed of imagery or materials of sentimental value or cultural significance, quilts serve as heirlooms or memorials. Gordon (2011) notes that cloth quilts "seem to hold ancestors' energy". Our visceral interactions with them can draw us into and connect us to memories and experiences of people, places or events.

3. The Workshop: Design vs. Disruption

The workshop was proposed as an evaluation session in conversation with the service coordinator; two of the service members had participated in previous co-design workshops with the researcher at the University through which the Dundee Conversation Quilt had been created. They had expressed an interest in sharing the prototype with their peers, to hear their thoughts and offer them an activity that they described as 'something a bit different'.

The workshop was planned to take place on a Friday afternoon in July 2018 at a local community hub and incorporated into the service's Friday Friends Club activity programme. As a volunteer with the service, the researcher was already known to the group and had previously run a series of textile and handicraft sessions with the Friday Friends Club. Twelve participants - all female and aged between 70 and 95 years old with diverse needs including vision and hearing difficulties - volunteered to attend.

Focused on creating opportunity to connect with others around the theme of their hometown, this workshop was designed to:

1. Evaluate the Dundee Conversation Quilt as a catalyst for connectedness: would it produce meaningful conversation and establish connections between participants?
2. Measure and observe mental and social wellbeing in response to the textile prototype - and any subsequent interactions.
3. Invite participants to personalise quilt patches as mementos of the session (Figure 2).

However, despite careful design, disruptions to the workshop occurred, largely as result of an unexpectedly hot climate. These disruptions instigated deviations and distractions from the activity plan. We unpack these and explore their impact upon participants.

Fig 2. *Participants decorated and embellished patches reflecting the quilt as mementos of the session.*

3.1 Design

The design of this workshop incorporated learning articulated by previous research. We acknowledged the challenges presented by previous studies in obtaining both design requirements and evaluation of new devices from older users. Pertinent challenges and learning included:

- Communication problems between designers and users, possibly due to hearing difficulties or lack of understanding of terminologies, for example (Eisma et al., 2004)

- A tendency to praise prototypes presented rather than critically assess, often blaming their lack of skills rather than poor design (ibid)

- Distrust and limited understanding of technology or computation based tasks can lead to reluctance to experiment or engage with new devices (Hardy & Baird, 2002)

- Anxiety around learning to use new devices (Marquie et al., 2002)

- Age-related factors such as tiring easily (Kayser-Jones & Koenig, 1994) which can limit the length of workshop sessions.

Further advice (Davidson & Jensen, 2013; Lindsay et al., 2012; Xie et al., 2010) in aptly structuring and delivering the session for this participant group was also included in the workshop design. This included: minimising cross talk (and thereby any auditory problems) through facilitation approach and by splitting the participants into smaller groups; and making participation an institutional affair (Massimi et al., 2007) by communicating that the study forms part of a larger regimen of care and on-going community service, allowing the participants context within which to understand the value of their participation.

To mitigate communication issues, and in accordance with advice from the service coordinator, storyboards using Bonnington symbols (Orr, 2014) were devised and given to participants during the briefing summarising the key tasks. Additionally, the volume of the speakers incorporated into the quilt were tested and adjusted to better suit the participants with hearing difficulty, and extra support was to be provided by volunteers to participants with visual impairments in completing the paper-based tasks. The researcher drew upon previous discussions with older adults in earlier project workshops to describe more specialist aspects of the prototype; for example, 'touch sensors' were described as 'fabric buttons'. Participants would be assured that the prototype was not finished but rather 'an expression of an idea', and that their opinions were very welcome. Understanding that the participants were all moderately-proficient to skilled sewers - indeed, one participant had worked as a seamstress - their feedback would firstly be invited regards the construction methods and aesthetic choices. The aim being to establish their confidence by firstly critiquing aspects of the prototype that aligned with their expertise and knowledge, before encouraging their critique of the audio and interactive aspects. Prompts were prepared to support these discussions, using the d.School 'I like, I wish, I wonder' framework (2009). The 'rules' for interacting with the quilt had also been prototyped before the workshop (e.g. taking turns or working in teams to press and guess the sounds) to alleviate potential mistrust or concerns around using the prototype. Additionally, the research activity was planned to comprise no longer that 1.5 hours within the 3-hour time allocation for the session, to avoid over-tiring participants.

In line with the usual Friday Friends Club programme, the workshop process (Figure 3) incorporated time for participants to receive lunch upon their arrival, before:

1. Briefing: Participants discuss any questions about the activity; consent is obtained; surveys completed.
2. Introducing the quilt: Participants experience and evaluate the prototype.
3. Debriefing: Participants give feedback; follow up surveys completed.
4. Crafting: Participants personalise fabric quilt patches as mementos of the session.
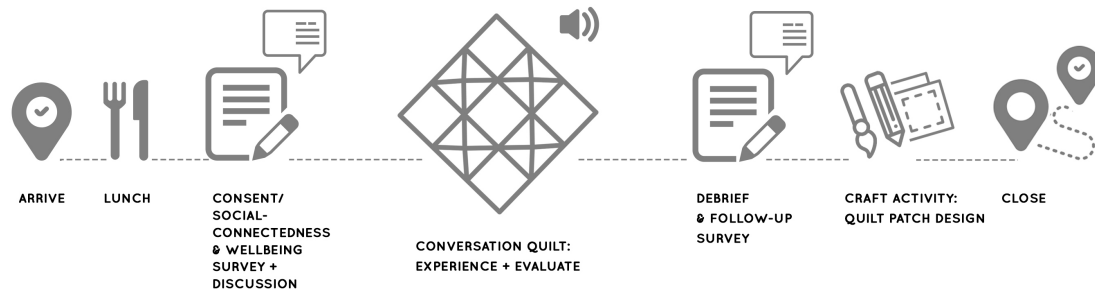
Fig 3. *Planned Workshop Process*

The objectives by the close of this workshop were to accomplish a positive experience and empower the participants engaging in the research (particularly the participants who had contributed to the creation of the quilt itself), as well as capture data concerning the social and wellbeing impacts of using e-textiles upon people who have experience of loneliness.

3.2 Disruption and Discovery: Workshop in Action

This workshop took place on one of the hottest days of the year, and upon arrival at the centre, participants were displaced from their usual workspace to a room with electric fans to help address the unexpectedly hot conditions. Whilst the change was well intended, participants consequently found themselves in a smaller, enclosed space, next to a kitchen and despite the electric fans, expressed discomfort at the warm conditions throughout the afternoon. They were seated in two groups, one of five and seven due to table space available. Additionally, this smaller room did not afford the researcher space to considerately position recording equipment and these were instead placed – perhaps more intrusively -at table-level.

As planned, participants were firstly provided with lunch (which included soup, pudding and hot beverages) before the researcher delivered the brief and obtained consent. Participants then completed surveys to ascertain their 'normal' perceived states of wellbeing and social connectedness. Unplanned, were last minute changes to the facilitation team and with just two other volunteers - there are usually four or more - attending on the day, facilitation of this activity became challenging and extended conversation between the researcher and participants was not possible, as the researcher moved between the two groups to support them. This impacted the dynamic of the session and jarred with participants' expectations - based on previous sessions where more conversation was possible. They experienced difficulty in completing their surveys - energy levels were low as a result of the heat and participants who required additional support (due to hearing and vision impairments), had to wait to be attended to. Additionally, in this smaller space, the researcher was not afforded a seat at the table and as such conversation or instructions were delivered from a standing position above the participants or by leaning in to the table; neither approach was in line with the intended convivial approach, and participants' (particularly those with

any hearing impairment) requested instructions to be repeated and at times expressed that they were 'lost' in the activity. This, perpetuated by the uncomfortable warm conditions, caused some disruption to the flow and feel of the session. Originally allotted thirty minutes, this activity took fifty, and was largely focused on the paperwork, as opposed to discussion.

Next, the quilt was introduced. Two identical versions were prepared to allow for maximum interaction for both groups. The researcher described the background as to its creation with input from the two group members who had contributed to its' design, and the context for use - i.e. to support group interaction - before participants were encouraged to explore its' materiality and functionality. The researcher described the interactive aspects of the quilt as planned (e.g. 'fabric buttons'). These descriptions were well received and each group took turns to choose patches to touch and to guess the resultant sounds produced. Through this process of listening and guessing, participants made associations and began to tell stories. However, the groups now being situated in such close proximity within this smaller workroom meant that the sounds from the two concurrently active quilts were at odds. Participants found this distracting, focus was lost and thus, stories or conversations were not conducted in depth. Additionally, with this activity falling within the local school holidays, the service coordinator's young son joined the session. Whilst talking and spending time with him clearly brought the participants great joy, his youthful approach to interacting with the quilt was sporadic, repeatedly triggering multiple sounds at once rather than individually. This was particularly challenging for participants with hearing difficulty, with one commenting, *"I've no idea what's what now, but isn't he having fun!"*

Despite these various distractions participants explored the quilt in turn and some discussions and storytelling related to identity and shared history ensued; *"That's the 'bummer'! Do you [remember] it calling you to work?"*; *"That's the sound of the river… I [remember] when you could get the ferry over to Fife"*; and, *"The marmalade (patch) reminds me of our visit to the jam factory – wasn't it good? Did you finish the jars you got yet?"* Their responses to the sounds generated some conversation and exchanges between participants; memories, stories and debate. However, these were punctuated by conversation about the heat and suggestions as to how best to improve airflow (e.g. opening doors and repositioning fans).

Despite this, the researcher observed positive changes in participants' physicality the longer they spent engaging with the quilt. For example, in Figure 4, images captured over a fifteen-minute period as participants interacted with the quilt chart a change in body language and facial expression. At the beginning of the activity, the participants are displaying defensive or closed body language - folded arms and looking away from the quilt. But as the activity progresses, and more discussion is produced, participants body language becomes more confident and they are reaching and leaning in to engage with the activity, arms and faces are more relaxed. In the final frame, participants display 'mirroring' in their body language - both with their left hands resting on their faces, 'tuning in', smiling and listening to their fellow group members tell a funny story related to their time working in a local hospital.

Fig 4. *Participants interacting with quilt. L-R; participants display closed body language; participants display more open body language, leaning into the quilt; participants display 'mirroring', both with their left hands resting on their faces.*

A delivery of bottled water, providing a pause within the workshop, encouraged the researcher to conclude the research activity and introduce the crafting portion of the session. Participants' chose from a range of materials including buttons, beads, yarn, fabric paints, pencils and pastels to personalise quilt patches reflecting the Dundee Conversation Quilt to take home as mementoes. Working as a group within the conditions previously described had been demanding in terms of concentration, focus and general conversation tracking. Now working individually, participants could become quietly immersed in decorating and personalising their fabric patches. This immersion - often likened to a 'meditative' state in craft (Yair, 2011) - was a tonic to some of the complexity presented earlier. As the close of the session approached, participants refused their usual tea and cake, expressing a preference to carry on with their crafting instead. A comparison survey was planned for the close of the activity but due to time constraints and concern over participant comfort, this was abandoned.

Despite the difficulties presented in conducting the research activity and the challenges that were posed to their comfort, the opportunity to reminisce and connect over the quilt and to engage in the crafting activity was enjoyed and participants provided positive feedback as they left session; "*Well, that was something a bit different for me – which is really good!*"; "*It's good to learn new things about the group - you see you've so much in common";* and *"I can't wait to give this (patch) to my grandson, he'll be so proud of me.*" Participants also expressed appreciation of the care taken to create an enjoyable experience; "*It's clear that you put a lot of time in to planning this. Well it's been worth it and it shows [gesturing to their patches on the table]*"

4. Reflections & Recommendations

This workshop presented a series of challenges ultimately instigated by the uncontrollable climate but also presented valuable learning. We identify issues related to planning and people as key to future workshop design. We present our reflections and recommendations:

4.1 Planning

Working with a familiar partner - in this case, the service provider - to deliver a workshop, allows us to design with considerable knowledge and understanding of the workspace and the needs of the people involved. Whilst anticipating these needs aligns with a 'designed with care' ethos, workshop plans such as this may risk inflexibility. In the workshop described, the researcher had specifically planned to conduct the workshop in the usual workspace, but once displaced, was unable to deliver or record the workshop as fully intended. This ultimately contributed to the discomfiture of participants and was, to some extent, detrimental to the process of data collection. Placed closely together, the sounds produced by two quilts simultaneously caused auditory issues and with fewer

chairs, the dynamic and conversation between researcher and participants was fragmented. Unable to position the recording devices as planned, the researcher was not able to capture video evidence of participants' interactions with the prototype as imagined. This resulted in further distraction as the researcher worked to capture intermittent field notes. Due to time constraints the researcher was unable to employ a second WEMWBS scale to compare wellbeing scores. Whilst the researcher was able to be flexible in terms of adjusting the length of the activities during the workshop, the workspace itself offered no flexibility.

In future, the researcher will plan alternative accommodation with workshop facilitators in advance of sessions to better prepare in case of any similar occurrence.

4.2 People

Collaborations within research can be fruitful but challenging and when activity is conducted outside of controlled research conditions (e.g. in a designated university workspace), the expectations, roles and relationships between researcher and project partners are ever developing. This can result in unexpected difficulties, for example, volunteers' commitments may change; participants who are not aligned with your criteria may become involved (in this case, the service coordinator's son); and participants' needs may change. In this workshop, changes to the facilitation team and the attendance of a young child, at times dramatically altered the dynamic and negatively impacted upon participant experience with the research tasks.

In future, the researcher will work to mitigate these challenges by working with the project partners to design strategies that respond to the unexpected. E.g. giving agency to participants by assigning specific roles or tasks within the participant group. In this case, assigning participants the task of supporting one another in completing paperwork might have created a more amiable experience.

4.3 Key Recommendations

Whilst designed to softly support older adults through this design research activity around a difficult social issue, the workshop design was in parts, inflexible and dependant upon variables that should not be assumed as certain. People, places and processes can and do change, and as designers we must prepare and anticipate this, regardless of previous experiences. This is particularly relevant when working with older adults whose health in particular, may be prone to sudden change (Nevay & Lim, 2016). The researcher, whilst acknowledging the many benefits afforded by their relationship with this workshop partner, counsels that assumptions based on familiarity and routine can arise and possibly cloud decision-making.

Our recommendations for future researchers working with project partners to deliver workshops that cater both to the care of participants and research objectives centre upon: designing with flexibility; articulating specific and on-going aims to collaborators in advance to support reciprocity; and preparing alternative strategies or modes for completing key tasks.

5. Conclusion

As design researchers working to address real life issues, we are tasked with scoping, interpreting and learning from various environments or fields and working in spaces that are not controlled research environments. Naturally this presents risks. Although the Dundee Conversation Quilt did instigate storytelling and conversation, its impact upon participants' mental and social wellbeing was limited by uncomfortable working conditions. Participants found themselves at times weary, irritable, and without appropriate support. Working within conditions set by project partners or

outside organisations – or impeded by unexpected forces, such as weather – can challenge research objectives. In this paper, we unpacked lessons learned to help other researchers be aware of external factors that might disrupt workshop design and to mitigate risks that may jeopardise data collection and participant wellbeing.

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