virtuous circle

cumulus creative linking

POLITECNICO DI MILANO

SUMMER CUMULUS CONFERENCE - POLITECNICO DI MILANO - 3-7 JUNE 2015

RADICALISING THE DESIGNER: COMBATING AGE-RELATED LONELINESS THROUGH RADICAL-DIGITAL INTERVENTIONS

Dhruv Sharma
Mr.
Lancaster University
United Kingdom
d.sharma2@lancaster.ac.uk

Stephen Clune
Dr.
Lancaster University
United Kingdom
s.clune@lancaster.ac.uk

Lynne Blair
Dr.
Lancaster University
United Kingdom
l.blair@lancaster.ac.uk

ABSTRACT (Arial Bold 10 pt)
"Designers work at the intersection of (cultural) trends" (Grant & Fox, 1992) and current demographic developments strongly call for their participation to bring about a meaningful change to the social lives of the elderly. Loneliness is a growing issue amongst older people and one popular approach to tackling it is by developing interventions such as befriending services, mentoring provisions, social clubs etc. In this paper we have critically examined such non-medical interventions through a design lens. We have described the method we used to identify patterns (Alexander, Ishikawa, & Silverstein, 1977) in these interventions using a specially developed coding strategy. Our analysis reveals that majority of the interventions follow an 'incremental' approach to addressing loneliness. We highlight the need for designers to experiment in the 'radical-digital' realm to explore the usefulness and utility of interventions that are digital in nature and do not follow a 'business as usual' approach. We argue that designers, with their innate ability to develop empathic designs can change the landscape of these interventions by finding innovative ways of either conceptualising new radical-digital interventions or by facilitating mobility and migration between different types of interventions that are either incremental or physical in nature.

KEYWORDS
Loneliness. Interventions. Design

INTRODUCTION

The discussion herein aims to explore the prevalence of ‘loneliness’ amongst the ageing population of UK, with a view to unpack the challenges loneliness presents, and critically review the coping strategies that have been deployed in response to loneliness via a design lens.

Results from an English longitudinal study of ageing by the Office for National Statistics, UK (ONS) suggest that 25 per cent of those aged 52 and over felt lonely sometimes. A further 9 per cent of these respondents reported that they ‘often’ felt lonely (Beaumont, 2013). In order to holistically look at the problem of reducing loneliness amongst the elderly population, this paper 1. Provides a background to loneliness and challenges that the ageing population presents, 2 introduces the pattern language (Alexander et al., 1977) method used to critique contemporary loneliness interventions, and 3 discusses the results with specific respect to how design experimentation and explorations could reduce loneliness.

BACKGROUND

DEFINING LONELINESS: WHAT DOES THIS MEAN?

Humans are social animals and our social relationships are very important for our emotional fulfilment, behavioural adjustment and mental wellbeing (Hughes, Waite, Hawkley, & Cacioppo, 2004, p. 1). Disruption to these relationships can result in an exceedingly unpleasant experience associated with insufficient discharge of the need for human intimacy, called loneliness (Weiss, 1973). Loneliness is often perceived as a problem because it is known to have detrimental effects on a person’s health and quality of life (Cattan, White, Bond, & Learmouth, 2005; Lynch, 1977; Stuart-Hamilton, 2012). It can be equated to ‘perceived isolation’ (Luo, Hawkley, Waite, & Cacioppo, 2012) or can be more precisely defined as the distressing feeling that results from, and comes with, discrepancies between one’s desired and actual social relationships (Perlman & Peplau, 1998; Pinquart & Sörensen, 2003).

Loneliness is not to be confused with living alone as many who live alone live fully integrated and socially active lives (Leikas, Saariluoma, Rousi, Kuisma, & Vilpponen, 2012). However, loneliness has been known to be more common amongst people who live alone (Havinghurst, 1978; Hunt, 1978; Wenger, 1983). Because loneliness is a subjective feeling, it can also instigate depression amongst a person with no contacts (Stuart-Hamilton, 2012). Weiss describes it as “a gnawing chronic disease without redeeming features” (1973 p. 15).

It has long been understood that social isolation and loneliness are closely associated with ageing (Dykstra, 2009; Dykstra, Van Tilburg, & de Jong Gierveld, 2005; Halmos, 1998; Sheldon, 1948). Studies have revealed that those over the age of 80 years are more vulnerable to feeling lonely (Demakakos, Nunn, & Nazroo, 2006; Kaasa, 1998). Because loneliness is perceived as an indicator of increased blood pressure (Hawkley, Masi, Berry, & Cacioppo, 2006; Hawkley, Thisted, Masi, & Cacioppo, 2010) and is known to increase susceptibility to other diseases and mental illness (Masi, Chen, Hawkley, & Cacioppo, 2011; Tiwari, 2013) it can result in premature death.

Murphy has called loneliness (amongst the elderly), a “complex concept” (Murphy, 2006 p. 22). One way of making this point clearer is to look at Cattan et al.’s seminal work on ‘preventing social isolation and loneliness among older people’ (2005) where they systematically reviewed interventions designed to prevent loneliness amongst older adults. Some of the interventions they reviewed were conceived and implemented more than thirty years ago. This indicates that for the past three decades we have been grappling with similar, if not the same issues. In his recent speech, Jeremy Hunt (British MP) acknowledged our ‘utter failure’ to confront loneliness as a society (BBC News, 2013). Perhaps it also reflects that our existing methods are not effective in reducing or even moderating this social problem. This means that more research is needed to understand and tackle ageing, loneliness and the complexities in their relationship.

THE AGEING POPULATION: WHY IS THIS IMPORTANT?

The need to ‘tackle’ age-related loneliness and social isolation is

increasingly being recognised at policy level (Cattan, Newell, Bond, & White, 2003). Marsh (2014a) suggests that combating loneliness is now a local government priority in the UK and councils need expert advice in tackling it.

Though this work is set in the UK, it has global implications because population ageing is an international occurrence. “In 1950, just 8 % of the world population was aged 60 years or over. By 2005 that proportion had risen to 10 % and it is expected to be more than double over the next 40 years, reaching 22 % in 2050” (Rutherford, 2012 p. 6). According to the European Commission (EC) website, ageing is one of the biggest social and economic challenges for European societies and it will affect ‘all’ European Union (EU) countries (2014).

John Cacioppo, who co-authored the book ‘Loneliness: Human nature and the need for social connection’ (Cacioppo & Patrick, 2008) warns of an ongoing global ‘silver tsunami’ with baby boomers now reaching retirement age globally (Sample, 2014). In line with these trends, many of the challenges faced by the ageing population in these countries are likely to be similar – loneliness being just one of them.

WHEN THE ‘SILVER TSUNAMI’ AND LONELINESS MEET

According to Dychtwald and Flower’s ‘Age Wave’ theory of the baby boomers (1989), the surge in the number of elderly people is likely to exert socio-economic pressure on the world. Increasing loneliness amongst this demographic is naturally then a serious concern (BBC News, 2013; Bingham, 2012; Marsh, 2014a). Early evidence of this pressure can already be seen on National Health Services (NHS) in the UK. For instance, apart from elderly patients who need medical attention due to loneliness-related health conditions, it has also been reported that in a bid to cope with their loneliness, some elderly users tend to visit their General Practitioners (GPs) more frequently for company rather than medical advice. Castle Point Association of Voluntary Services Befriending Scheme (CAVS) refers to these elderly users as ‘frequent flyers’ (Campaign to End Loneliness website, 2013). O’Connor (2014) calls age-related loneliness ‘a ticking time bomb’ and suggests that it has serious cost

implications for the NHS. According to him doctors usually respond to patients' initially manifesting loneliness-related depression by prescribing conventional anti-depressants such as *Prozac*. However, he feels that this is not a solution: “it's akin to placing a sticking plaster on a bleeding skin wound” (O'Connor, 2014).

Though O’Connor’s use of a ‘time bomb’ metaphor to communicate the gravity of the situation might sound pessimistic, he provides an extremely valuable insight into our inability to deal with age-related loneliness so far. It is because healthcare has focussed on curing the symptoms (sticking plasters) more than targeting the root cause of the issue, that we haven’t been able to eradicate loneliness from the lives of older adults.

APPROACH - MAPPING INTERVENTIONS TO COMBAT LONELINESS: WHERE IS THE GAP FOR FURTHER DESIGN RESEARCH?

Cognitive theory of loneliness believes loneliness can be manipulated, hence the interest in intervention studies (Cattan et al., 2005). In their review, Windle et al. point out, “Just as the range of wellbeing services is extensive, so too is the available literature examining how well they work” (2011 p. 2).

Loneliness interventions are usually conceived as services and in this paper we have focussed on such ‘non-medical’ interventions. A host of these loneliness interventions were identified using an online ethnographic approach (Berg & Lune, 2004). A pattern language (Alexander et al., 1977) was then used to facilitate comparison and analysis of these loneliness interventions. This was achieved by logging their key characteristics into a *spreadsheet* template. Codes were developed around the scope of interventions, their objective, their approach to innovation, and their focus on technology. Windle et al.’s (2011) comprehensive review of interventions to prevent loneliness and social isolation inspired two of the four coding categories. These coding categories were refined through the coding process in order to arrive at mutually exclusive groups. These are discussed below:

ONE TO ONE, COMMUNITY OR GROUP BASED

The first set of codes relate to the scope of the intervention. Windle et al. (2011) have categorised different types of interventions under three broad headings 1. One to one interventions, 2. Group services and 3. Wider community engagement.

One to One interventions include interventions based on befriending services, mentoring and gatekeeping (i.e. Community Navigator or Wayfinder initiatives). Befriending can be defined as "an intervention that introduces the client to one or more individuals, whose main aim is to provide the client with additional social support through the development of an affirming, emotion-focused relationship over time" (Mead, Lester, Chew-Graham, Gask, & Bower, 2010). Mentoring on the other hand concentrates on achieving agreed individual goals. A social relationship if achieved is incidental. Finally, Wayfinders or Community Navigators are usually volunteers who help 'hard-to-reach' people and provide them with emotional, practical and social support. They act as an interface between the community and public services to enable signposting to relevant interventions (Windle et al., 2011).

Group Services Interventions such as day centre-type services (lunch clubs etc.) and social group schemes that aim to help people widen their social circles fall under this category (Age UK, 2011).

Wider Community Engagement includes programmes aimed at supporting individuals to increase their participation in existing activities (e.g. sport, use of libraries and museums) as well as to use and join outreach programmes and volunteer schemes (Windle et al., 2011).

These three forms of interventions i.e. One to one interventions, Group services and Wider Community Engagement were used as coding categories.

PREVENTATIVE, SUPPORTIVE OR REMEDIAL

A second set of codes was based on the objective of the

interventions. They were classed as either being *preventative*, *supportive* or *remedial* based on their individual emphases on whether they prevented someone from being lonely, looked to reduce their loneliness or just provided support to the ones who were lonely without reducing the effect of loneliness as such (Windle et al., 2011).

INCREMENTAL VERSUS RADICAL

Manzini's work on *Incremental versus Radical* innovations informed the third category for coding. This is akin to 'reformist' vs. 'radical' departures in environmental discourses presented by Dryzek (2005). Incremental or reformist departures seek solutions within familiar modes of rational management, whereas radical departures argue for a comparatively significant movement away from industrial modes of living and being. While talking about 'technological innovation', Manzini suggests that incremental innovations are those that reflect our existing ways of 'thinking and doing'. Similarly those that fall outside our current ways of 'thinking and doing' symbolise radical innovation (Manzini & DESIS Network, 2014). Inspired by these distinctions, interventions were coded as either being incremental or radical in their approach.

DIGITAL VERSUS PHYSICAL

Kraft and Yardley state that "the digital environment (e.g. Internet, mobile phones, smart phones) that is now an integral part of our daily lives is becoming an increasingly important means of sustaining the health of people worldwide, whether by providing access to a wealth of information, by linking geographically dispersed communities of peers and professionals, or by supporting self-management of health and illness" (2009 p. 615). Also digital technologies afford qualities that negate the challenge of mobility posed by old age, which can impede their contact with the 'physical world'. Therefore a distinction between digital and 'physical' interventions was established based on an elderly person's level of (direct) engagement with internet-based technologies.

LOGGING THE INTERVENTIONS

The interventions found using online ethnography initially were

used to develop and refine coding. Once the codes were established initially, interventions enlisted on the *Campaign to End Loneliness* website's examples section (2014) were reviewed and logged onto the template. Coding was then completed for all the interventions discussed on the website. None of the interventions identified using the initial online ethnography were found on the *Campaign to End* Loneliness website. These interventions were then coded and visualised using the following approach.

Each intervention was visualised as a dot on a grid. Seeking inspiration from the traffic light colours, the dots were coloured Red, Orange and Green based on whether they were Preventative, Supportive or Remedial respectively. Additionally, every colour-coded dot had a letter each – O, G or C based on it being classified as One to one, Group based or Community based respectively. Individual dots were then mapped onto a grid. The location of the dot in the grid was determined by the intervention being coded as digital or physical and incremental and radical as can be seen in the following example.

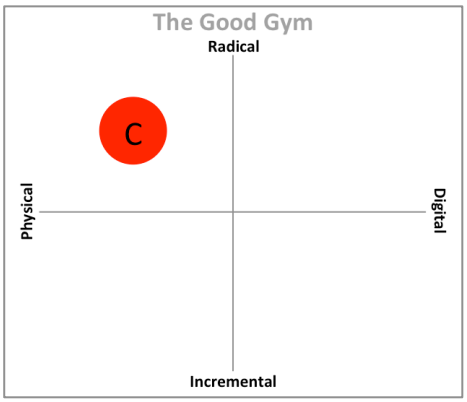

figure 1 Visualising *The Good Gym* using coding strategy

EXAMPLE CASE STUDY: GOOD GYM

The idea behind Good Gym is simple – get fit by doing good! Good Gym is a platform that connects participants with physical tasks that benefit their community and keep them fit. Good Gym is a not-for-profit organization founded in 2009 by Ivo Gormley, who discovered that combining his weekly run with a visit to an isolated and housebound family friend was just the motivation he needed to keep him exercising; it helped that his elderly friend was a former boxer who could offer health and fitness related tips (Barkham, 2012).

Good Gym encourages people to exercise by providing motivation in the form of social care. It matches busy workers with elderly 'coaches', who can get help with day-to-day chores such as fetching daily paper, fixing a light bulb or getting groceries. Good Gym also offers group runs where runners work together on community tasks such as distributing flyers, cleaning community parks and clubs etc. One of the most unique things about the Good Gym is that it targets both keen runners/helpers

as well as the lonely elderly via a platform that 'engages multiple meanings' (Sengers & Gaver, 2006). The organisation's founder, Ivo Gormley, explains "Good Gym makes people feel good about who they are, it makes it easy to do good, and helps older people who wouldn't otherwise see anyone" (quoted in Marsh, 2014b). Good Gym sends notifications to runners via emails, text messages etc. to notify them when a particular task needs to be completed.

After reviewing literature available on Good Gym, it was logged using the pattern analysis template. Coding questions were then used to categorise and visualise the intervention (see table 1 and figure 1).

1	**Does this intervention involve one-to-one interaction of personnel with the elderly?**			
	Yes		No	
	One-to-one	Community-based	Community-based	Group-based
1.1	***Does the intervention engage the wider community in any way?***		***Does the intervention engage the wider community in any way?***	
	Yes	No	Yes	No
	Community-based	One-to-one	Community-based	Group-based
2	**Does this intervention specifically address someone who can be identified as 'being lonely' or 'being socially isolated'?**			
	Yes		**No**	
	Remedial	Supportive	Preventative	
2.1	***Does this intervention attempt to eliminate specific effects of being lonely or being socially isolated?***			
	Yes	No		
	Remedial	Supportive		
3	**Does this intervention demonstrate unconventional ways of 'thinking and doing' things? For example, engaging previously unimagined stakeholders, addressing the issue of loneliness as a by-product of some other activity, adding to the 'meaning' etc.**			
	Yes		No	
	Radical		Incremental	
4	**Does the idea require elderly's direct engagement with the Internet-based technology? If an intervention requires the elderly to use their smartphone to make a phone-call, the intervention will be classed as being a physical one because they do not use their phone to access the Internet.**			
	Yes		**No**	
	Digital		Physical	

table 1 Logging *The Good Gym* using coding questions.

Using this method, all the interventions were logged onto the template, coded using the questions and then they were visualised individually to arrive at a characteristic visualisation for each intervention. Once all the interventions were logged individually, they were transferred onto a single grid as shown below:

RESULTS AND DISCUSSION: A ROADMAP FOR DESIGN EXPLORATION

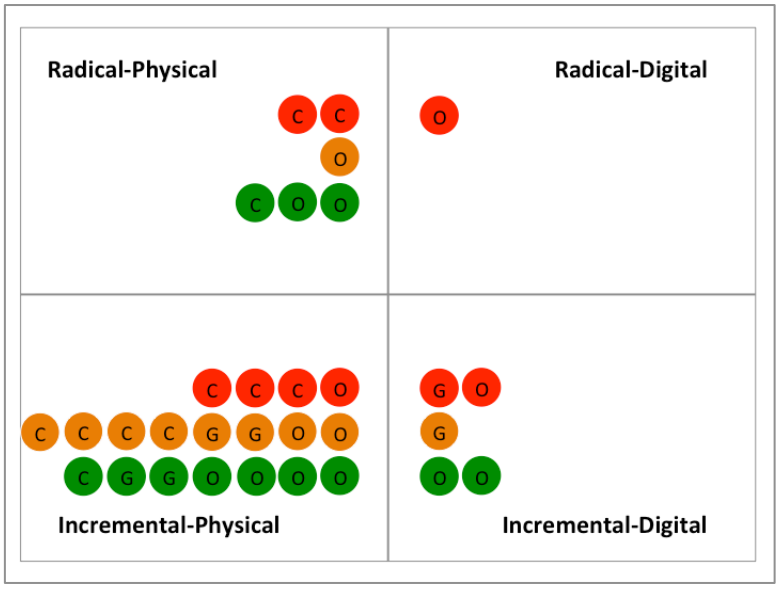

figure 2 Mapping all the interventions onto a single grid

A visual scan of the overall map suggests that there is a clear discrepancy between incremental and radical as well as digital versus physical interventions. The results indicate that majority of the interventions fall under the incremental-physical quadrant with just one of them classed as representing the radical-digital type. We have already discussed 'Good Gym' as an example from the radical-physical category. A quick discussion of examples from other quadrants will help understand the similarities and differences between their approaches.

Dorset Wayfinders has been classed as an incremental-physical intervention. It is a community-based service that provides signposting and support to older people by offering information to promote their healthy and independent living. Similarly the *Well Aware* website also provides related information but on an online platform. Therefore it is categorised as an incremental-digital intervention. Finally, *Speaking Exchange* is a service that connects elderly people living in a care-home in the USA to young students in Brazil using *Skype*. It aims to improve these Brazilian students' English-speaking skills while addressing loneliness amongst the elderly at the same time. Because of its

unique approach to addressing loneliness using digital technologies, it is a good example of a radical-digital intervention.

Further analysis reveals that nearly 77% of all the interventions reviewed represent our incremental approach to addressing the problem. The majority of the interventions were classified as remedial or supportive, while 19% of the studied interventions were digital in nature. Also nearly 45% of the services seemed to be one-to-one and group services only accounted for 6% of the total. Also, just 3% of the interventions were both radical as well as digital, represented by a single one-to-one, preventative service. We believe that this gap in radical digital interventions presents an opportunity for designers to prototype and experiment.

In this paper we argue for a shift of focus from exploring various forms of incremental-physical interventions to the ones that are radical-digital in their approach. We also suggest that design can facilitate this shift in focus by drawing upon existing social innovations. We have done this by looking at 1. Why it is important to explore this area? 2. What can social innovation do to nurture this shift? 3. What is the role of a designer in developing such Radical-Digital interventions?

EXPERIMENTING IN THE RADICAL-DIGITAL

Carpenter asserts that organisations and individuals interested in innovation have a tendency to get fixated on radical innovations, thereby forgetting the value of incremental steps (Carpenter, 2009). This argument is perhaps valid for a business setting but that sort of ‘fixation’ was nowhere evident in our review of these interventions. On the contrary, a preoccupation with very similar approaches, such as the Incremental-Physical type was quite evident.

Also, digital technologies are known to be beneficial in overcoming challenges posed by the physical world in other settings (The Centre for Knowledge Societies, 2006) but in this context, there seems to be an underutilisation of the strengths of digital technologies. Therefore we argue that it is only through

such experimentation that we will be able make a significant (radical) movement away from our current ways of dealing with loneliness and be able to comprehend the strengths and limitations of radical-digital interventions.

To blame the lack of radical-digital loneliness interventions entirely on our obsession with an incremental approach to innovation would be using a straw-man method to sway the argument in favour of our paper's recommendations. Therefore it is important to understand the challenges faced by designers when trying to develop Internet-based services for 'digital aliens' (Prensky, 2001) in a service landscape, where online services are becoming increasingly popular due to reduced costs of running. For example, UK government's plans to cut service provision costs through their 'digital by default' (Arthur, 2012) programme means that the elderly "will have to have to" (Hope, 2014) use the Internet or risk losing access to some key public services. Although a bit extreme, this scenario provides an insight into the inevitable encounter that older adults are likely to have with the Internet soon as more and more service providers – government and private, begin to use digital technologies as a cheaper alterative.

Additionally, the difficulty faced by older adults in using computers or other digital technologies can be considered as one of the reasons for the lack of radical-digital loneliness interventions for the elderly. Age-related changes in vision, hearing and motor ability can directly influence the ability to interact with computers (Van De Watering, 2005). In some cases, such minor impairments can accumulate to form a major disability in an individual (Dickinson, Eisma, & Gregor, 2002) thereby affecting their *interactions* – with people as well as devices. Thus exploring radical-digital loneliness interventions can provide valuable insights for various stakeholders such as service providers, designers, Human Computer Interaction (HCI) practitioners (Sharma, Blair, & Clune, 2015: in press), etc. to develop effective services to help the elderly a well as to understand the scope of digital technologies in this area.

FOSTERING SOCIAL INNOVATION

From the discussion above it is clear that there is scope for improvement in our 'existing' approach to addressing loneliness. Because design practices are concerned with changing "existing situations into preferred ones" (Simon, 1969 p. 111), this 'gap' in research also provides an ideal opportunity for designers to foster social innovation. "Put simply, social innovations are ideas that work for the public good… Rather than design focusing solely on heating up the economy so it grows, driving consumption and stimulating sales, this is design and innovation focused on society's most important challenges and problems" (Sherwin, 2012).

Manzini has highlighted the potential of 'design for social innovation' and the role that designers play in 'starting, boosting, supporting, strengthening and replicating' social innovation. While discussing the problem-solving capacities of design, he invokes the ability of people to "recombine in a creative way, already existing products, services, places, knowledge, skills and traditions" (Manzini & DESIS Network, 2014 p. 4). This 'recombination' requires collaboration between a variety of stakeholders. Designers can play a vital role in enabling this cooperation as they are known to have the "potential to act as transdisciplinary integrators and facilitators" (Wahl & Baxter, 2008 p. 72). Sherwin suggests that although designers do not have a monopoly over social innovation, their 'empathic approach' to solving social problems places them at the heart of such work (Sherwin, 2012).

Additionally, because social innovation calls upon a designer's ability to 'creatively recombine' things, it can lend a fresh perspective to our predominant incremental approach towards developing interventions. This allows for the exploration of capacities outside our 'existing ways of thinking and doing' (Manzini & DESIS Network, 2014) thus enabling radical innovation.

THE ROLE OF THE DESIGNER IN CREATING RADICAL-

DIGITAL INTERVENTIONS

The observation that majority of the interventions are ‘services’ suggests that a service design approach (Shostack, 1982) can also be used for either developing new radical-digital interventions, or as a lens to critically examine other categories of interventions. By drawing upon their collection of skills, tools and props, designers can dawn several hats that allow them to play different parts against a service design backdrop. We have adapted Yee et al.’s ‘seven roles of a service designer’ (2009) framework to suggest how designers can contribute to this setting[1].

[1] Yee et al. have based their ‘seven roles of a service designer’ on Tan’s commentary of ‘the changing role of the designer’ (2009).

Roles	Characteristics	Examples of possible activities
Designer as **Facilitator**	Joining up different styles of thinking, philosophies and approaches from different stakeholder groups. Enabling better collaboration, synergy and participation of people. Mobilising and energising thinking of others.	Facilitating conversations between creators of different interventions to share best practices and to identify opportunities for replicating successful work in different settings.
Designer as **Communicator**	Using visuals to initiate conversations around issues, gain feedback for iterations and ideas. Using communication devices to bring together disparate stakeholder groups. Closely linked to the facilitation role.	Using inclusive empathic communication strategies to encourage lonely people to explore suitable services in their area.
Designer as **Capability builder**	Transferring design processes and methods to the services to enhance their own processes. Acting as a 'conduit' in the knowledge transfer process.	Sharing brainstorming tools and other useful techniques or templates to allow services to solve problems.
Designer as **Strategist**	Involved in designing and planning action and policy to achieve a major or overall aim.	Using strategic design thinking to allow interventions to keep up with changes.
Designer as **Researcher**	Doing research with stakeholders and potential stakeholders of the product or service. Project outcomes are usually recommendations, improvements, ideas and opportunities translated from design-led research, rather than design artefacts. Drawing research methods from architecture, development studies, anthropology, social sciences, marketing, business etc.	Conducting thorough research on interventions aimed at uncovering 'actionable insights', identifying problems and opportunities and monitoring impact.
Designer as an **Entrepreneur**	Designer involved in end-to-end process of developing and rolling out an idea that can function profitably or sustainably	Looking at opportunities to make the intervention financially sustainable and viable.
Designer as **Co-creator**	Relationship with users is to both 'design with' and 'design for'. Co-design's approach is about: The participation of people; A development process; The creation of ownership; and Being outcomes-based	Empowering the socially isolated or lonely elderly by allowing them to choose and customise their service according to their own needs.

table 2 Seven roles of a designer in developing loneliness interventions. (*adapted from Yee et al.'s 'Seven roles of a service designer'*)

We argue that by assuming some of these 'roles', designers can identify opportunities for tweaking existing interventions such that these interventions can migrate between different 'quadrants' making possible for more of them to assume a radical-digital outlook. While it might be relatively easier to move radical-physical interventions into the radical-digital realm, in comparison, a shift from incremental-physical to a radical-digital one might involve more effort.

For example, simple ways of getting the elderly ‘coaches’ to interact with their ‘runners’ via basic internet-based technologies can move ‘Good Gym’ into the radical-digital category. On the other hand if we imagine a very straightforward person-to-person befriending service, we may have to make substantial changes to current ways of doing things in order to transform it into a radical intervention. This does not mean that all radical-physical interventions can be easily repurposed to give them a digital makeover. Other contributing factors such as geographical location, internet-bandwidth, cultural factors, etc. might affect such work. Also in some cases a radical-digital intervention may not be as effective as say a radical-physical or an incremental-digital one.

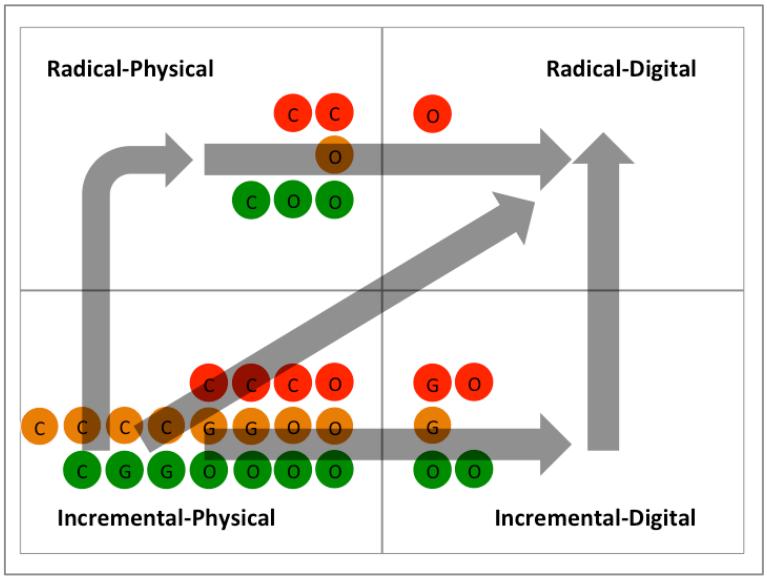

figure 3 Making migration between different quadrants possible

Therefore good designers will always rely upon their innate creative thinking and empathy to ensure that the intervention is suitable for the given situation. By moving interventions around within the four quadrants, designers can change the ‘identity’ of an intervention and this can instigate a cultural change within this community of practice (Spaeth, 2006).

While we do not suggest that these interventions *ought* to be both radical as well as digital in nature to deal with the problem, we strongly advocate experimentation and exploration of these

options before we can critique their utility and usefulness in this area. To a designer, the sheer dearth of interventions in the digital-radical realm should be appealing if we are to understand the opportunities or more to the point, the limitations of working on digital-radical interventions.

CONCLUSION

In this paper we have highlighted the growing issue of loneliness amongst the elderly. Loneliness has a detrimental effect on health and current demographic trends indicate that with an increase in the ageing population, loneliness amongst the elderly is also on the rise. Therefore it is important to understand the existing coping strategies that have been developed in response to age-related loneliness in order to develop more effective interventions.

We have critically examined our current approaches to combating loneliness from a design perspective. These ‘non-medical’ interventions, which usually operate as services, were analysed using a pattern recognition approach. Coding categories were identified based on an exhaustive review of literature and coding questions were developed and refined in order to categorise and examine these interventions. It was found that majority of the interventions represented a ‘business as usual’ i.e. ‘incremental’ approach to solving the problem. Also despite the popularity of digital technologies in health services, they are not common in this area.

In addition to introducing a new approach to examining loneliness interventions, this paper’s other main contributions are threefold:

1. We have argued for a shift of focus from ‘incremental-physical’ interventions to ‘radical-digital’ ones through experimentation
2. We have discussed how social innovation can facilitate this shift and,
3. We have considered the role of a designer in such work.

This paper highlights the need to keep-up with global

demographic trends by projecting the magnitude of age-related loneliness into future. Through this paper we look to initiate a discussion and debate about the usefulness and limitations of radical-digital interventions by making a case for design exploration and experimentation in this area. Such experimentation and subsequent discussions are crucial to developing effective strategies to combat age-related loneliness in future.

REFERENCES

Age UK. (2011). Safeguarding the Convoy. A call to action from the Campaign to End Loneliness.

Alexander, C., Ishikawa, S., & Silverstein, M. (1977). Pattern languages. *Center for Environmental Structure, 2*.

Arthur, C. (2012). Government services go 'digital by default' to save almost £3bn. *The Guardian.* Retrieved 11 April, 2015, from http://www.theguardian.com/technology/2012/nov/06/government-services-digital-default-save

Barkham, P. (2012). How joggers can help the household. Retrieved 21 January, 2014, from http://www.theguardian.com/lifeandstyle/2012/mar/04/good-gym-exercise-community-work

BBC News. (2013). Jeremy Hunt highlights plight of 'chronically lonely'. *BBC News: Politics.* Retrieved 25 September, 2014, from http://www.bbc.co.uk/news/uk-politics-24572231

Beaumont, J. (2013). Measuring National Well-being - Older people and loneliness: Office for National Statistics, UK.

Berg, B. L., & Lune, H. (2004). *Qualitative research methods for the social sciences* (Vol. 5): Pearson Boston.

Bingham, J. (2012). Record numbers reach retirement age as baby boomers turn 65. *Pensions.* Retrieved 15 September, 2014, from http://www.telegraph.co.uk/finance/personalfinance/pensions/9563647/Record-numbers-reach-retirement-age-as-baby-boomers-turn-65.html

Cacioppo, J. T., & Patrick, W. (2008). *Loneliness: Human nature and the need for social connection*: WW Norton & Company.

Campaign to End Loneliness website. (2013). Castle Point Association of Voluntary Services Befriending Scheme. *Loneliness and Isolation: a toolkit for health and wellbeing boards.* Retrieved 16 September, 2014, from http://campaigntoendloneliness.org/toolkit/casestudy/cavs/

Campaign to End Loneliness website. (2014). All Examples. *Loneliness and isolation: a toolkit for health and wellbeing boards.* Retrieved 24 August, 2014, from http://campaigntoendloneliness.org/toolkit/casestudy/

Carpenter, H. (2009). The Four Quadrants of Innovation: Disruptive vs Incremental. *I'm Not Actually a Geek: Observations on technology and business from someone who should know better.* Retrieved 28 August, 2014, from http://bhc3.com/2009/12/01/the-four-quadrants-of-innovation-disruptive-vs-incremental/

Cattan, M., Newell, C., Bond, J., & White, M. (2003). Alleviating social isolation and loneliness among older people. *International Journal of Mental Health Promotion, 5*(3), 20-30.

Cattan, M., White, M., Bond, J., & Learmouth, A. (2005). Preventing social isolation and loneliness among older people: a systematic review of health promotion interventions. *Ageing and Society, 25*(01), 41-67.

Demakakos, P., Nunn, S., & Nazroo, J. (2006). 10. Loneliness, relative deprivation and life satisfaction. *Retirement, health and relationships of the older population in England*, 297.

Dickinson, A., Eisma, R., & Gregor, P. (2002). Challenging interfaces/redesigning users. *ACM SIGCAPH Computers and the Physically Handicapped*(73-74), 61-68.

Dryzek, J. S. (2005). *The politics of the earth: Environmental discourses*: Oxford University Press.

Dychtwald, K., & Flower, J. (1989). *Age wave: The challenges and opportunities of an aging America*: Bantam Books.

Dykstra, P. A. (2009). Older adult loneliness: myths and realities. *European journal of ageing, 6*(2), 91-100.

Dykstra, P. A., Van Tilburg, T. G., & de Jong Gierveld, J. (2005). Changes in Older Adult Loneliness Results From a Seven-Year Longitudinal Study. *Research on Aging, 27*(6), 725-747.

European Commission. (2014). Policy. *Public Health: Ageing.* Retrieved 14 September, 2014, from http://ec.europa.eu/health/ageing/policy/index_en.htm

Grant, J., & Fox, F. (1992). Understanding the role of the designer in society. *Journal of Art & Design Education, 11*(1), 77-87.

Halmos, P. (1998). *Solitude and privacy: a study of social isolation its causes and therapy* (Vol. 15): Psychology Press.

Havinghurst, R. (1978). Ageing in western society. *The Social Challenge of Ageing. London: Croom Helm*, 15-44.

Hawkley, L. C., Masi, C. M., Berry, J. D., & Cacioppo, J. T.

(2006). Loneliness is a unique predictor of age-related differences in systolic blood pressure. *Psychology and aging, 21*(1), 152.

Hawkley, L. C., Thisted, R. A., Masi, C. M., & Cacioppo, J. T. (2010). Loneliness predicts increased blood pressure: 5-year cross-lagged analyses in middle-aged and older adults. *Psychology and aging, 25*(1), 132.

Hope, C. (2014). Go on the internet - or lose access to government services, Francis Maude tells pensioners. *The Telegraph.* Retrieved 11 April, 2015, from http://www.telegraph.co.uk/technology/internet/10889563/Go-on-the-internet-or-lose-access-to-government-services-Francis-Maude-tells-pensioners.html

Hughes, M. E., Waite, L. J., Hawkley, L. C., & Cacioppo, J. T. (2004). A Short Scale for Measuring Loneliness in Large Surveys Results From Two Population-Based Studies. *Research on Aging, 26*(6), 655-672.

Hunt, A. (1978). *The Elderly at Home-a Study of People Aged 65 and Over Living in the Community in England 1976*: HM Stationery Office.

Kaasa, K. (1998). Loneliness in old age: Psychosocial and health predictors. *Norsk epidemiologi, 8*(2).

Kraft, P., & Yardley, L. (2009). Current issues and new directions in Psychology and Health: What is the future of digital interventions for health behaviour change?

Leikas, J., Saariluoma, P., Rousi, R., Kuisma, E., & Vilpponen, H. (2012). Life-based design to combat loneliness among older people. *The Journal of Community Informatics, 8*(1).

Luo, Y., Hawkley, L. C., Waite, L. J., & Cacioppo, J. T. (2012). Loneliness, health, and mortality in old age: A national longitudinal study. *Social science & medicine, 74*(6), 907-914.

Lynch, J. J. (1977). *The broken heart: The medical consequences of loneliness*: Basic Books New York.

Manzini, E., & DESIS Network. (2014). Making things happen. *DesignIssues, 30*(1), 57-66.

Marsh, S. (2014a). Fourteen ways councils can help combat loneliness. *Public Leaders Network: Insight, news, comment and jobs in policy and leadership.* Retrieved 14 September, 2014, from http://www.theguardian.com/local-government-network/2014/apr/14/fourteen-ways-councils-can-help-combat-loneliness

Marsh, S. (2014b). Good Gym: running with a mission. *The Guardian.* Retrieved 3 January, 2014, from http://www.theguardian.com/lifeandstyle/the-running-blog/2014/jan/03/good-gym-running-mission-community

Masi, C. M., Chen, H.-Y., Hawkley, L. C., & Cacioppo, J. T. (2011). A meta-analysis of interventions to reduce loneliness. *Personality and Social Psychology Review, 15*(3), 219-266.

Mead, N., Lester, H., Chew-Graham, C., Gask, L., & Bower, P. (2010). Effects of befriending on depressive symptoms and distress: systematic review and meta-analysis. *The British Journal of Psychiatry, 196*(2), 96-101.

Murphy, F. (2006). Loneliness: a challenge for nurses caring for older people. *Nursing older people, 18*(5), 22-25.

O'Connor, J. (2014). Age-related loneliness is a ticking time bomb waiting to explode. *Inside Time: the National Newspaper for Prisoners and Detainees.* Retrieved 25 September, 2014, from http://insidetime.co.uk/articleview.asp?a=1773&c=agerelated_loneliness_is_a_ticking_time_bomb_waiting_to_explode

Perlman, D., & Peplau, L. A. (1998). Loneliness. http://www.peplaulab.ucla.edu/Peplau_Lab/Publications_files/Perlman %26 Peplau 98.pdf

Pinquart, M., & Sörensen, S. (2003). *Risk factors for loneliness in adulthood and old age--a meta-analysis*: Nova Science Publishers.

Prensky, M. (2001). Digital natives, digital immigrants part 1. *On the horizon, 9*(5), 1-6.

Rutherford, T. (2012). Population ageing: statistics *House of Commons library (Standard not. Retrieved Jan 2, 2013, from: www. parliament. uk/topics/PopulationArchive*: Social and General Statistics.

Sample, I. (2014). Loneliness twice as unhealthy as obesity for older people, study finds. *The Guardian.* Retrieved 14 September, 2014, from http://www.theguardian.com/science/2014/feb/16/loneliness-twice-as-unhealthy-as-obesity-older-people

Sengers, P., & Gaver, B. (2006). *Staying open to interpretation: engaging multiple meanings in design and evaluation.* Paper presented at the Proceedings of the 6th conference on Designing Interactive systems.

Sharma, D., Blair, L., & Clune, S. (2015). *Developing Radical-Digital Interventions to Tackle Loneliness Amongst the Elderly.* Paper presented at the 17th HCI International 2015, Los Angeles.

Sheldon, J. H. (1948). The Social Medicine of Old Age. Report of an Enquiry in Wolverhampton. *The Social Medicine of Old Age. Report of an Enquiry in Wolverhampton.*

Sherwin, C. (2012). Bringing social innovation to life through

design. *Guardian sustainable business: Technology and Innovation.* Retrieved 17 November, 2014, from http://www.theguardian.com/sustainable-business/blog/design-for-social-innovation

Shostack, G. L. (1982). How to design a service. *European Journal of Marketing, 16*(1), 49-63.

Simon, H. A. (1969). The sciences of the artificial. *Cambridge, MA*.

Spaeth, T. (2006). Designing Cultural Change: How nine leaders reformed their institution's culture, by changing its identity. *Identity Magazine.* Retrieved 19 November, 2014, from http://www.identityworks.com/articles/Designing%20Cultural%20Change_English.pdf

Stuart-Hamilton, I. (2012). *The psychology of ageing: An introduction*: Jessica Kingsley Publishers.

Tan, L. (2009). *Perspectives on the changing role of the designer: Now to the future*. Paper presented at the World Design Congress Education Conference, Singapore. https://www.academia.edu/217247/Perspectives_on_the_changing_role_of_the_designer_Now_and_to_the_future

The Centre for Knowledge Societies. (2006). Mobile Development Report. India.

Tiwari, S. C. (2013). Loneliness: A disease? *Indian journal of psychiatry, 55*(4), 320.

Van De Watering, M. (2005). The impact of computer technology on the elderly. *Retrieved June, 29*, 2008.

Wahl, D. C., & Baxter, S. (2008). The designer's role in facilitating sustainable solutions. *Design Issues, 24*(2), 72-83.

Weiss, R. S. (1973). Loneliness: The experience of emotional and social isolation.

Wenger, G. C. (1983). Loneliness: a problem of measurement. *Ageing in modern society*, 145-167.

Windle, K., Francis, J., & Coomber, C. (2011). Preventing loneliness and social isolation: interventions and outcomes. *London: Social Care Institute for Excellence*, 1-16.

Yee, J., Tan, L., & Meredith, P. (2009). The emergent roles of a designer in the development of an e learning service.