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Home Alone:

Ageing, Technology and Social Isolation

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Protection of the environment is seen by many as one of the main challenges we face this century. I would like to examine the other great challenge of the 21st century, the changing demographic. I say challenge, but I think it is also a great opportunity too. It is a complex topic and although I will discuss technology and ageing, what I would like to focus on is a fairly neglected element in gerontology, certainly within the area of home care and healthcare technologies for the home. A lot of things have developed, including the way we think about health and about acute or chronic care, but one thing I have noticed is that there has been a steady degradation of companionship care. This is something my research team and I have been working on a lot to see how we can start addressing these problems of social isolation and how we can start thinking about social care technologies.

I joined the Health Research and Innovation Group in Intel Corp around five years ago and I lead their European Social Science & Design side of things. One of my hats is that I am a principal investigator in a research centre we set up in Dublin called the TRIL centre which stands for the Technology Research for Independent Living. We set this up with a couple of Irish universities and a teaching hospital. Intel, and later GE, became funding partners along with the Irish government. The aim is to explore the role of technology as a means of helping older people remain in their homes for as long as possible. We had a dual-track approach to this. The first cardinal rule that we set up right at the beginning was that we did not want to push technology and end up having to find uses for technology we had developed. That is a typical engineering approach and we tried to break away from that. We started off immediately by setting out to understand people's needs and practices before we even tried to think about developing the technologies. So we have a dual approach to our research. On the one side, we have a team of clinicians and psychologists. We run a large clinic in Dublin where we do a full bio-psycho-social assessment of older people who come through there. To date we have seen 625 of these older people and it gives us a really good overview of some of their issues. At the same time we also have teams of sociologists and anthropologists who go into older people's homes and spend several days with them. They sometimes develop a relationship with them over a much longer period of several years. I think that this is essential because we have all these broad findings that we gather in the clinic on the medical side but on the social side we are going into homes and we understand people's needs within what we might call the messiness of everyday life. As a result we know what happens at 3 o'clock in the morning or during the lulls in the day when a person's energy levels are not particularly high.

We do a lot of medical and ethnographic research around a topic then we bring together designers, engineers, psychologists into the lab, start developing the prototypes with large groups of older people. Then we test them and re-test them and improve them. We also test them over time in people's homes. We do not just go into a person's home for two or three days. We will actually go for ten weeks and see what happens and whether usage drops off after a while.

Between 2006 and 2008, some colleagues and I ran a large anthropological study on the experience of ageing in seven European countries. We spent a lot of time in older people's homes and I would like to share one of the cases we came across. Erik is a case study from Sweden. At the time of the study he was 83. He was born in 1928. He had nine siblings, two of whom were surviving, and he was a farmer. He went through what I would call phased retirement. Like many farmers, he

reached retirement age but did not really retire, he started cutting back. As his physical dexterity declined, he went out to his more distant fields less and less. He then started renting these fields off or selling them off. As the years went by he decided that he was going to stop a lot of his farming and was going to start market gardening, so he started doing a lot of growing in his garden and his greenhouse. After a while, he felt he could not manage that anymore. His world kind of came in and in and narrowed and by the time I visited him, which was 2007, he was living in his kitchen. He was living alone. He had a very large farmhouse but most of the house was closed off and was full of dust. He just heated his kitchen and his bedroom and that was it.

I will give you a bit of background for this man. Erik was widowed in 1994. There are not very many houses around his, but the neighbours he has do come in and see him every morning just to check if he is alright. He lost his driver's license, as is often the case (this is a major issue). He wakes up in the morning at 4am. This is partly because of his farming background but mostly because of the cramps in his legs. Once he is awake he cannot get back to sleep so he gets up, dresses, makes himself some breakfast and then waits for his neighbour. His neighbour comes over at around 5.30am and drops off the newspaper which is delivered to the end of a very long lane which is too long a walk for him. He reads the newspaper etc. and at 11 o'clock he has some coffee. At 12.30 his meals on wheels comes and a nurse and home help person also come in at around that time. In the afternoon he has a favourite radio programme that he listens to and although he has a television, he rarely watches it because he finds that it hurts his eyes. He is in bed by seven o'clock because he has nothing else to do. That is his life.

He told us that he had lost interest in taking on new hobbies, but his one lifeline is his telephone. He says that he loves to be on the telephone. He has his daughter in Stockholm who he speaks to and a number of friends that he likes to call. So he spends a lot of time on the phone but he says he is restricted by the fact that he gets charged. As a consequence he needs to watch how long he is talking for.

Cases like Erik are very common. I have met people like him in all of the seven European countries I have worked in. I see it all the time in Ireland and I have seen it a lot in the work I have done in the UK as well.

There are some statistics from Help the Aged that are rather interesting.

- Half of people aged 75 and over in Britain live alone.
- 12% of older people report feeling trapped in their own homes.
- 3% of older people never go out.
- Almost 5 million people consider the TV as their main form of company.
- Over a million UK pensioners ate Christmas dinner alone.

These statistics are astonishing. They are simply sad and unnecessary. Also, if you look at the United States, the figures are reflected very much there as well.

I tend to use the de Jong Gierveld loneliness scale. I like it because it is developed for older people specifically. It also allows loneliness to be divided into two main constructs: social loneliness, which is really about loss of social network or not having a social network, versus emotional

loneliness which is that lack of an emotional attachment normally due to loss of a significant other. Often as a result of bereavement you will be emotionally lonely as rather than socially lonely.

What our research does is divide the two constructs into four quadrants: People who are neither socially nor emotionally lonely versus those who are socially lonely, those who are emotionally lonely and those who are both. If a person classifies as both socially and emotionally lonely on the de Jong scale they really are in the red zone. It is at that point that people need to have really severe intervention. A person in this emotional situation tends to be in the highest risk categories with regards to health. There is a higher risk of falls, anxiety scores are very high, worse sleep, fear of falling, lowest ADL (activity daily living) scores, higher depression scores etc. As you can see, this is a really important element.

With all of this in mind I would like to talk about some of the work my team is working on. We had two aims. We set ourselves the question, can a well-designed information communication technology help reduce risks of loneliness and social isolation? If so, how might it do that? If you are dealing with populations who are not used to using a computer, how do you develop something that would be intuitive for them to use as individuals?

Some really interesting studies have been carried out on the loneliness interventions that have been done up to date and Mima Cattan at Northumbria University came up with a very good systematic survey of all of these. Her team found that group interventions, that is bringing people together, whether they are physically remote or gathered in person is by far the most effective means of intervention but only if there is some other reason for being there. She found educational content to be the most effective, although I think entertainment and game playing could be other ways to do that. We used this as a central concept when developing what we call the TRIL Building Bridges system.

Video shown of the Building Bridges System: Script:

1) Intro

- "According to a study by Help the Aged, 1.4 million older people feel socially isolated in the United Kingdom. Of these, 300,000 have gone a full month without speaking to any family or neighbours."

- "The Building Bridges project, which is part of the TRIL Centre research programme, explores new ways that communication technology can help reduce risks of loneliness and social isolation in older people."

- "The Building Bridges project aims to develop communication technology that can be easily used by people with little or no experience with computers. It has been developed in conjunction with Irish older people who tested, criticized and improved every version of the prototype. "

2) Overview of the device

- The Building Bridges system consists of an admin console which is hosted on a server and which manages all broadcasts and communications between Building Bridges Devices. It also stores research data from devices and uses Voice over IP technology.

- The in-home device used by the older person is a touch screen computer with speakers and a handset.

3) Making a call
- "The user can contact one or more people at the same time for a chat. You can invite up to six people at a time on your call.
- "You simply select call participants from your address book and 'drag and drop' them into the green call circle "
- "During the conversation, the screen will show who has entered and left the call, the names of the other people, and a speech bubble to help follow who is talking."
- "People sometimes find it difficult to break into the middle of a multi-person conversation so the building bridges system has an interrupt button that makes an avatar jump up and down, indicating intent to speak."

4) Messaging
- "BB Users can also send short messages to the other people using a simple touch screen keyboard."
- "As well as sending greetings and personal messages, this helps with scheduling calls and leaving message for people when they are not online.

5) Broadcasts
- "The Building Bridges system also offers the opportunity to listen to radio or video programs, potentially provided by external organizations, such as a healthcare provider, entertainment channel, church or active retirement group."
- "Broadcasts are played several times a day. These include such things as the news, documentaries, stories, music, and health related broadcasts, "
- "The user can view a screen that lists upcoming broadcasts. When they see a live broadcast they are interested in, they press the screen to join and sit back and listen."
- "During the broadcast, the user can see who else is listening. Once the broadcast is over, an automatic 20 minute conference call is created so all they need if they want to join a discussion is lift the phone handset and have a chat with the group."

6) Tea Room
- "The Tea Room is a chat room that is open at all times, day or night. Up to 20 users can enter the tea room any time and chat with any other people who happen to be there. "
- "The tea room also provides a Window on the World, this is linked to web cameras in various outdoor locations."

7) Family and friends
- A PC friendly client version of the BB Software has been developed to extend the usage of BB.
- "This means that the older person can easily add people, such as family members, friends and neighbours, to their contact list."
- "When the system is in not in use and enters sleep mode, it doubles as a digital photo frame. Family members and friends are able to send digital photos which can be displayed on the system."

8) Design process

- "The concepts and interface design have been developed through the ethnographically informed user-centered design approach, which is a hallmark of TRIL Centre research programmes.
- "Potential users have been involved in each step of the development, working to ensure the system is simple and easy to use."
- "This has helped develop a system that is well suited to older people who may not be familiar with computers, and who may benefit from increased social engagement - a device that helps build bridges between older people, their family & friends, their health and social systems, and their communities."

The Building Bridges project we co-developed with over 150 older people in different parts of Ireland and a lot of those concepts came from them. They came up with many more, but we boiled them down to some core concepts, took them out as story boards, and had them critique the ideas. It was a process we repeated many times. We have done a lot of trials with this. What we found is that the people who score highly on social or social and emotional loneliness used the system greatly. Obviously there are also people who the system just would not suit, but we generally found that results were very positive for that group.

We are doing a whole range of things at the moment. We have been approached by a 'meals on wheels' organisation in Ireland that wish to look at using a system like this around mealtimes to put together a large network of their members and their volunteers together. We have also been approached by many of the dementia societies out there. We are doing a study at the moment with caregivers of people with dementia and it has been really interesting to see what some of the needs of those caregivers are and how these systems can be used, especially for peer support. They often say to us that there are several things you want as a caregiver. First of all, they need to be able to vent, and not necessarily to family members and obviously not to the person you are there looking after. They also need good and timely information, not always from a medical professional who does not know what you are going through. What really does stick is what they learn from other caregivers and their stories. These caregiver support systems, although not a definitive answer, might prove to be a step forward in starting to think about how some of these things may work. It is about combining the technology with real social impact. To me, a metric of success for a system like this is that people use these systems and then arrange real-life meetings outside these systems. I have seen that start to happen with some of our trials and that, to me, is a real success.