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# Diversity in age: the challenges of reaching the 'hard to reach'

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*Abstract: Older people are typically characterised as late adopters of new technology. In this paper we begin to explore the true diversity of digital engagement, extending our scope among older people to include those who are highly engaged, those who are not engaged, and those who are in transition as learners or giving up.*

*A critical element of our research approach is the active participation of older people, and we seek out settings that provide opportunities to widen participation, adapting our survey materials accordingly.*

*Our initial findings explore correlations of digital engagement through the use of selected technologies and activities compared with settings, age and gender.*

*This characterisation of diversity of older people is part of a larger study on autonomy and independence of older people through the use of digital technologies. In giving older people a voice to participate in research into future digital engagement we need to look for novel ways to ensure that different voices are represented.*

## 1. Introduction

Providing a platform for participation in the research agenda by older people is an important objective. Walker (2007) suggests that there is a growing and parallel desire by researchers to involve older people and of older people to participate. Involving older people in research on ageing fulfils a key demand of human rights and the right to be consulted and of enabling them to participate and contribute to an understanding of the issues of quality of life and quality of services provided for older people.

### 1.1 The European profile of ageing and technology use

It is well established that use of digital technologies is lower among older people than young people, but the situation is changing rapidly. Interest in ageing is driven by ageing demographics and by two quite different concerns, one of dependency and the other of consumerism:

“By 2020, 25% of the EU's population will be over 65. Spending on pensions, health and long-term care is expected to increase by 4-8% of GDP in coming decades, with total expenditures tripling by 2050. However, older Europeans are also important consumers with a combined wealth of over €3000 billion”. (COM 2007a)

In addition to ageing, socio-cultural issues are of particular concern since these are also correlated with low levels of digital engagement as measured by access

to and use of digital technologies, in particular computers and the internet. Internet usage in EU 27, (Eurostat 2009) shows that people who used the internet at least once a week is highest (88%) of young males (age 16-24) but considerably lower (38%) of older men (age 55-74). A gender and age related gap also persists with the lowest use (26%) recorded for older women (age 55-74). The situation is changing rapidly in just a few years, whereby internet use by older women has doubled since 2006. Education and age also affect usage of the internet whereby only 15% of older people (55-74) with no or low formal education use the internet at least once a week, compared to 69% of those with high formal education (55-74).

Within Europe, there is political and research interest in relation to digital inclusion and eAccessibility as part of policy to ensure fair and equal access to all citizens to the benefits of a digital information society:

“...bridging broadband and accessibility gaps, or improving digital competences, translates into new jobs and services. Initial estimates indicate that benefits from e-Inclusion in the EU could be in the order of €35 to €85 billion over five years.” (COM 2007b)

## **1.2 Background**

The Sus-IT project is one of a number of UK projects funded under the New Dynamics of Ageing programme, in response to concern about issues affecting the growing proportion and number of older people in the population. The Sus-IT project aims to generate new knowledge and understanding of the dynamics of ageing in relation to the dynamics of ICT use. It further aims to investigate the actual and potential barriers to sustained and effective use of ICTs by older people and to explore a range of potential sociotechnical solutions to these barriers.

The Sus-IT project was established in collaboration with seven UK universities, and the support of national organisations on ageing including Age Concern, Help the Aged and University of the Third Age.

## **1.3 Participation in research and design**

There is a strong tradition within human computer interaction to invite user participation, and this is strongly supported through the methodologies of participatory design. Participatory design has a lengthy history (Namioka and Rao 1996, Muller 2002) in the design of information and communications technologies (ICT) and its use within organisations which places an essential emphasis on working with the end-users of new technologies. Historically it has a geographical context located in Scandinavia and a political context set in democracy in the work-place and the trade union movements of the 60s and 70s.

Overtime participatory design has developed in scope becoming: “a set of theories, practices, and studies related to end users as full participants in activities leading to software and hardware computer products and computer-based activities” (Muller 2002).

The participatory design movement relies on innovative methods to bridge the knowledge gaps between system users and designers. (Muller 2002). Within a workplace, the user group and choice of participants and context is

reasonably well defined but this differs in non-work based settings involving for example children or older people (Druin 2002; Ellis and Kurniawan 2000; Keith et al 2007). In such cases, the participants are not direct beneficiaries of proposed changes and commit to the project on a voluntary basis. The desire to participate and engage with the research or design project may be affected by this and other factors – including the level of interest and experience of the technologies being investigated.

Chronological age is not in itself a reliable determinant of ageing and has a potential for being a misleading research variable (Sudbury 2004). It is important for the validity and reliability of the results of studies involving older people to take account of other factors such as the impact of different life experiences and contexts. In this paper we set out to create an alternative framework for sampling and profiling older people that takes account of digital connectedness, social circumstances, and gender in addition to age. The paper describes the process of developing a survey tool that is adaptable to the needs of older people in different contexts and begins to seek out people who may be otherwise at risk of becoming socially and digitally isolated.

## 2. Methodology

It is important in any study to be asking the right questions of the right people. In this paper we report how we have developed and refined a survey tool about digital engagement through a series of four iterations in order to both collect usable data and address the needs of older people in different circumstances.

### 2.1 The challenge of reaching the ‘hard to reach’

Older people are not a homogenous group (Gregor *et al* 2002) but show considerable diversity in their capabilities, well being and experiences. Gregor *et al* (2002) challenged researchers and developers who are working with older people to seek out diversity and to employ a design process that is sensitive to this diversity. We wanted to be sure that this study would be representative of diversity and to engage with people having different life experiences.

A strict sampling framework was not applied. Instead we have been opportunistic in identifying groups and locations from which we could encounter people over 50 who were likely to include current users or learners of computing and the internet, as well as people who were unlikely to be current users. Several of the Sus-IT research project partners already had pre-existing user panels or forums representing people over the age of 50. Access to a wider range of potential participants was negotiated with the help of local links of national bodies and a local voluntary service agency located in a deprived area.

### 2.3 Development of the Digital Engagement study

The development of the digital engagement study was a core activity to bring some cohesion to the existing user panels, to draw in new communities and to support concurrent activities to develop and evaluate technology concepts. The themes and topics for the survey were developed in collaboration with the various project partners. The requirement was for a survey tool that would be robust enough to explore digital engagement and correlated factors, and change of use over time. An initial survey tool and support materials such as publicity

leaflets were developed as drafts and then subjected to a review by ‘critical friends’ – a group of older people who had participated in previous research.

The critical friends reviewers expressed concerns on behalf of people who were not digitally connected that the existing materials might be too intimidating. This view was further endorsed by the voluntary service workers who shared their own experiences at consultation activities with local community groups. The key message being that if we were to achieve co-operation and participation from older people then we should ensure that the survey tool covered no more than one page and would take no more than a few minutes to complete.

## **2.4 Adapting the survey tool to the needs of the participants**

The full survey tool provided a comprehensive study, covering use of a wide range of digital technologies such as computers, digital TV and mobile phone, it include a measure of frequency of use and confidence in using applications such as word-processing, emailing and text messaging. This survey tool included questions on learning strategies and social indicators such as occupation, housing, transport, marital status and ethnicity. This survey tool was modified following the comments of the ‘critical friends’ before being used within small groups of older people, attended by a researcher who introduced the project and the survey tool and supported the participants to complete the survey. The survey tool included open and closed questions and was 12 pages long, it typically took 20 minutes to half an hour to complete although some individuals were quicker and others needed more time, or more support.

In responding to the advice of our ‘critical friends’ and voluntary service workers we created a minimalist version of the survey tool that would meet the criteria of one side of A4 paper in a reasonable sized font, and taking just a few minutes to complete. In the first iteration, the revised survey was focussed exclusively on digital engagement, listing 18 technologies and 7 activities drawn from the full survey.

Mini-survey\_v1 was completed by 16 people attending a session at an older persons computer centre for learners and club members. The club membership is aimed specifically at people aged 50-65 and located in a deprived inner city area. Initial analysis of results showed that these respondents varied in the number of technologies used, however detailed analysis and subsequent comparison was limited by the lack of age and gender data.

Mini-survey\_v2 added back questions on name, gender, year of birth. Additionally we added a simple question on country of birth to give an indication of cultural diversity but avoiding the more rigorous declaration of ethnicity. In addition, the technologies were re-grouped so that those who did not use computers could quickly bypass the set of six computer related technologies. Adding space for two open questions on preferred and most difficult technology meant that the survey spread over two sides of one page. Mini-survey\_v2 was used by 6 people attending a day centre and lunch club. The function of this club was to provide increased opportunity for social engagement, and transport was provided for people who were otherwise house-bound. The analysis of data from this small group showed that they were not technologically connected, and that asking about technologies first created a very negative impression of the interaction between researcher and participant. In practical terms, asking for name last also seemed a little unfriendly.

**Figure 1. Mini-survey\_v4 with pictures of technologies**

What technologies do you use?			
1.	Camera (with film, disposable, digital)	YES <input type="checkbox"/>	
		NO <input type="checkbox"/>	
2.	Cassette player	YES <input type="checkbox"/>	
		NO <input type="checkbox"/>	

Mini-survey\_v3 was revised so that questions about name, gender, date of birth and country of birth came first followed by preferred activities before technologies used. Mini-survey\_3 was used with 21 people randomly selected at a large open event on service and health care provision for people over 50. The survey was very quick to use, although some people struggled to identify some of the technologies by name – such as DVD and MP3 players. The same version with very minor format changes was emailed to a volunteer group of a local branch of University of the Third Age and was answered by 13 members.

Mini-survey\_v4 was expanded to include pictures of current and older versions of the 18 technologies and pictures associated with the 7 activities, selected from Google images. A question was added on age on leaving school in order to help identify those likely to have no formal school qualifications and possibly have literacy issues. Mini-survey\_4 was answered by ten volunteers who were invited to attend. The community group organiser was asked to try and include both computer users and non-users and to balance gender. This group also took part in a group exercise to discuss ease of use of the various technologies.

This final survey appears longer (2 pages printed both sides) because of the space needed for the pictures. However it has potential benefit in overcoming communication barriers such as addressing people with low literacy or older people with hearing impairments and providing space for translation into different languages.

### 3. Early Findings

The four mini-surveys were found to be quick to use, needing very little support from the researcher and were simple to analyse. Sixty-six people took part in the surveys, Groups H1-4 were co-located in the deprived London Borough of Hackney, just to the east of the City of London. Group UA1 was located in the more affluent area of the London Borough of Harrow to the north-west of London.

As shown in Table 1, the initial analysis by age reveals a good balance of representation across three age categories: pre-and early retirement (50-65), post-retirement (65-75) and older old (75+). The age range represented is 55 to 91. The group of 16 people in H1 did not provide age and gender data but according to the membership rules were all aged 50-65. Further analysis of the remaining 50 people giving age and gender suggests that there is some under-representation of those who are aged 50-59 and men over 80. Overall there is a reasonable balance of gender 28 women and 22 men.

**Table 1. Survey tool by group and analysis by age**

Age at 2009	Mini survey tool	50-64	65-74	75+
	H1 (group age)	V1	16	0
H2	V2	2	1	3
H3	V3	2	12	7
H4	V4	4	3	3
UA1	V3	0	6	7
Totals		24	22	20

### 3.1 Preferred activities

A simple analysis of the seven activities revealed that the H1 Club members were very active – all liked talking to people, and most listened to music, took photos and used the internet (see Fig 2). Around three-quarters of these participants said that they wrote letters and documents.

**Figure 2. Mini-survey\_v1 group H1 (age 50-65)**

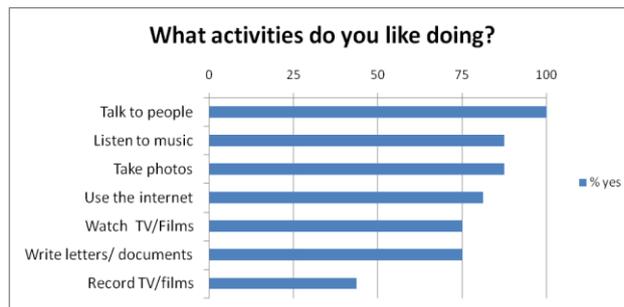


Table 2 lists all seven activities and summarises the results of all five groups, it shows that talking to people (95%), watching TV (94%) and listening to music (89%) were universally popular activities for all participants. There was much more variation between the groups on other activities. The small group of H2 were least likely to write letters, take photos or record films and none used the internet. Although 65% of all participants wrote letters or documents this varied across the H1 to H4 groups from 33% (H2) to 75% (H1). This question on writing has a potential for being indicative of levels of literacy and certain individuals in H2, H3 and H4 were found to need help with reading and completing the survey. Those in UA1 completed the survey on line, either within the email or within the attached document – all used the internet and were highly likely to write letters and documents (85%).

**Table 2. Summary of percentage of people taking part in activities**

What activities do you do?	All % n=66	H1 % n=16	H2 %n=6	H3 % n=21	H4 %n=10	UA1 %n=13
Talk to people	95	100	100	86	100	100
Watch TV/Films	94	75	100	100	100	100
Listen to music	89	88	100	90	70	100
Write letters/ documents	65	75	33	52	70	85
Take photos	58	88	17	43	60	62
Use the internet	56	81	0	29	50	100
Record TV/films	41	44	17	38	40	54

### 3.2 Preferred technologies

Table 3 lists all of the technologies in order of popularity with all participants. As suggested from the activities, the five most popular technologies, in order, were: TV, home telephone, radio, CD player and mobile telephone.

**Figure 3**

**Table 3. Technology use by percentage of group**

What technologies do you use?	All % by group	H1, n=16	H2,n=6	H3, n=21	H4, n=10	UA1, n=13
1. TV (analogue, digital, Sky)	91	81	100	95	80	100
2. Telephone (home, fixed, cordless)	85	81	67	95	80	100
3. Radio (analogue, digital)	85	63	100	90	70	100
4. CD player	80	88	83	76	60	92
5. Telephone (mobile phone)	78	100	50	71	70	100
6. DVD player	64	75	33	57	70	85
7. Video (player recorder)	61	56	50	48	60	92
8. Cassette player	61	81	50	57	30	85
9. Computer (desk top or laptop)	59	88	17	43	50	100
10. Photocopier	54	75	33	43	40	77
11. Record player	53	63	50	57	40	54
12. Printer	51	75	0	38	40	100
13. Camera (with film, disposable, digital)	48	69	17	48	40	69
14. Scanner	42	56	17	29	30	77
15. Computer to play films (e.g. BBC iPlayer, 4 on Demand etc)	31	38	0	24	40	54
16. Video camera	24	38	17	19	30	15
17. Typewriter	18	38	33	19	0	0
18. MP3 player (e.g. Ipod)	18	31	0	14	20	23

The mobile phone was more popular than expected – in 5<sup>th</sup> position overall, and used by 78% of all groups. Follow-up discussions revealed that the mobile phone was also being used by some people to give access to other applications, such as the camera, video and recorded music. In some instances people reported

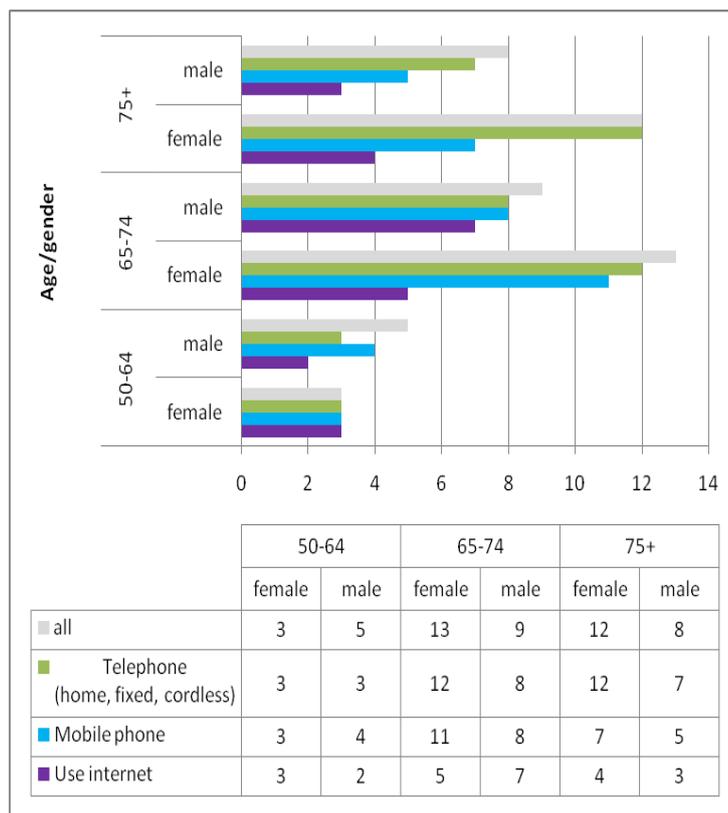
only having a mobile phone and no home phone.

Listening to music was popular and the results show that the CD player had overtaken the cassette player and the record player but use of MP3 players was low overall (18%), or nil in the case of H2. The use of DVD player and video player to play films etc were similar (DVD 64%, video player 61%) – in many cases people used both, and of the one-third using a computer to play film such as the BBC iPlayer, most used all three technologies

The top 10 technologies were used by more than 50% of all groups and include the home phone (85%), mobile phone (78%) and computer (59%).

Comparing the results per group reveals substantial differences in engagement. The H2 group were the least technologically connected - only three out six people (50%) used a mobile phone, and one of these also used the mobile phone for taking photographs and video capture. The UA1 group is consistently the most connected. Almost all the UA1 group used all five of the top technologies, as well as computer and printer. At the individual level, further analysis shows that the H3 group showed the most diversity within the group.

**Figure 3. Actual use of key communications technologies by age and gender**



In Fig 3, an analysis of age, gender and technology used shows the results from 50 participants. Personal communication appears important, as shown by the high use of fixed and mobile phones. Use of the internet, as a critical indicator of digital engagement, is lowest among the oldest men and women (age 75+). However, when analysed by gender and three age groups, there are as yet too few participants per cell to confirm any trend related to age and gender.

## 4. Discussion

So far, we have actively set out to recruit users and non-users of the internet and other digital technologies. Members of the H1 and UA1 groups have taken part in previous research based studies, both show high levels of activity and use of digital technologies. In reaching out to older people living in a culturally diverse and deprived area, results from H2, H3 and H4 show greater individual diversity and a tendency overall to a lower level of activity and use of digital technologies.

The additional information collected in the H4 group, who used Mini-survey\_v4, reveals that four out of ten left school between the ages of 13 and 15, and that only half the group were born in the UK. The inclusion of this social data offers further opportunity for analysing correlated issues such as education, literacy and confidence in learning new skills.

The four Mini-surveys provide a measure of our success and limitations in representing different age groups and suggests we need to pursue people to participate in our studies who are pre-retirement. The small group of women 50-64 group who have 100% use of mobile phone and internet may be indicative of changes in communication strategies, although it would need a longitudinal study to reveal if they would maintain or withdraw from this level of engagement in much later life.

## 5. Conclusions

The continuing work on our full digital engagement survey and use of the modified Mini-survey will enable us to achieve our primary objective to build an engaged panel of older people willing to participate in our research activities and who are representative of diversity of age, gender, social setting and levels of digital engagement. As we refine our approach to the survey process, the analysis of the collected data will enable us to achieve improved characterisation of older people, establishing critical dimensions of the social factors affecting current and future levels of digital engagement.

In the longer term we aim to achieve a greater level of confidence in comparing like for like when inviting participants to our own project, and to track individual and group transitions. It is also our intention to establish an improved sampling framework for future studies in order to better represent the diversity of experiences of older people, and to provide a systematic measure of dynamic change of use.

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