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# Investigating accessibility, usability and online safety aspects and the implications for designing e-learning for older people

Wednesday 11<sup>th</sup> September 2013  
ALT-C, University of Nottingham



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## Overview



- Background to project (2 mins)
- Accessibility, usability and online safety aspects (2 mins)
- Need to consider e-learning for older people (3 mins)
- Literature review on elearning and older people (3 mins)
- Recommendations and next steps (2 mins)

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## Background



We investigated the role of online social interactions (for example via email, Skype, Flickr, or Facebook) in supporting people aged 65 or over to sustain or even improve quality of life and well-being by avoiding or overcoming social isolation. (<http://crc.open.ac.uk/Projects/OlderPeople-BeingOnline>).

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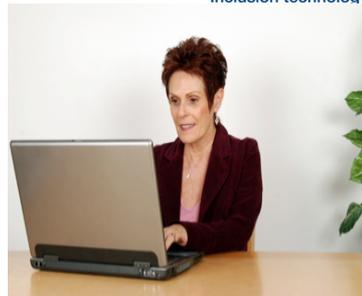
## Context



- 1985: over 65s were 15% of UK's population; 2010: 17%; 2035: 23%.
- 5.7m have never used the internet out of the 10.3m people aged 65 or over.
- diminishing print resources of information – local council, local news, travel, interests/hobbies.
- Digital by default.

Age UK (2013)

## About the project



- focus on older people (aged 65+)
- their online social interactions
- email, discussions forums, Skype, Twitter, blogs, Facebook
- iPads, smart phones, desktops, laptops

## Accessibility and Usability



Tom, a volunteer supporting over 65s at a village computer club stated:  
In some ways I think they try and do too much on a single page. There's too much information showing at them and it's like a rabbit in the headlights. So I think the format of the websites that you want them to use needs to be simple, paint by numbers, Janet and John book one computing.

An older participant discussed their experiences in a workshop:  
"memory: can't remember from one time to the next how to access web sites and apps .... Remembering how to, time and memory, poor memory, keep forgetting passwords ...

A usability expert discusses website design:  
The variability is on every different web site you go to there's a different model of how things work instead of following any recognised standard...

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## Risks and Online Safety



- In general the risks will be very much the same for older people as they would for anyone else;
- Risks identified as being of importance in the project are scamming, spamming, security and privacy concerns as well as hurtful comments by others;
- The latter may be a particular problem if there is no one, such as family members to share this with.

An older participant in one of our project's workshops pointed out:  
you go on to an online community - you ask for advice or information but there's no quality check on what comes back. In a way you've got to trust that the other person does know what they're talking about; they may not.

A family member is concerned about parents being spammed, especially if they clicked on everything:  
I watch my parents. The ads will come on and ...click ... "no, no, don't do that!" It's a privacy thing really and then they'll get spammed.

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## Non-physical characteristics



Craddock in *Aging, Adaption and Accessibility* (2012, p. 12) argues that a major obstacle in adoption of technology by older generations is that older users are wrongly perceived as a homogenous group.

- Experience and confidence with technology - older people will have variable experience and skills in the use of technology. An older person retiring now or over the last five to ten years is quite likely to have had some experience of using a computer in the workplace or in training or education in one form or another. At the other end of the scale there may be people who have never used a computer. ;
  - Objectives and motivation for engaging in online communities and interactions – family and friends and interests;
  - Flexibility/time - many older people have extremely busy life styles, some will still be working and/or looking after families or involved in voluntary and community work. Others may be living in isolation with limited income and large amounts of 'free time';
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## Physical characteristics



Age-related difficulties including declining vision, hearing, manual dexterity and memory (MyUI, 2012).

Project highlights the range of characteristics across what is potentially a wide age range and focus on the diverse needs of all end users and the changes that might occur across time for an individual, bearing in mind that they might have or acquire a range of physical characteristics.

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## Physical characteristics



- Deterioration of visual acuity and functioning in low light levels may begin in the mid 40s.
- Hearing loss is common in those over 60, making conversations and instructions harder to distinguish from background noise.
- Aerobic and cardiovascular functions decline with age, and recovery time following exertion increases.
- Musculoskeletal changes lead to reductions in muscle and grip strength, posture and balance.
- Cognitive capacities such as working memory, adaptability to new tasks and problem-solving speed deteriorate after peaking in late 20s.
- Verbal fluency, general knowledge and vocabulary do not decline and may improve if exercised through work.
- Reaction times increase with age but improved accuracy can compensate for loss of speed.

HSE, 2011 An update of the literature on age and employment, RR832

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## Cognitive Load



In an ethnographical study of older people using email found that cognitive load is the most significant barrier for older people in online interactions (Sayago and Blat, 2010).

For older adults the primary issue that one needs to consider in designing multimedia learning systems concerns limitations in attention that can arise for processing information presented in different modalities and from capacity constraints associated with WM. Set out 10 guidelines to consider including sensory aspects – do not overload visual and sensory channels simultaneously (Czaja and Shark, 2012, p. 201).

## Guidelines



- The W3C (2010) states that age-related difficulties ‘overlap with the accessibility needs of people with disabilities.’
  - Sloan (2006) – failure to encourage consideration of context.
  - Sharit et al (2011, p. 11:4) – summary of guidelines.
  - Sotlz-Loike et al (2005) conducted tests to see if web design guidelines were applicable to e-learning – good starting point but older people require interesting and engaging content and aesthetics important.
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## Older People Engaged in Learning



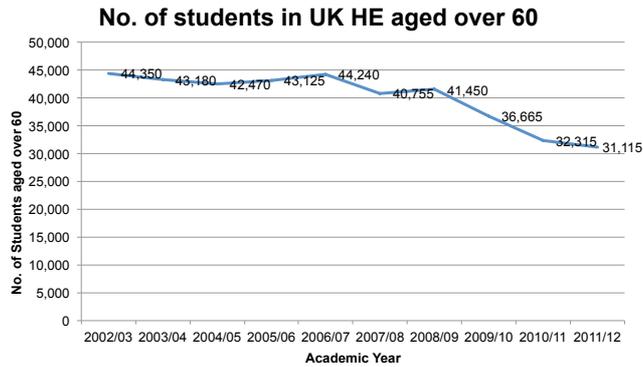
17% of 65-74 year-olds and 13% of those aged 75+ have taken part in learning in the last three years.

168,000 people aged 60+ in England participated in state-funded learning in 2007-08 (90,000 were adult safeguarded).

80% of those 65+ engaged in learning report that they do so for personal and leisure interests (Age UK, 2013).

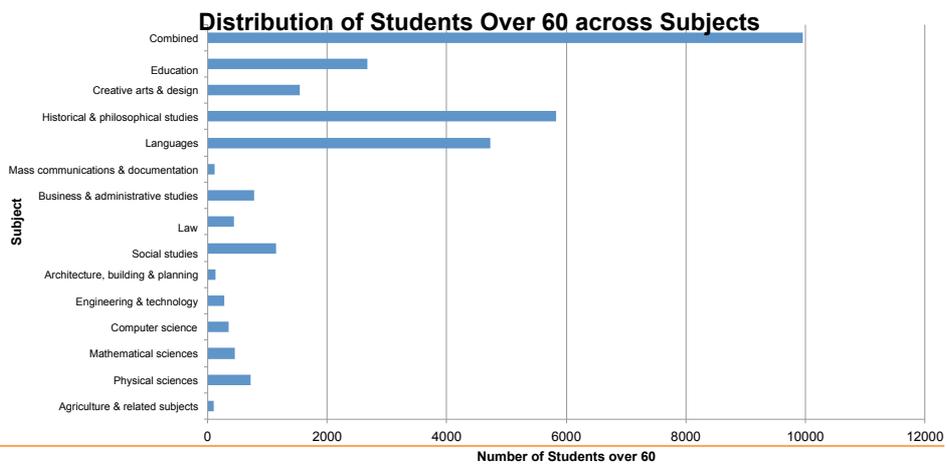
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# Older People Engaged in Learning



HESA, 2013)

# Older People Engaged in Learning



HESA, 2013)

## The future



- There is an increasing number of older people in general.
- There has been an increase in the number of people working longer. Default retirement age (formerly 65) has been phased out - most people can now work for as long as they want to.
- Some people may not have sufficient income from pensions to their current lifestyle or to do things that they now have time to do.
- People might change careers/direction later in life.
- Increase in e-learning in the workplace.

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## Over 65s in employment



‘...by 2050, over 65’s will be the equivalent of around 50% of the working population of most European countries – and significantly higher in Japan. This will be roughly double the 2010 ratio, which means we will see radical change from this point on,’ (Esselte, 2013).

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## Strengths



- Better time management ability, working independently and maturity, self-aware of limitations.
- Reasoning ability may enable older adults to compensate for declines in other abilities.
- Future work bring more focus to the strengths of older users, rather than their weaknesses (Hanson, 2010).
- Despite age declines if they have a reasonable amount of time and computer/Internet experience they can be as successful though typically slower than younger adults (Sharit et al, 2009 and 2011).

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## Recommendations



- The design of e-learning environments needs to consider older users' physical characteristics (age-related difficulties including declining vision, hearing, manual dexterity and memory) and non-physical characteristics (such as confidence and experience with technology and their motivation for engaging).
- Designers should take into account older peoples' perceptions of online safety. The risks, identified as being of importance in the project, are scamming, spamming, security and privacy concerns as well as hurtful comments by others.
- Designers should recognise that older peoples' needs will change with age, more rapidly than perhaps other age groups – lifelong learning implications and particular need where people have existing disabilities.
- Simply meeting the needs of disabled people will not address all of the needs of older people.

## Measures



- involvement of older people in the design process,
- designing to reduce cognitive load
- training involving repetitive strategies,
- on-going trustworthy technical support
- design to build on strengths
- consideration of time needed to complete tasks

are fundamental to ensuring that an older person can access and engage successfully with e-learning.

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## Conclusion



- The demand for e-learning by older people will increase. E-learning platforms and content are not designed to meet the needs of older people.
  - Older people may experience age related difficulties which they are not aware of (for example slow onset) and which could be improved by assistive technology but they may not be aware of this either.
  - They may have limited support if they are studying at home but even if they are in the workplace providers may not be aware of their needs and they (the older person) may be reticent to voice them.
  - All of which will have an impact on the quality of the learning experience including enjoyment and achievement. In turn this may affect their confidence and opportunities at a time when they may become increasingly vulnerable.
  - Industry is increasingly dependent on an ageing workforce and if training materials do not meet the needs of the workforce then this will have an effect on general skills levels and therefore the economy.
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## Any questions?

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