

Age-related differences in navigating the Web

Dr Panayiotis Zaphiris and Nada Savitch

City University London

<http://hcid.soi.city.ac.uk>

zaphiri@soi.city.ac.uk

Overview

Who we are - Centre for HCI Design at City University

Why study age-related differences & web?

Why use eye-tracking?

Our study

Web Navigation Study Results

Centre for HCI Design

City University London



- London's largest HCI-related research group
- Research the relationship between people and technology
- **Interaction lab supported by UK Vodafone Foundation:**
New tailored 75m² space to support and evaluate interaction design with diverse users, including social inclusion of young, and technology use by elderly and disabled users

Three Themes of Work

1. Design for **different types of people**
 - DRC study into **web accessibility**
 - Mobile device use for **social inclusion** of young
 - **Culture and identity** in NHS healthcare in London
2. Design for **different settings**
 - **Physical settings** - shift handovers in hospitals; learning in the workplace; food traceability with mobile devices from farm to fork; mobile devices in airports to handle emergency situations
 - **Virtual settings** - online communities in elderly, gaming, and worlds such as Second Life
3. People in **design process**
 - **Scenario**-based design
 - Understanding and support **creative** design

Inclusive Design

Recent and current projects:

- DRC Web Accessibility Study
- Individual differences in navigating the web
 - Web use by older people
 - Web use by people with Dementia
 - Web use by people with Dyslexia
- Research-Based Web Design guidelines for the elderly
- Age and Creativity in Design
- Age differences in Online Social Networking
- Empathic Online Communities

Age-related differences in navigating the Web

Aims of the study

Investigate age differences in how older and younger people find their way around (browse) websites

Aim to be able to inform website designers about information architecture for older people

Older people are using the web

- 49 million older people across Europe have used computers at least once in their life
- 27 million older people live in a household with internet access. Similar results have been found in surveys conducted in the UK.
- So-called silver surfers now represent 12% of internet users in the UK with 37% of 60 to 64-year-olds now online at home.
- A higher level of computer ownership (50%) among the 60-64 age group than among the 18 to 30 year olds (46%)

Sources: SeniorWatch (2003), (Guardian, 2003).

Age-related differences in web browsing

Previous studies have shown that there are differences between how older and younger people navigate through websites



Eye tracking

- In complicated information processing tasks there is a tight link between attention and eye fixations
- Used to investigate human problem-solving behaviour
- Used to investigate user behaviour and visual search patterns



Study participants

- Forty four (22 from each age group) people were recruited
- The group of older people consisted of 8 men and 14 women. Their ages ranged from 58 to 87. The average age was 66.8 years.
- The group of younger people consisted of 8 men and 14 women. Their ages ranged from 19 to 27 and the average age in this group was 23.5 years.

Study design

- Pre-study questionnaire to ascertain their competence and confidence in using computers
- Mouse movement test
- Online reading test
- Tasks on simple off-line website
- Tasks on live government websites

Simple website – different information architectures



18 tasks in all - 6 per website design

- Examples of tasks: To find:
 - Information about nursing homes in America
 - An overview of optic neuritis
 - Advice about fraud and insurance for long term care
 - A website describing why older people can be at risk when taking medicines
 - Information for people with an eye disorder called cataracts

Some results – Pre-study questionnaire

- The younger participants reported significantly more confidence in using computers.
- Younger participants had undergone significantly more years of formal education.
- Older people reported more problems with: finding information on the web, returning to a page that they once visited, determining where they can go where they are on the web, and visualising where they are on the web.
- Older people also appeared to be more tolerant of junk sites.

Some results – difference between the age groups

Older people took a significantly longer time to complete the task than younger people (28.7sec vs 23.0sec) .

Older people made significantly fewer clicks than younger people (ie viewed less pages) (6.18 clicks vs 7.12 clicks).

Some results – Differences between the website designs

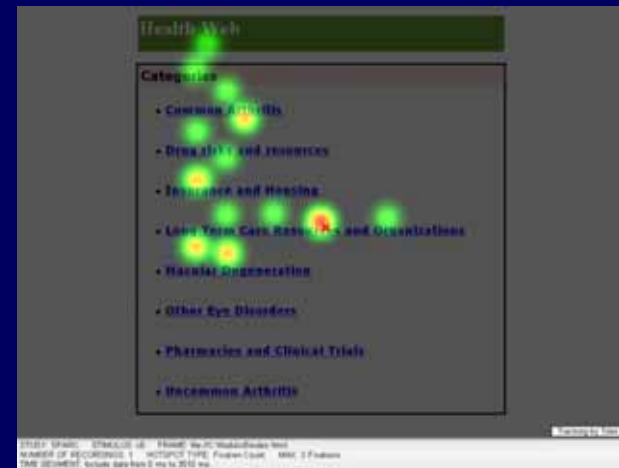
- The older group took the longest time to complete the task when the website design had deep information architecture (only two options per page but more steps) and the shortest time to complete the tasks when using the website with eight options per page (shallow information architecture)
- The younger group took the longest time to complete when the website had four options per page and the shortest when there were eight options per page.
- Older people took significantly longer to complete the task than the younger age group when the website had only two options per page

Some results from eye tracking

Show that the younger person tends not to:

- look at all the options
- spend time thinking about the different options

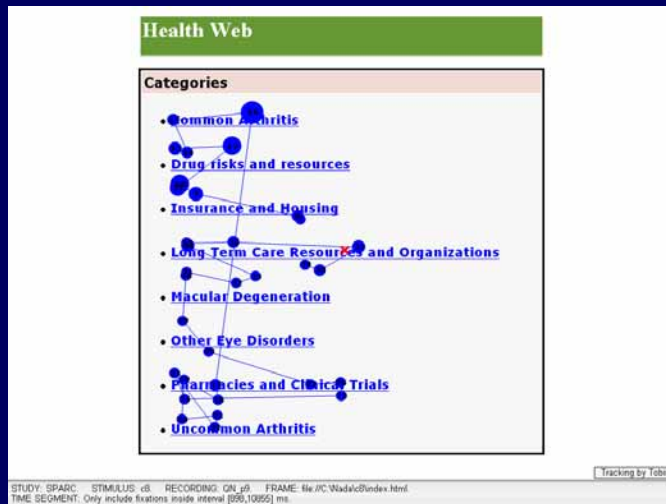
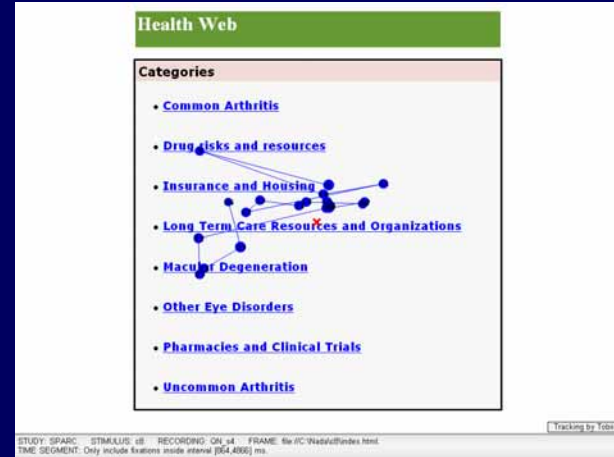
Task: A website of an organisation which helps people making decisions about the long term care of their relatives (QN)



Older participants

Younger participants

Task: A website of an organisation which helps people making decisions about the long term care of their relatives (QN)

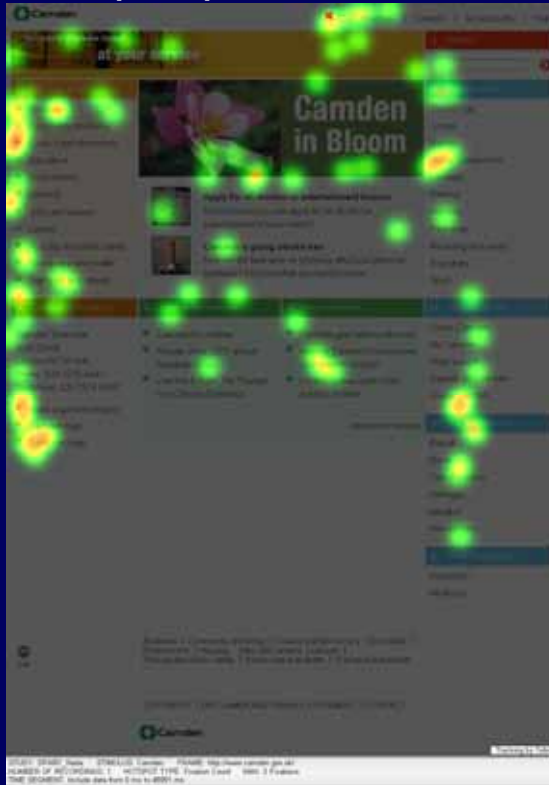


Older participants

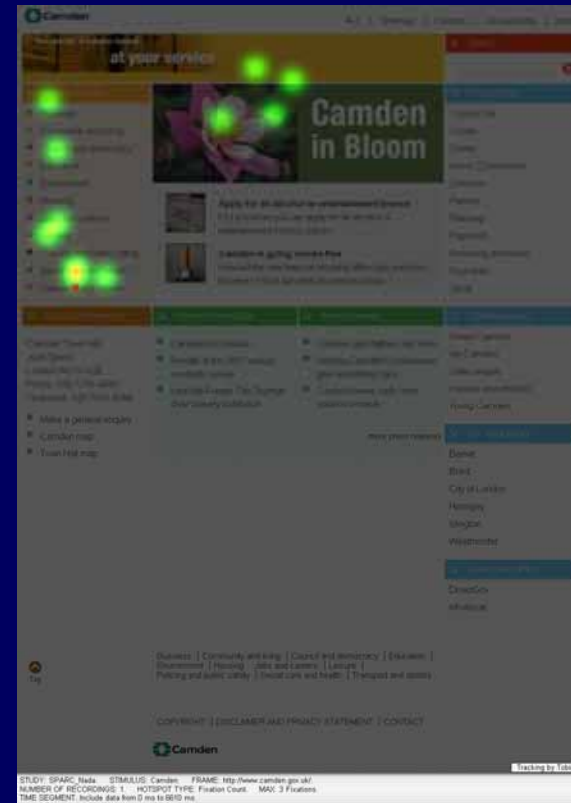
Younger participants

Camden council website

Task: to find information about blue badge parking permits for disabled people



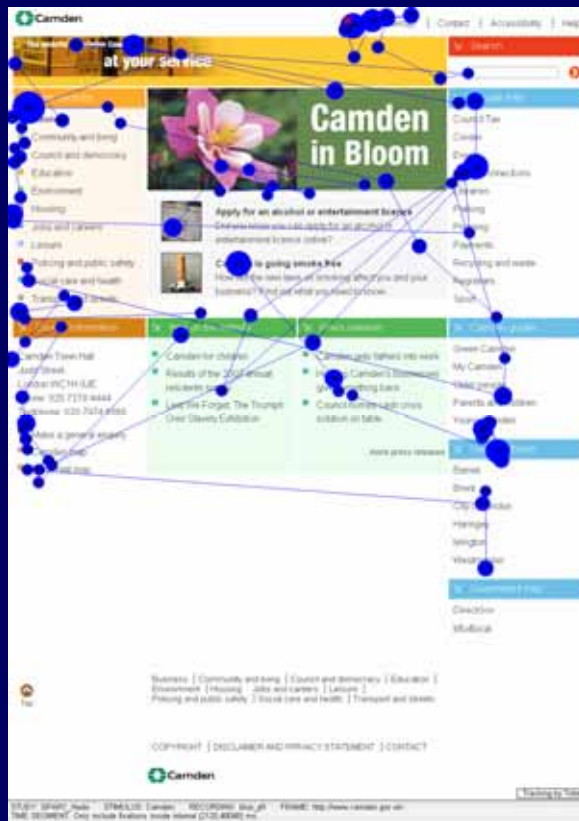
Older person



Younger person

Camden council website

Task: to find information about blue badge parking permits for disabled people



Older person



Younger person

More analysis is needed

Correlate different options with fixations to
investigate decision making

Different searching patterns

Thank you
Any questions?

Panayiotis Zaphiris
zaphiri@soi.city.ac.uk