Inclusive Design – from niche to normal

IFA 11th Global Conference on Ageing
Ian Hosking
The World in Numbers

7 Billion
Global Population

6912
‘Live’ Languages

4 Billion
$4 or less income per day

1 Billion
People live in slums

1 in 3
GSM Mobile Phone

1 in 4
Poor Literacy

600+ Million
People with disabilities

2007
The year when more people live in urban than rural areas

49.6 : 50.4
Gender

2050 – 2 Billion
Global over 60

2050 – 4:1
Potential Support Ratio
Looking at the UK

- **62 Million** Population
- **50 : 50** Gender
- **11 Million** Children
- **47+** Half Adults
- **11 Million** Disabled
- **1 in 10** Left Handed
- **5.2 Million** Asthma
- **2 Million** Visual Impairment
- **2.6 Million** Diabetes
- **14 Million** Grandparents
- **8% Men**
- **0.5% Women**
- **8.5 Million** Arthritis
- **5.2 Million** Colour Blind
- **9 Million** Hearing Impairment
It is **normal** to be **different**

Quote: Lange & Beccera, 2007
Inclusive design is a response to diversity

The BS7000:6 defines inclusive design as:

“The design of mainstream products and/or services that are accessible to, and usable by, as many people as reasonably possible, on a global basis, in a wide variety of situations and to the greatest extent possible without the need for special adaptation or specialised design.”

Inclusive design does not

• Imply that one product fits all
• Replace the need for specialist products and services
• Only design products for a particular capability loss
“Climb into the latest Ferrari sports car and you are unlikely to notice the modifications designed with overweight, arthritic pensioners in mind ... the Italian carmaker is just one of many companies grappling with a demographic shift that challenges the fundamental rules of marketing and design ... the average buyer of a Ferrari road car is nearing 50 and set to get older. “ - Financial Times, 20 Jan. 2004
Mainstream Positioning

Good for calling
emporiaELEGANCEplus

Good for surfing
Samsung GALAXY Note

Help is always at hand whenever you need it
Samsung Galaxy Note Confusion

Confirm

Memo not saved. Cancel?

OK Cancel
It is normal to have difficulties – ICT Products

American adults of working age (16-64) from the Microsoft (2003) survey

The Target for Inclusive Design

Real users

The impact of age

How many people have less than “Full ability”?

![Bar chart showing the percentage of age bands with disability]

Half the adult population

Source: 1996/97 Disability follow-up survey
Simulator

Inclusive design toolkit

Impairment simulators

Impairment Information

Visual acuity is the ability to see fine detail and low visual acuity results in objects looking blurry. Some visual acuity loss can be corrected for through wearing spectacles, but 4.2% of

4.2% 2.6 Million Affected UK Population

Sample Images

Home Hearing Simulator Vision Simulator

Inclusive design toolkit

You are here: Toolkit home > Links & resources > Impairment simulators

Toolkit home

What is inclusive design?

Why do inclusive design?

Corporate implications

Inclusive design process

Knowledge & tools

User capabilities

Links & resources

Impairment simulators

Exclusion calculator

Pro-formas

Links

Business presentation
Thinking

The graph shows the mean IQ scores for Verbal and Performance IQ across different age groups. The x-axis represents age in years, ranging from 20 to 70. The y-axis represents Mean IQ, ranging from 0 to 130. The graph indicates a decline in mean IQ scores with increasing age for both Verbal and Performance IQ.

Verbal IQ scores remain relatively stable from age 20 to 40, then show a slight decline. Performance IQ scores decrease steadily from age 20 to 70.

The data suggests that while both IQ types decline with age, the decline is more pronounced in Performance IQ compared to Verbal IQ.
The menu challenge
The menu challenge

'Select and confirm' menu task

Correct responses (%)

Age categories

Male %age correct

Female %age correct

Emporia Telecom & Cambridge University
It’s not all bad news…

Satisfaction with Life Overall by Age

Source: British Household Survey/ Future Foundation (4 waves from 1996 to 2000)
Featuritis

In Microsoft Word 1.0 there were about 100 features. Word 2003 has over 1500 features.

9 out of 10 features that customers wanted added to Office were already in the program.

"They simply don't know it's there"

Chris Capossela, Microsoft VP

Only 13% of the public believes that in general technology products are “easy to use” Phillips Index Study 2004
Falling at the first hurdle

1. Red for start
2. Multiple functions
3. Press & hold
4. Visual clutter/size
5. Symbols
## A Game of Hide and Seek…

<table>
<thead>
<tr>
<th>Function</th>
<th>Initial Action</th>
<th>Visible</th>
</tr>
</thead>
<tbody>
<tr>
<td>App launch</td>
<td>Press</td>
<td>✓</td>
</tr>
<tr>
<td>Open folder</td>
<td>Press</td>
<td>✓</td>
</tr>
<tr>
<td>Create folder</td>
<td>Press &amp; drag app onto app</td>
<td>✗</td>
</tr>
<tr>
<td>Browse apps</td>
<td>Swipe left &amp; right</td>
<td>✗</td>
</tr>
<tr>
<td>Delete App</td>
<td>Press &amp; hold</td>
<td>✗</td>
</tr>
<tr>
<td>Move App</td>
<td>Press &amp; hold</td>
<td>✗</td>
</tr>
<tr>
<td>Switch active app</td>
<td>Press x2</td>
<td>✗</td>
</tr>
<tr>
<td>Stop active app</td>
<td>Press x2</td>
<td>✗</td>
</tr>
<tr>
<td>Search</td>
<td>Press x2 or swipe</td>
<td>✗</td>
</tr>
<tr>
<td>Return home</td>
<td>Press home key</td>
<td>✗</td>
</tr>
<tr>
<td>Accessibility</td>
<td>Press x3</td>
<td>✗</td>
</tr>
<tr>
<td>Keypad lock</td>
<td>Press power key</td>
<td>✗</td>
</tr>
<tr>
<td>Orientation lock</td>
<td>Press x2 then swipe right</td>
<td>✗</td>
</tr>
<tr>
<td>Volume (soft)</td>
<td>Press x2 then swipe right x2</td>
<td>✗</td>
</tr>
<tr>
<td>iPod control</td>
<td>Press x2 then swipe right</td>
<td>✗</td>
</tr>
</tbody>
</table>
From Fun to Fear
–1940’s NHS classified spectacles as 'medical appliances', their wearers as 'patients '

Today It has been recorded that up to 20% of some brands of glasses are purchased with clear non-prescription lenses
The Kettle Example
Slipper Maths

- 300,000 older people go to hospital with serious injuries from falling
- 9 per cent blame their slippers (Department of Health, 2003)
- Sloppy Slippers Campaign reduced falls by 32 per cent in the first year and 37 per cent in the second year
- If rolled out across the country estimated saving £500 million (Office of the Deputy Prime Minister, 2006)
Reducing rates of institutionalisation by just 1% will save a projected £3.8 billion per year (UK)

3 fundamental questions in design

“Necessity is the mother of invention” (Plato)

1. What is the need?
2. How can the needs be met?
3. How well are the needs be met?
Answering the questions

- Explore: What are the needs?
- Create: How can the needs be met?
- Manage: What should we do next?
- Evaluate: How well are the needs met?
Welcome to the inclusive design toolkit, which aims to answer three critical questions:

1. **What is inclusive design?**
   Inclusive design applies an understanding of customer diversity to the design of mainstream products to better satisfy the needs of more people.

2. **Why do inclusive design?**
   Products that are more inclusive can reach a wider market, improve customer satisfaction and drive business success, especially given the ageing population.

3. **How to get started?**
   Getting started involves understanding what is different about an inclusive design process and then working out what changes are needed to actually do it.

**Supplementary toolkit pages**

**About us**
The toolkit was developed by the University of Cambridge, Engineering Design Centre and sponsored by BT.

**Update history**
March 2012 — Launch of [Chinese version](http://www.inclusivedesigntoolkit.com/).

**Book version**
The contents of this website can be purchased as a 350 page full-colour book.

**Accessibility**
The controls underneath the menu allow you to change the colour scheme and font size.
Simulation Tools

Cambridge Simulation Gloves

Cambridge Simulation Glasses

Contents

3 sets of Level 1 glasses
3 sets of Level 2 glasses

The usable visual field can be
narrowed or obscured due to
various eye conditions. The
central visual field is used for
focusing and perceiving detail.
When it is obscured, tasks that
require perception of detail (such
as reading) become more
difficult.
## Making the Case - Full Cost-Benefit Calculation Tool

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Impact Type</th>
<th>Indicator</th>
<th>Evidence</th>
<th>Cash flow</th>
</tr>
</thead>
</table>

### Impact Factor from Impact Table

<table>
<thead>
<tr>
<th>Rationale</th>
<th>Value per annum</th>
<th>Probability</th>
</tr>
</thead>
</table>

### NPV

- **Company Weighted Average Cost of Capital**: 12%
- **NPV (Net Present Value of above Impact Factors)**: €0
What kind of user are you?

Digital Native?

OR

Digital Immigrant?

- Marc Prensky

Source: On the Horizon (MCB University Press, Vol. 9 Issue No. 5, pages 1-6, October 2001) © 2001 Marc Prensky
The Art of Simple
As digital natives we need to...

make the familiar strange

So that for digital immigrants we can...

make the strange familiar

Source: Baron Georg Philipp Friedrich von Hardenberg (2 May 1772 – 25 March 1801)
Or put more simply…

…forget what you know
If you forget what you know, what is it?

- “Film reel”
- “To record calls”
- “To see things better - icon looks like glasses”
- “To put decimals in numbers”
- “Link between two people”

- “Staple”
- “Bed”
- “Linking something – two calls”
- “Upside down bench”
To respond to the diversity in the population we need to practice…

The Art of Simple
Designing Our Tomorrow
Thank you for listening!

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