Older adult requirement data – what designers want!

Bruce Carse
Bioengineering + DMEM, University of Strathclyde

Principal Investigator: Dr Avril Thomson
Co-Investigator: Dr Ben Stansfield
Outline

- Project background
- Approach
- Designer Interviews
- Ethnographic Study
- Biomechanical Testing
- Follow-up Designer Interviews
- Conclusions & Questions
Background

• Inclusive design data and tools required
• Biomechanics offers more – it goes beyond size and strength
• Hold on. Why isn’t size and strength data being used?
• Understand how and why data is currently (not) used before generating more
Approach

Who and what:

Older Adults
+
Package Opening
Approach

- Designer Interviews
- Ethnographic Study
- Biomechanical Testing
- Follow-up Designer Interviews
- Future Work
Designer Interviews

- Structured face-to-face interviews were conducted with 10 packaging designers
- Small design consultancies through to large multinational manufacturers
- Understanding, and use of Inclusive Design.
- Awareness, understanding, and use of ergonomic and biomechanical data.
- Other methods for including older adults in design
Interview Insights

Inclusive Design

• Rarely requested by client

“It’s never been specified by the client. The onus is on us as designers to make the client consider it”
Interview Insights

Inclusive Design

- Little evidence of implementation - all anecdotal with no formal data, tools or techniques

"Just go and speak to them. There’s no better way to get good information"
Interview Insights

Inclusive Design

• Even less evidence of successful implementation

“We once tested on a group of 50-70 year olds. It was interesting, and we generated some new prototypes, but they never went into production”
Interview Insights

Using Ergonomic Data

• Rarely used - misconceptions and negative experiences:

“The data often tends to be too generic”
“The information is very literal – it can give me a finger length, but it doesn’t tell me anything about how the finger is used, or pressure, or anything like that”
“You would almost need a different textbook for every project you do”
“The more experienced you are with these types of projects, the more you just tend to go with your gut feeling”
Interview Insights

Using Ergonomic Data

• Ethnography, user trials and focus groups preferred

“Observation is much more valid and useful than using any sort of data”
Interview Insights

Using Ergonomic Data

• Like to collect their own

“It’s easier to go out straight away and start speaking to people and start testing things with them, rather than looking through piles of books of other people’s work”
Interview Insights

Using Ergonomic Data

• No robust evidence of data being used successfully
Interview Conclusions

- Ergonomic data is rarely used, for a variety of reasons.
- Presentation! Designers are designers, not scientists!

Stephen Wilcox, 2007
Ethnographic Study

- Observer-as-participant lab. based study:
  1) How do people actually open packaging?
  2) Can we define what is 'normal' opening?
  3) Are there differences between young and old?
Biomechanical Testing

- Relies on the simultaneous capture of two things:

  BODY MOTION and FORCE
Biomechanical Testing

BODY MOTION

Markers tracked by motion analysis cameras:

5mm Reflective Markers
Biomechanical Testing

FORCE

Force sensors mounted inside jar and bottle:
Biomechanical Testing – Motion Analysis + Video Footage
Follow-up Designer Interviews

• Same interviewees from previous work (8 in total)
• Semi-structured, informal interview style
• Presented data; ethnographic and biomechanical
Follow-up Results

• Not too much detail:

“I just need to know the conclusions from these sorts of test, not the fine detail of the techniques and formulae used to derive them”
Follow-up Results

• The need for the human touch:

“Motion analysis seems to remove all the

“I would much rather see the person in
their natural home environment”
Follow-up Results

- Combine data with pictures, diagrams and video

“If you’re going to show me a graph or a table, put some explanatory pictures.”

“The combination of the 2 moving images is far more interesting.”
Follow-up Results

• Concerns over the lab environment being unnatural

“Our whole remit as a business is to get [our testing] as real as possible and this feels just like measuring to a high level of accuracy something which is hugely inaccurate”
Conclusions

- Designers don’t place the same value on empirical, statistically significant, objectively collected data as scientists and academics.
- Present data in a layered format — conclusions first!
- We need to develop a more robust argument FOR ergonomic data.
- A framework for it to be used where it complements subjective techniques — it can’t be used in isolation.
- Identify conditions where data is useful and relevant.
Future Work

• Researchers need to be more proactive in generating solutions:

Ethnography of designers?
Questions?

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