Developing the UK International Passenger Survey in Blaise 5 on Tablet Computer

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Beijing, April 2015
Overview

- **The UK International Passenger Survey (IPS)**
  - Quick introduction of the survey
  - Drivers for changes

- **First prototype of the tablet questionnaire**
  - Design decisions
  - Feedback from focus group

- **Second prototype of the tablet questionnaire**
  - Design decisions
  - Testing and pilot

- **What Next?**
The UK International Passenger Survey (IPS)

- Continuous survey conducted by ONS since 1961
- Over 800,000 interviews/year
- Collected at major airports, seaports and tunnel routes to and from the UK
- Main source of data for informing tourism and migration policies
Drivers for changes

- At the moment: paper questionnaires + manual data keying
- Increasing demands + Stringent budget cuts → need to modernise our data collection process:
  - Improve data quality
  - More timely outputs
  - ONS image

- July 2014: Blaise team member visit to Bristol airport
First Prototype of the Blaise Questionnaire on Tablet Computer
Overview of Prototype

- Objectives: demonstrate Blaise routing capability, in-built edit checks and lookup features
- Layout not the main focus at this point

Layout borrowed from the LFS.

Adapted for the IPS.
Focus Group Discussions: August 2014

- **Demonstrate what Blaise 5 can do**

- **Identify what we can improve: layout, usability, survey flow**
Second Prototype of the Blaise Questionnaire on Tablet Computer
Literature review: Don Norman’s Design Concepts

- **Visibility**: make the correct way to operate the device stand out
- **Affordance**: appearance of a control provides hint about how to interact with it
- **Feedback**: provide clue about outcome of actions
- **Constraint**: limiting choices can prevent errors
- **Mapping**: display controls where people expect to see them
- **Consistency**: apply the same rules throughout the application
Principle of Visibility

✓ Humans have selective attention

✓ The operating part of the device must stand out

✓ Remove anything that does not have added value
First prototype: International Passenger Survey

Second prototype: Permanent on-screen minimalist keyboard
Principle of Affordance

✓ Appearance of an object suggests how to interact with it

✓ Use analogy with how humans interact with physical objects in real world
First prototype

International Passenger Survey
AIR DEPARTURE

Student Trailer

How long was the course that you took?
- Less than 3 months
- 3 months or more but less than 6 months
- 6 months or more but less than 12 months
- 12 months or more

Second prototype

Student Trailer

How long was the course that you took?
- Less than 3 months
- 3 to 6 months
- 6 to 12 months
- 12 months or more
Principle of Feedback

✓ Show the outcome of an action. Was it successful?

✓ Make it easy to evaluate the current state of the device. Is it still working?
Types of feedback: can be **activational** or **behavioural**

- Use different background colours for different parts of the survey e.g. Main Questionnaire, Trailers
- Error messages, warning, dialog
- Objects change colour when selected
Active controls are clear
Currently selected control is blurred
Principle of Constraint

✓ Restrict the choice of user interactions that can take place at a given moment

✓ Reduce the need for instructions

✓ Reduce the risk of making mistakes
- Use Blaise routing and Conditional Visibility to show/hide controls
Controls should be placed where users expect them to be.

Expectations come from prior knowledge, experience and learning. It may be influenced by culture.
How satisfied were you with the food and drink in the UK?

- Very satisfied
- Quite satisfied
- Neither
- Quite dissatisfied
- Very dissatisfied
- Don’t know/NA
Principle of Consistency

Humans learn by recognising patterns: things that look similar = do similar things

Reduce need for explanations, enhance memorability
prototypes: vertical positions of navigation buttons change between pages
When arrived?
Where from?
CI or IOM?
Arrived today/yesterday?

Programmatically calculate if arrived today/yesterday
The Danger of “Context Effect”

2. In which countries have you been living (working/studying) for the last 12 months?
   UK .................................................. 1
   Germany ........................................... 2
   Irish Rep ........................................ 3
   USA .................................................. 4
   ALL OTHERS: .....................................

6. Residents of Belgium, Canada, Germany, India and Spain ........ X (a)
   All other foreign residents .............. Y

(a) Do you live in any of these cities?
   IF NO, ASK WHICH REGION
   Use cards to ensure correct coding
   Use code 99 for queries - code 99 for DK

   Darmstadt
   Frankfurt
   Hanau
   Kassel
   Offenbach
   Wiesbaden
   None of these

   20

Change order of questions!
Implementation of Interactive Maps

No Internet connection inside airports → No Googlemaps!!!
It can be tedious for countries with many regions!
Debugging phase

Usability testing. Jakob Nielsen:

- 3 to 5 subjects needed to identify 85% of problems
- 15 subjects required to identify 100% of problems
- Iterative cycle: test on 3-5 subjects → modifications → re-test on 3-5 new subjects etc.

Usability measures: Quantitative and Qualitative

- User perception: self-report, post-test interview
- 5-point Likert scale: (strongly disagree, disagree, neutral, agree, strongly agree)
- Paradata: Audit trail set to FIELD or ANSWER level, C# and Blaise API
What Next?

Next phases will shape development of 3rd prototype:

- Health and Safety checks: screen colours, tablet sizes, etc.
- Review of edit checks
- How the questionnaire will fit into the end-to-end system
- Data transfer. Questionnaire deployment
Thank you for your attention
Any questions?