Best Practices of Usability Testing
Online Questionnaires at the Census Bureau

How rigorous and repeatable testing can improve online questionnaire design

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Concept of Usability Testing

- Usability testing shows us how users perform tasks
Example of a Usability Finding
Overview of Talk

- Top 10 tips
  - How arrived at those practices
  - What still is unknown
- Success example
Tip 1: Participants

- 10-20 users
  - Faulkner (2003) suggests

- User groups - respondents with particular characteristics
  - “Why do you think you qualify for this study?”
  - Older respondents
  - Device dependent groups

- Logistical issues
  - Reminder calls and emails
  - Schedule to end a few days earlier to back-fill for no shows
Tip 2: Iterative testing
Same survey – multiple rounds

Round 1 of testing

Round 2 of testing

More spacing between response options
Iterative testing
Similar survey, across field periods

Field period 2015
Iterative testing
Similar survey, across field periods

Field period 2016
Tip 3: Set up the task

- The survey task
  - “Answer the survey questions as they apply to you in real life.”
- Dummy data
  - Mocked-up mailing materials
  - Pre-filled data
  - Example instruction: “If you were to receive the survey at your home, the mailing materials you would get would have your name. Since we cannot replicate that for the lab setting, you will have to pretend that this letter came to your address and that is your address. That is the only part of the study that is pretend.”
Tip 4: Probing

- Think-aloud
  - Think aloud vs. silence
  - 35 question problems vs 9 over 2 rounds of testing
    Nichols 2016
  - Does not affect eye-tracking data with exception of older users
    Romano Bergstrom and Olmsted-Hawala, 2012

- Concurrent probing or verbal probing as described by Willis (2004; 2015)
Tip 5: Think-aloud

- “How many windows are in your home?”
  - Dillman, 2007; Ericsson and Simon, 1993

- Participants who fall silent
  - “Keep talking” (saying that very quietly)
  - backchannel continuers such as “mm-hm” or “uh-huh”

- Participants who get “stuck” on an issue
  - “We will be sure to tell the developers” or “Thank you, I’ve made a note of the problem”
Tip 6: Eye-tracking
If there is time to analyze. Much is still unknown.
Tip 7: Measuring Satisfaction
Much is still unknown.

- Questionnaire for User Interaction Satisfaction (QUIS) (Chin, Diehl, & Norman, 1988)
  - Use a modification of these items
- System Usability Scale (SUS) (Brooke, 1996)
  - 10-items – better for website then web survey
- Still in need of a better survey – satisfaction with taking a survey is difficult to measure
- How to present the data
Example of satisfaction scores across 2 rounds

Forward Navigation

Round 1

Round 2

Source: 2015 Census Test Usability Satisfaction Questionnaire
Tip 8: Vignettes

- One way to measure accuracy
- Test rare events
  - For example, a break-off and a resume
  - An edit message
Tip 9: Retrospective Debriefing

Much is still unknown.

- PowerPoint slide deck to jog memory
- Beware of memory error and retrofitting the problem to something unrelated
- Useful to compare minor changes to design or a before and after
Tip 10: Use pictures to communicate usability issues

- Review video and notes
- Screen shots and PowerPoint with issues and recommendations
- Shortly after sessions end
- Written report can follow
Success Example
Return on Investment
American Community Survey
2011-2016
2011 – Usability testing
2011 ACS Internet Test

- Paradata
  - This question triggered the most alerts of any screen.
  - ~10% of the people visiting this screen receiving an alert

(Horwitz, Tancreto, Zelenak, and Davis, 2013).
2013– Usability testing, version 1

*The following series of questions refer to Sarah Joseph.*

7. Where was Sarah Joseph born? *(Help)*
   - In the United States - Select name of state.
     - Select Name
   - Outside the United States - Enter name of foreign country, or Puerto Rico, Guam, etc.

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The following series of questions refer to Matthew Joseph.

Where was Matthew Joseph born? (Help)

- In the United States - Select name of state.
  - Select Name

- Outside the United States - Enter name of foreign country, or Puerto Rico, Guam, etc.
2014 ACS field test

- Paradata for split-panel test
  - Alerts in new design < Alerts in former design

(Zelenak, 2016)
The following series of questions refer to John Doe.

Where was John Doe born? [Help]
- In the United States - Select name of state.
- Outside the United States - Enter name of foreign country, or Puerto Rico, Guam, etc.
Questions

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References