Centurion: Internet Data Collection and Responsive Design

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Disclaimer: Any views expressed are those of the authors' and not necessarily those of the U.S. Census Bureau.
Background

- What is Centurion and why was it established?
  - A framework of reusable components for building web applications
  - Pre-2009: Decentralized Operations
    - technology, staff, infrastructure, design philosophy, security posture, etc.
  - 2009-Present: Centralization of Operations
    - Centurion (IT Directorate) - Corporate approach for all Internet data collections at the Bureau
Workload

Current:

- 70+ surveys in production
- 30+ surveys currently in development
- American Community Survey
- Decennial census tests
- TQA/CATI Components
Design Approach

- Best practices for coding applications following web standards (security, usability, 508, etc.)
  - Primarily aimed at desktop and laptop users
  - Still effective and functional on mobile devices (tablets, phones) but not screen optimized
- Most surveys are not designed “mobile first” at this point
  - Conversion is underway
Future Approach

- Information Technology Guiding Principles
  Driving mobile-enabled operations

“As the American people transition to a mobile-centric society, the surveys we conduct … must be delivered in adaptable, mobile-friendly formats … that promote response. The Census Bureau must continue to innovate and provide new products and services that leverage the power and utility of mobile technology and use.”

– U.S. Census Bureau Information Technology Guiding Principles
Mobile Web

- **Approach:** Responsive web design: “... provide an optimal viewing experience—easy reading and navigation with a minimum of resizing, panning, and scrolling—across a wide range of devices (from desktop computer monitors to mobile phones)” - Wikipedia

- **Technology:** Bootstrap – Open Source HTML, Cascading Style Sheets(CSS), and Javascript(JS) framework for developing responsive, mobile first web applications/sites. (http://getbootstrap.com/)
Implementation and Challenges

- ‘Bootstrapping’ the America Community Survey and the Decennial Census Tests
  - Current page layout is thrown away
  - Placement of page element
  - Add CSS for each possibility
  - Repeat above steps for each page
  - Test, test, and more testing
Examples
Examples

What is your name and your telephone number? We may contact you if there is a question. (Help)

First Name
Middle Name
Last Name

Telephone Number

Next
Examples
Examples
Mobile Development Challenges

- Device and O/S differences
- Transition from traditional survey design
- Development and testing time
- Technology rapidly changing
- Customer service – help desk
American Community Survey (Mobile Usage)

Percent of mobile respondents increasing rapidly

Source: American Community Survey 2011 Internet Tests and 2013-2014 production
Breakoff rates are higher among mobile respondents

Source: American Community Survey 2011 Internet Tests and 2013-2014 production
Completion time is longer among mobile respondents

Source: American Community Survey 2011 Internet Tests and 2013-2014 production
American Community Survey
(Mobile Demographics)

Demographic characteristics of mobile respondents:

- Different than computer respondents
- Consist of some hard to interview groups
  - Younger
  - Less educated (phone specifically)
  - Minorities (African American and Hispanic)
  - Renters (phone specifically)
Challenges of Paradata Analysis

- Difficulty parsing the useragent string
- What to do with hybrid tablets or phablets?
- Are we comparing apples to apples across studies?
Question 1

- The literature suggests that to truly optimize an instrument, it must be built for the smallest common denominator. Given we are dealing with established government surveys, this is not possible so we are trying to fit lengthy questions in a mobile environment. Would it make sense to alter some of these questions on mobile devices to make them truly ‘optimized’?
Question 2

In surveys that are optimized for mobile, we often see large buttons where each response option is enclosed in a box that the respondent can click. These surveys are typically shorter and have simple response options. Given the complexity of our response options and differentiation between buttons and check boxes (to differentiate select one vs select all), does the button approach make sense?
Question 3

- Is there an industry standard for parsing the user-agent string?
Question 4
Is this the future?

WSR = Web Self-Response
CATI = Computer Assisted Telephone Interview
CAPI = Computer Assisted Personal Interview
TQA = Telephone Questionnaire Assistance