Mobile Data Collection

Benefits, Risks, Lessons Learned

Joshua Seeger
VP Technology
seeger-josh@norc.org

NORC

at the UNIVERSITY *of* CHICAGO

Outline

- "Mobile data collection" – definition
- NORC's recent experience with mobile
- Findings
  - Benefits
  - Challenges
- Lessons learned
- And soon to come…

Mobile Data Collection

Definition

- Collection of data in the field using the hardware and software platforms of smartphones or other handheld devices, e.g., tablets

- Further restriction – the application must enable offline collection of data

- Held by either interviewer or respondent

- Data are uploaded to an Internet-connected server when device has connectivity

NORC's Recent Forays

- Nation-wide listing for decennial national frame project
  - 2010 listing app prototype enhanced for production
  - Deployed on 50 Samsung Galaxy Tabs
  - Replaced traditional paper, pencil, & clipboard
- Ecological Momentary Assessment (EMA) "Health on the Move" pilot
  - Self-administered diary-like quex on Android
  - Deployed on 10 Motorola smartphones
  - Replaced paper, pencil, & alarm watches
  - Similar to "Experience Sampling Method" (ESM)

Nation-wide Listing Project

- Objective:
  - Gather precise location data for over 80K dwelling units (DUs) with questionable or missing info in the USPS DSF (mostly in rural areas)

- Listing app built to NORC spec by Techneos on their "SODA" platform

- Key enhancements:
  - Persistent list of assigned addresses
  - Choice of sort orderings
  - Dynamic color coding to indicate status of each DU
  - Continuous listing when offline

Listing App
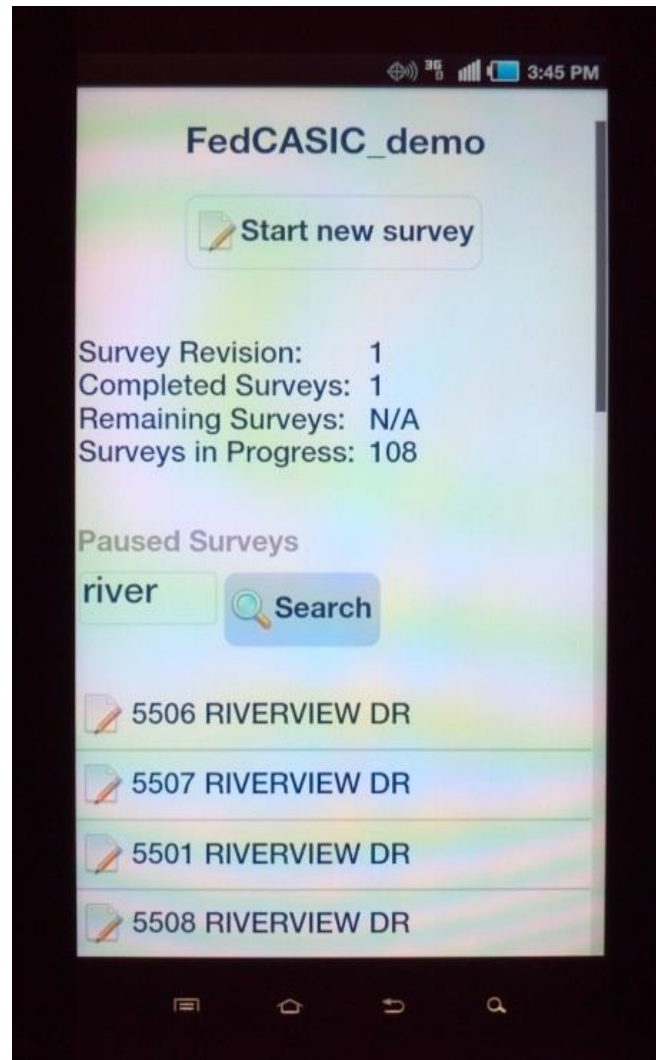
Listing app search screen

Pre-loaded assigned addresses are displayed and searchable.

User can select any address to enter listing data.

Previously handled addresses will be color coded to indicate status.

Listing App

Search Screen with color coding

5506 Riverview has been listed.

1 N. State St. has been added & listed.

5501 Riverview has been found non-existent.

EMA Pilot

- Research objective:
  - Describe the social and spatial environments of older adults' lives and examine how they impact health trajectories

- Methodological objective – assessment of:
  - Programmability
  - Device reliability
  - Respondent experience

- Programmed by Techneos on "SODA":
  - 3 "random" alarms per day
  - Dozen questions, including location capture

EMA Pilot

EMA Screenshots

Various question types were employed, such as:

- Single choice
- Multiple choice
- Slider to select value
- Open ended text entry

Findings

Benefits

- Portability – light-weight, inconspicuous, easy to carry (crucial for EMA)
- Low cost
- Diverse functionality – self-contained package: programmable, location service, camera, clock, alarm, email, maps, phone
- Compelling user experience – people love an excuse to use these devices
- Broad-based ownership of and familiarity with mobile devices

Smartphone Proliferation

Smartphone Penetration By Age Group
Q3 2010 - Q3 2011, U.S.

Source: Nielsen

Findings
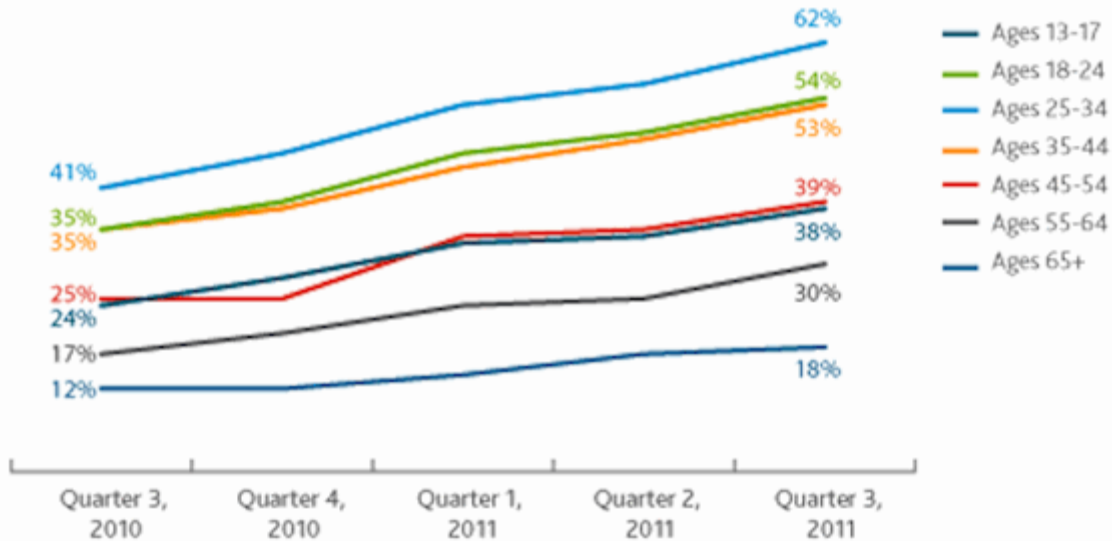
Challenges

- Device and service reliability deficiencies
- Lack of uniformity
- Small screens
- User difficulty with touch screen
- Uncertainty around device settings, esp. GPS
- Lack of control over user behavior, other apps
- Questionable security – devices are easy to lose, frequently stolen, encryption is all or nothing and detracts from response immediacy
- Battery life

Settings Uncertainty - location

Lessons Learned
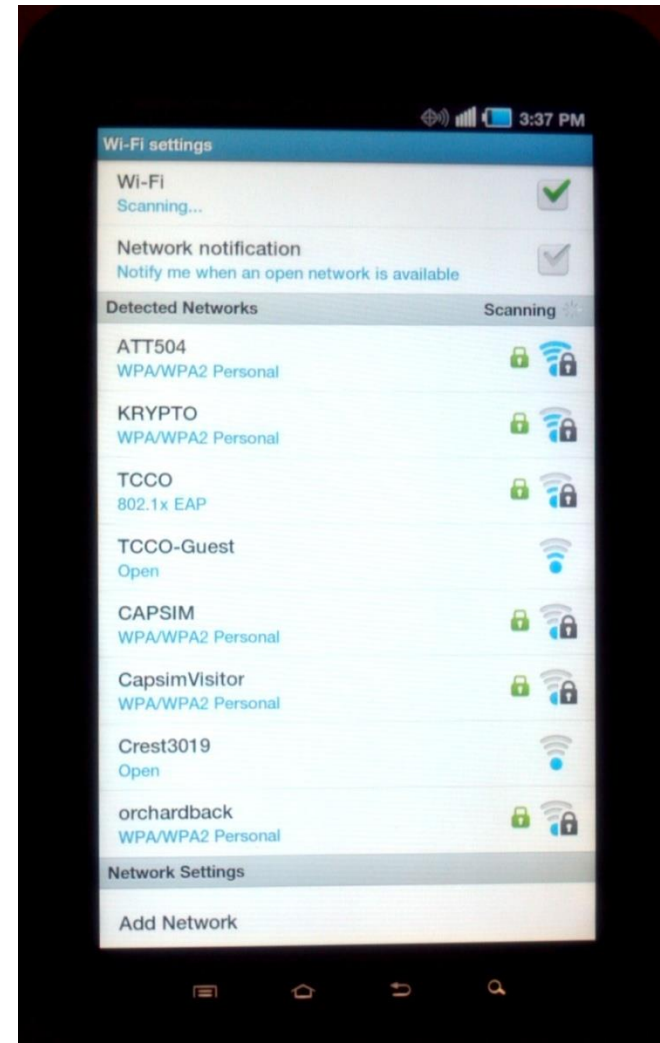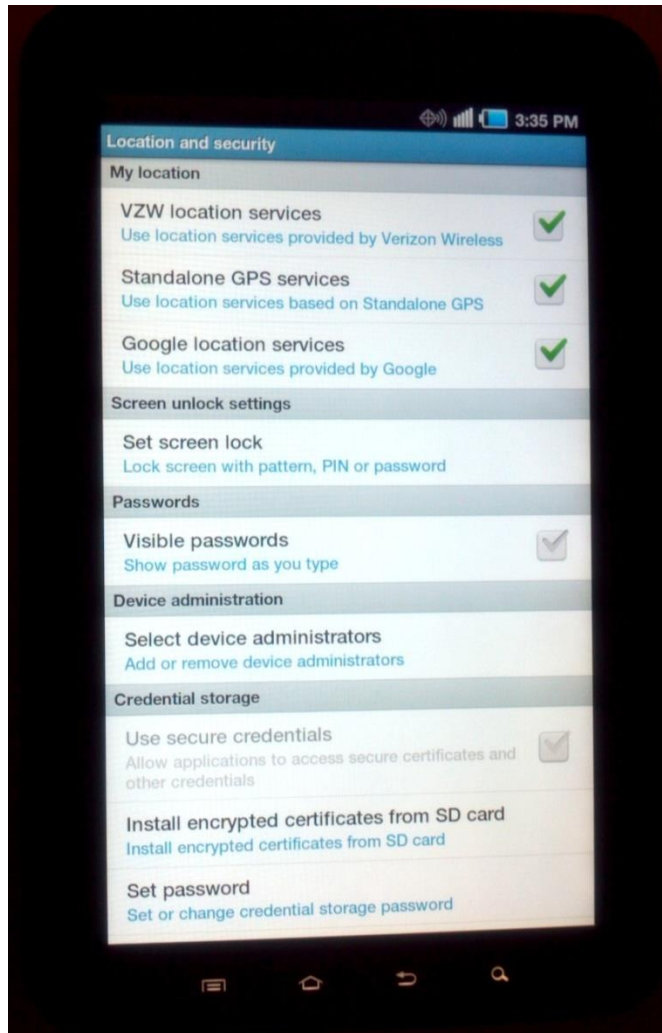
- Iterate on design, layout, look and feel
- Test, test, test
  - Functionality, incl. all peripheral functions
  - Reliability
  - Scale
  - In the field, with and without network connectivity
- Train: interviewers, respondents, tech support
  - On the device, the app, & when to seek help
- Provision spares

More Lessons Learned

- Provide on-call tech support
- Set up daily QC on uploaded data
  - Contact users immediately upon detection of anomalies
  - Lead user through diagnostics/troubleshooting
    - Verify settings
  - Be ready to ship a replacement device
    - Cheaper than losing data

And soon to come…

- Tablet-based half-hour questionnaire to interview cotton farmers in Ghana
- Tablet-based questionnaire and listing app measuring access to human services in Kenya
- Further work on smartphone implementation of the Experience Sampling Method
- NORC's own mobile platform integrated with full-fledged case management system

Questions? Email seeger-josh@norc.org

Thank You!

NORC
at the UNIVERSITY of CHICAGO

insight for informed decisions™