Use of Mobile Technology in Support of Study Recruitment and Field Data Collection

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Overview

- **Mobile Landscape and Project Considerations**
- **Westat Mobile Projects**
  - Project Background
  - Project Requirements
  - Solution Approach
  - Lessons Learned

Considerations

Several Devices Types

- Cell Phones
- Smartphones
  - iPhone,
  - DroidX,
  - HTC,
  - Torch
- Slate Tablets
  - iPad,
  - Galaxy Tab,
  - HP

Considerations

Several Operating Systems:

- Apple iOS
- Android
- Windows Phone
- Windows 7
- RIM/Blackberry
- webOS

Considerations

Network Technology / Connectivity Options

- Wi-Fi
- 3G (GPRS/EVDO)
- 4G (LTE / HSPA+/ WiMax)
- Always Connected/Disconnected capable

Network Operators (Carriers)

- ATT
- Verizon
- SprintNextel
- T-Mobile
- Other Tier 3 Carriers
  (Leap/Cricket, Metro PCS, US Cellular)

Considerations

- Physical Characteristics
  - Screen Size
  - Weight
  - Size of Device
- Environment use conditions
  - Indoor Outdoor Use
  - Screen glare, lighting
  - Durability
- Battery time and time to replenish
- Communications Needs
  - Carrier / Wi-Fi
  - Speed and reliability requirements
- Security Needs
  - Device
  - Data Storage
  - Transmission

Considerations

- Application Approach
  - Web based solution
  - Connected / Disconnected Mode
  - Native development
  - Cross Platform development tool
  - COTS product
  - Combination of the above
- Device Type & OS
  - Capability needs – GPS, single/multi camera, battery etc..
  - Target demographic desired device
  - Available commercial applications
  - Technology skills (Java/Objective C etc)
- Cost
  - Device
  - Recurring fees (communications and application fees)

Dimensions of Mobile Technology Use

- Transportation study – long standing mobile project gets a technological facelift
- Adolescent behavioral health study – hard copy study performed with mobile technology
- Mobile Recruiting – rethink recruitment approach that leverages mobile technology

Transportation Study

Transportation Study

NATIONAL OCCUPANT PROTECTION USE SURVEY

Purpose:

Observational study - captures data regarding

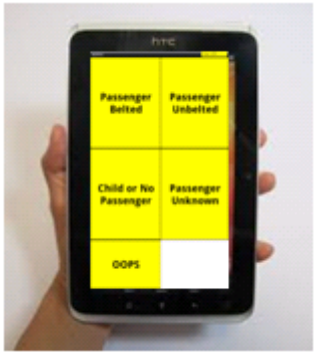
- Vehicle occupant safety belt use
- Child car seat use
- Driver electronic device use
- Motorcycle helmet use

Transportation Study

Project Background

1999 Mobile Clipboard

2003 PDA



2012 Android

Integrated Components

2003

- GPS
- Data Card
- Spare Batteries
- etc.

2012

- Integrated components

Transportation Study

Key Considerations

- **Key Operational requirement /Application Approach**
  - Ability to rapidly capture data for each moving vehicle and quickly move on to the next vehicle
  - Built in edit checks
- **Environment use conditions**
  - Outdoor & on the go use
  - Device durability
  - Screen lighting and glare
- **Physical Characteristics**
  - Weight, size, screen size
- **Power requirements**
  - Length of time to replenish
  - Length of time device can be used in field on a charge

Transportation Study

Key Considerations (continued)

- **Ease of use**
  - Ability to train data collectors to efficiently and accurately collect data with the device
- **Cost of Device**
  - Easily replaceable
- **Device Type**
  - Ability to capture location where data was being collected
- **Communication Needs**
  - Ability to transmit data from the field

Technical Approach

Project device and platform decisions:

- **Devices:** 7 inch tablet (versus smartphone and larger size tablet)
- **Development Approach:**
  - Native mobile client developed in Java
  - Local data storage
- **Operating System:** Android Operating System
- **Communications Connectivity Technology:**
  - Disconnected operation with secure synchronization
  - SIM card / GSM month to month service with WiFi as contingency

Lessons Learned

- Standardized and open platform have enabled the ability for development of increasingly more powerful mobile applications
- Android development requires a good understanding of the Android framework in addition to strong Java expertise.
- Migration from Windows Mobile platform to Android /Java a complete redesign and redevelopment – no easy migration path
- Applications developed for Android may operate differently on different Android device types due to device manufacturer modifications

Adolescent Behavioral Health Study

Adolescent Behavioral Health Study

Adolescent Medicine Trials Network for HIV/AIDS Interventions (ATN)

Purpose: Independent and collaborative research that explores needs for HIV-infected and HIV at-risk adolescents, ages 12 years through 24 years:

Adolescent Behavioral Health Study

Project Background

- Identify potential study participants for behavioral health study
- Study candidates are generally adolescents and at-risk of HIV exposure
- Recruits are asked personal behavioral questions
- It is often difficult to get potential participants to share personal behavioral information
- Similar screening activities are currently performed with hard copy – further raising possible candidate concerns about interviewers ability to view responses.
- Interviews are performed at high risk venues where potential candidates often congregate

Adolescent Behavioral Health Study

Key Considerations:

- **Application Approach**
  - Disconnected data collection at popular hangout locations
- **Security**
  - Participant assurance that data collection while at a public venue is discrete, private and confidential
- **Physical Characteristics:**
  - Device used to capture data needs to be lightweight and small
- **Device Type**
  - Target Demographic: device needs to be one generally familiar to likely respondents
- **Cost**
  - Device needs to be relatively low cost

Adolescent Behavioral Health Study

Proposed Solution

- Use light weight popular handheld device - iPod Touch - to collect data
- Field recruiter describes data collection location
- Recruiter hands device to potential participant to complete personal sections

Adolescent Behavioral Health Study

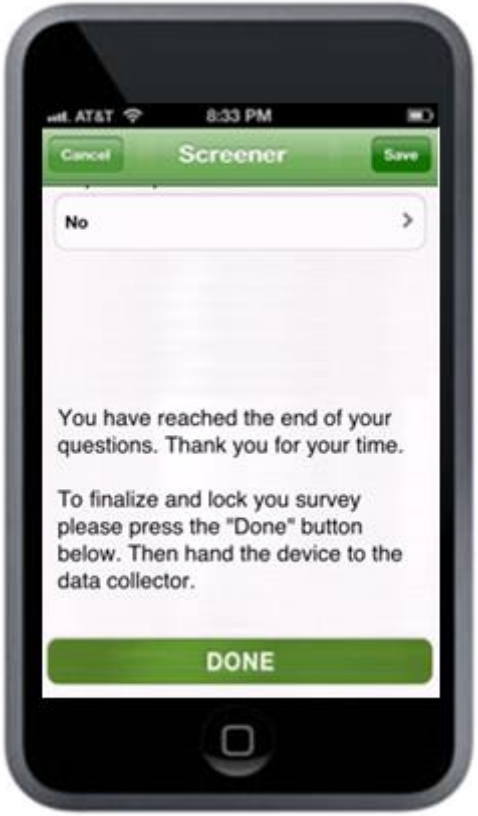
Proposed Solution (cont)

- Participant privately responds to self administered questionnaire

Adolescent Behavioral Health Study

Proposed Solution (cont)

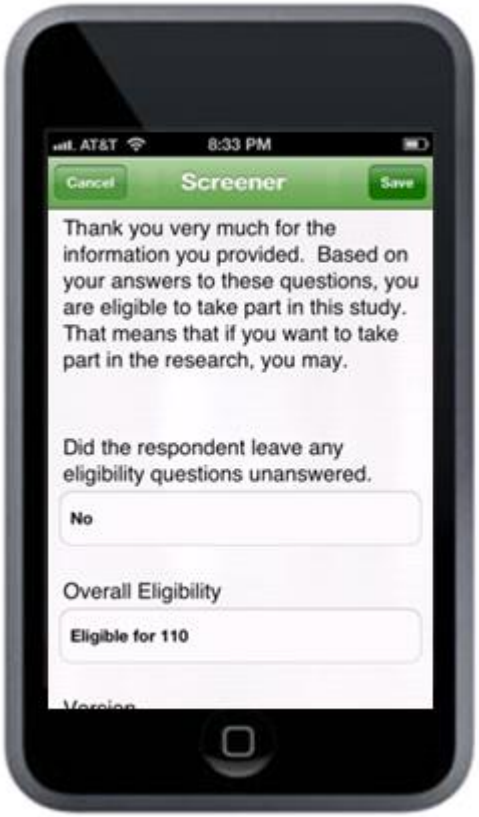
- Upon completion of questionnaire – responses are hidden and locked from interviewer



Adolescent Behavioral Health Study

Proposed Solution (continued)

- Device evaluates and indicates candidates eligibility



Technical Approach

Project Device and platform decisions:

- **Device Selection:** iPod Touch
- **Development Approach:** Integration of COTS products with Westat capabilities and infrastructure
- **Operating System:** iOS
- **Communications Connectivity Technology:** WiFi - integrated with secure data transmission framework

Lessons Learned

- **Questionnaire Redesign**
  - Hard Copy to mobile requires rethinking of form format (particularly on small device)
    - Length of questions and answers
    - Navigation of questions, skips etc..
    - Required questions
    - Buy versus Build –not all question types may be supported in COTS tools
- **For self administered questionnaire on mobile, know your demographic**
  - Will demographic be familiar with and comfortable responding using the selected device?
- **Security**
  - Even if PII and PHI is not collected project may require data to be encrypted throughout the process

Mobile Recruitment

Mobile Recruitment

Purpose:

- Provide an ability to remotely recruit possible study candidates who are visiting service centers or clinics when signing up for or receiving program benefits
- Candidate for new use of mobile technology

Mobile Recruitment

Current Background

- A recent study recruits potential study participants through service centers, clinics and hospitals
- Program beneficiaries visit the service center to sign up for or receive their benefits
- Existing clinic staff or dedicated onsite recruiters attempt to recruit these beneficiaries for the study.

Mobile Recruitment

Current Background (continued)

- Challenges for the existing approach include:
  - Ongoing training of clinic staff
  - Space and Infrastructure
  - Efficient use of dedicated recruiter time

Mobile Recruitment

Mobile Recruitment Solution

- Service center staff would ask potential participants if they are interested in the study.
- If interested, participant would be directed to private seating area where mobile recruitment device is situated.
- Participant can view informative video regarding the study.

Mobile Recruitment

Mobile Recruitment Solution (continued)

- If participant remains interested
  - Participant presses button to initiate a remote video call to the recruitment center,
  - Trained staff are available to answer additional questions, complete the recruitment process and administer the interview.
  - Upon completion of interview, interviewer would schedule next appointment and direct participant to complete any required consent forms to be returned to clinic staff

Technology Approach

Project device and platform technology approach:

- **Device Selection (in evaluation):** Galaxy Tab, Motorola XYBoard
- **Operating System:** Android Operating System
- **Development Approach:** Native development integrating several commercial products
- **Carrier/Network Technology:** SIM card / GSM 4G based device

Mobile Recruitment

Expected Benefits:

- Provides portable and “quickly on” solution
- Provides consistent and improved approach for study description
- Reduced logistics to support specialized onsite staff
- Use of 4G reduces need for technical infrastructure integration
- Increase in efficiency and effectiveness of recruitment staff
- Increased response rates as a result of dedicated skilled and trained recruiters

Questions?

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