Going Mobile with Survey Research:

Design, Data Collection, Sampling and Recruitment Considerations for Smartphone and Tablet Based Surveys

AAPOR, May 14, 2014

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Condensed from 200+ to 40 slides by Leora Lawton, Ph.D.

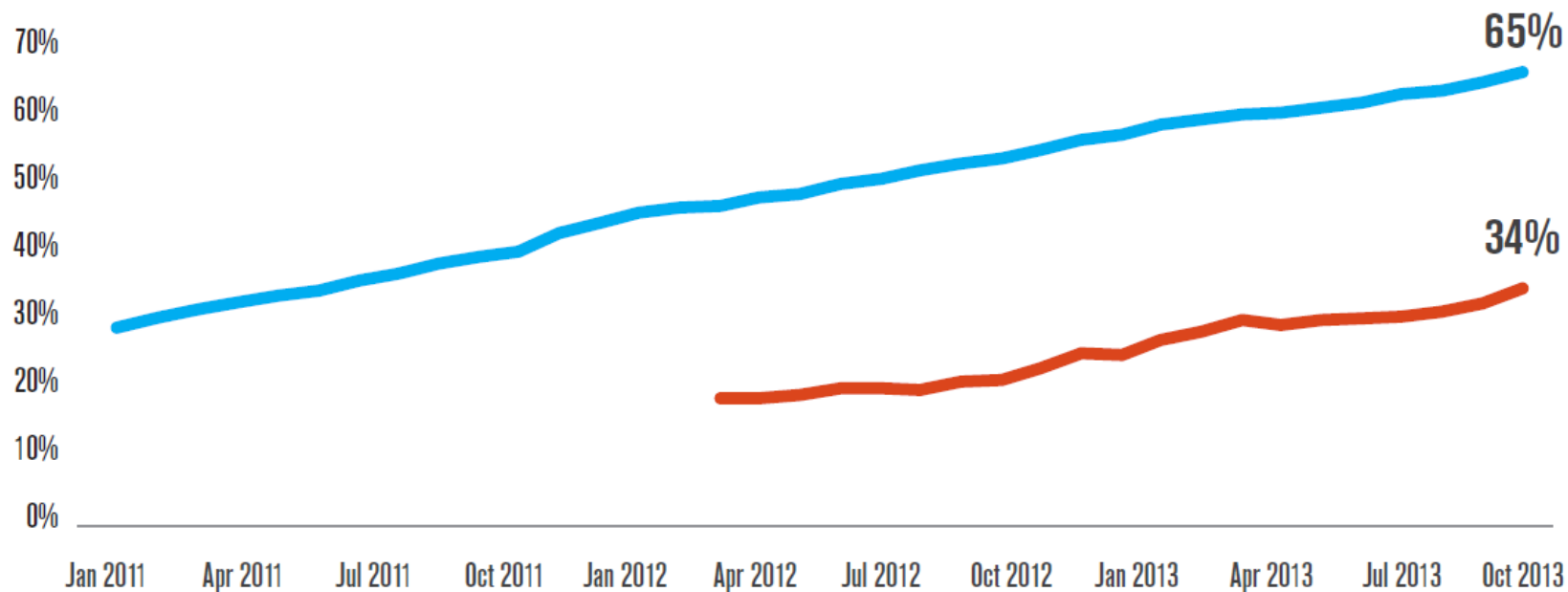**Re-presented with permission at PAPOR Mini-Conference**

June 13, 2014, San Francisco, CA

Mobile device penetration continues to rise in the U.S.

U.S. Smartphone and Tablet Penetration

comScore MobiLens and TabLens, U.S., Age 13+, January 2011 - December 2013

65%

34%

Source: Comscore, 2014 http://bit.ly/1hh9j8L

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If you send a respondent and email invitation, where is it likely read?
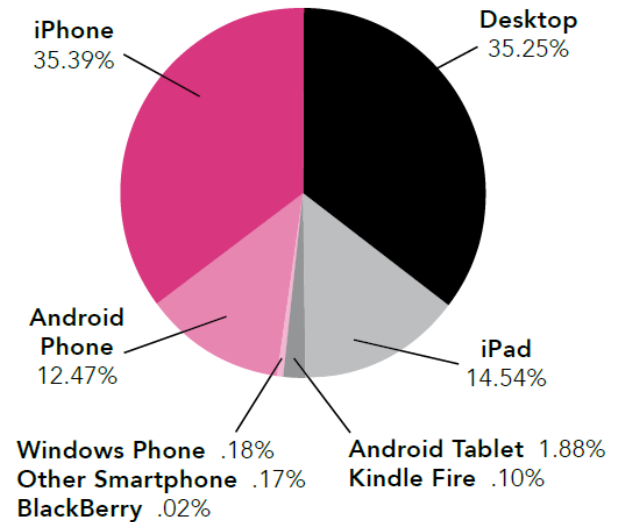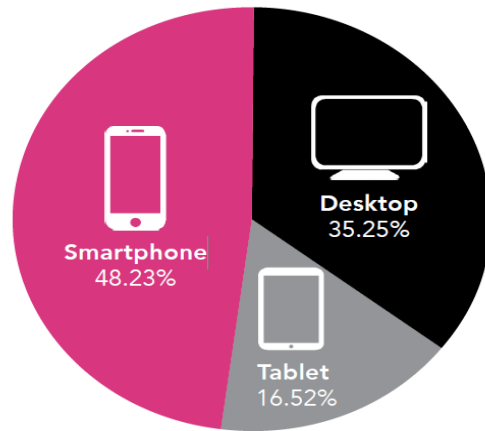
- According to Pew Research (2013, 2011) 52% of Cell Owners use email on their phone and 54% of Tablet owners use email daily

- The 2013 US Consumer Device Preference Report by Movable Ink reports that:

65% of emails were opened on a smartphone or tablet

Smartphone 48.23%
Desktop 35.25%
Tablet 16.52%

iPhone 35.39%
Desktop 35.25%
Android Phone 12.47%
iPad 14.54%
Windows Phone .18%
Other Smartphone .17%
BlackBerry .02%
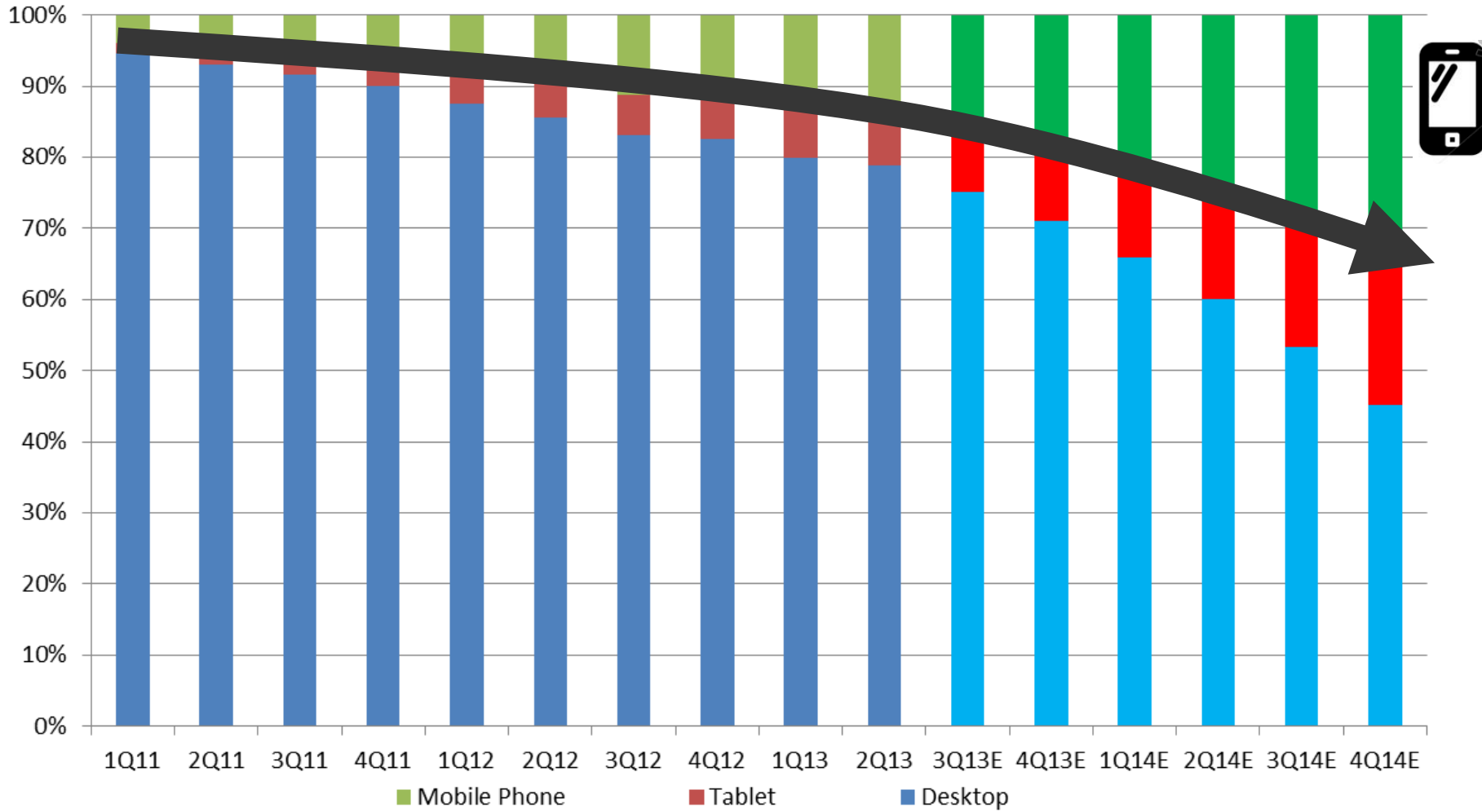Android Tablet 1.88%
Kindle Fire .10%

50% Apple mobile devices
14% Android mobile devices

- At least 35% of Apple/Android Smartphone users spent over 15 seconds or more viewing an email.

Source: https://movableink.com/downloads/us_consumer_device_preference_report_Q42013

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With the surge in Mobile Internet Use comes the rise of unintentional mobile respondents

Legend: Mobile Phone (green), Tablet (red), Desktop (blue)

X-axis: 1Q11, 2Q11, 3Q11, 4Q11, 1Q12, 2Q12, 3Q12, 4Q12, 1Q13, 2Q13, 3Q13E, 4Q13E, 1Q14E, 2Q14E, 3Q14E, 4Q14E

Source: Maritz Research   http://www.maritzresearch.com/

Mobile, Mobile Everywhere! We have to care!

With Mobile Device penetration rising along with

- Increases in internet activity on mobile
- Increases on the email opening activity on mobile
- Rises in unintentional mobile survey respondents
- The case is clear – we need mobile survey research strategies, best practices and resources to meet our respondents where they seem to be going! Mobile cannot be ignored!

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Thinking Differently About Technology & Survey Data Collection

- **Technologies often viewed as "survey-enabling" tools, but not as "data collection vehicles" in their own right**
  - Location data via captured GPS coordinates for both respondents and field workers
  - Picture data captured via an app or via phone
  - Data Collection Gigs via Crowdsourcing
- **In-person, in-the moment, round the clock data are now being collected, compared and explored in the context of surveys**
  - Health related outcomes via apps and peripheral devices (Bluetooth) and hardware
  - Real-time diaries for wellness, activities and time use and trip/location data
  - GPS collection, e.g, trip details: trip origin, destination, stops, distance, places (e.g., shops) visited.

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- **Technologies often viewed as "survey-enabling" tools, but not as "data collection vehicles" in their own right**

- **What we normally ask ourselves:**
  - How can we use technology

- **We should be asking:**
  - What are the questions / data elements we need to answer/collect to provide insights into phenomena of interest?
  - How can technology be utilized to acquire that understanding / those data?
  - Are there new data available that we can collect passively using new technologies that haven't been easily collected before?

7

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General websites are browsed for content on multiple devices.

Passive

Survey websites contain tasks that are completed using different devices.

Active

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Responsive web design focuses primarily on optimizing general websites for Content CONSUMPTION. Survey websites must think about optimizing for Data COLLECTION!

Survey Recruiting and Mobile Devices

There are many tools/strategies that are available for facilitating survey data collection using mobile devices.

- To point selected respondents to your survey you could use a QR code printed on a postcard or other type written material.

- The QR code (short for Quick Response Code) is a matrix representation of bytes of information associated with your web address (or location of a survey app in one of the app markets).

  - GOQR: http://goqr.me/ because "QR Codes created on goQR.me are completely free of charge (commercial and print usage allowed)."

  - Requires a QR scanner to be installed however;

- Use a simplified/shortened web address (URL) from a service like bitly (https://bitly.com/)

http://surveypractice.org/index.php/SurveyPractice/article/view/63/pdf

bitly

bit.ly/14etvB3

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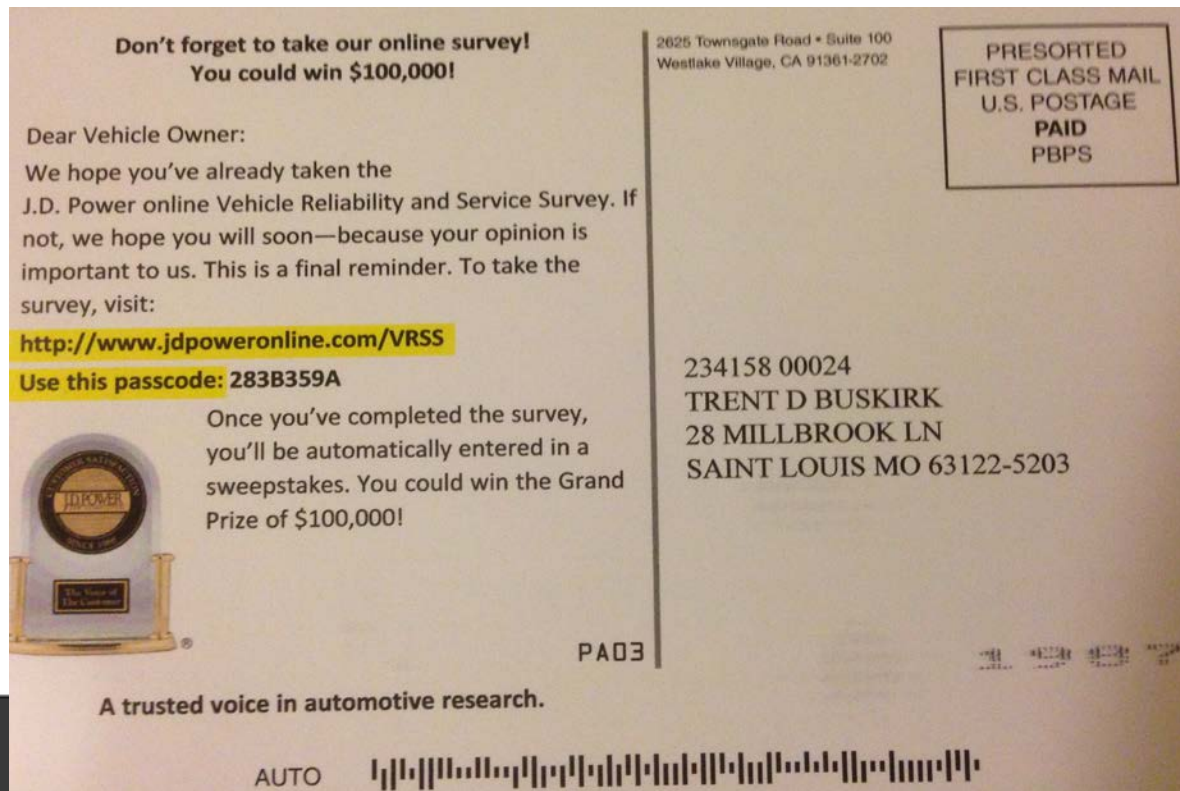
Example of a missed mobile opportunity

- I recently received an invitation to complete the JD Power and Associates Vehicle Reliability and Service Survey.
- The main invitation came via postal mail
- A survey reminder came via postcard here:

Respondent Expectations

- **Being involved in a scientific survey is a relatively rare occurrence**

- **Respondent experience with new technologies is much different**
  - Technology changes rapidly – some respondents will find some tasks difficult or not easy to use.
    - [Example: Michaud, Buskirk and Saunders, 2014 Voice Data Entry]

- **Developing expectations from these experiences**
  - Ease of use/intuitive
  - Speed
  - Usefulness/utility or fun/entertainment or both
  - Ability to share experiences w/ others
  - Location awareness
  - Auto detection/passive collection

12

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Respondent Burden in the Mobile World

- **Respondent burden (length/time, interest, w/incentives) in mobile world is similar to respondent burden in the regular world with a few differences. There are two groups: Personal and Technological**

- **PERSONAL**

  - Location: not just at home.

  - Data types, consent: voice, photos, gps coordinates (fitbit® data)

  - Effort: data entry issues

- **Technological**

  - Data consumption; Bandwidth, Battery Drain

On Emerging Best Practices in the New Landscape… Thinking about Optimization

Traditional Components of Best Practice:

- Length/administration time of a survey
- Respondent burden (time, number of phone minutes, number of surveys)
- Follow-up approaches/frequency, survey field periods
- Incentives – cash or other tokens (gift cards, minutes, etc.)

New Components of Best Practices:

- Balancing user engagement with user expectations/experience
- Ease of use / intuitive
- Speed of tool / interface / app
- Respondent privacy expectations
- Respondents sharing their experiences…
- Visual Appeal, user interaction with tool and gamification

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Example of Responsive Email from Amazon.Com

Column Dropping

Same email viewed on Smartphone

Email sent to Amazon Customers Viewed on Desktop/Laptop (responsive)

Source: http://marketingland.com/four-responsive-email-layouts-15858

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App-based/administered surveys

These could be great for panels! (LL)

- **App-based Smartphone surveys administer and collect data via an (native) app that is installed on the sampled user's Smartphone.**

- **Surveys can be "pushed" to the app and then executed by the end user without the need for perpetual internet connection and can be designed to take full advantage of the phone's capabilities like camera, voice, video, image capture, etc.**

- **Data transfer for completed surveys can occur once internet connection is established.**

- **People like APPS….incorporate those reasons into survey design**
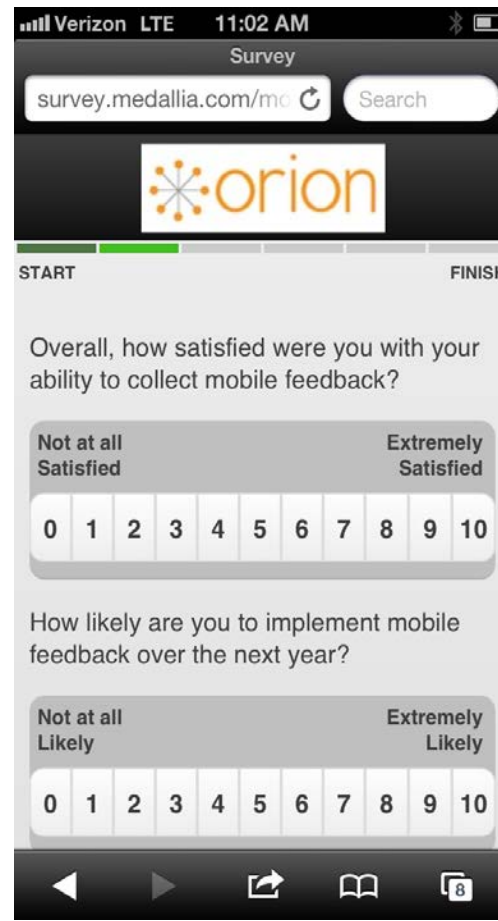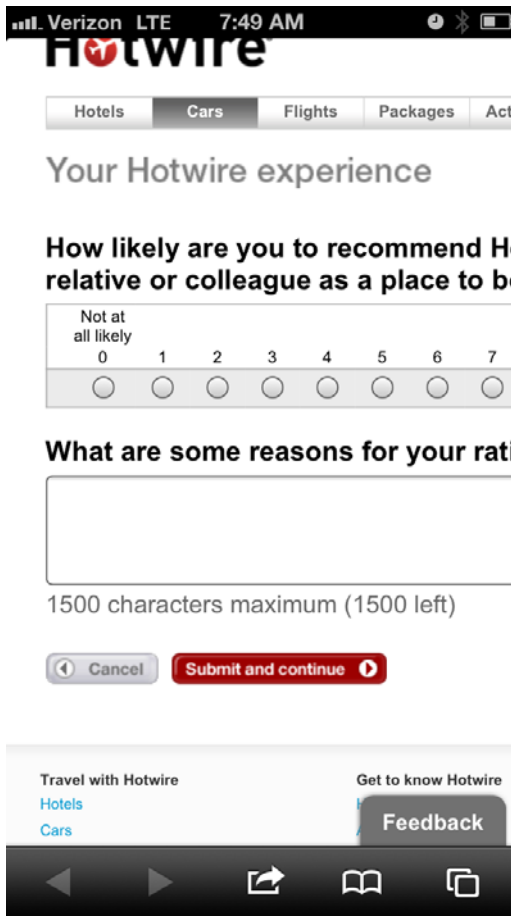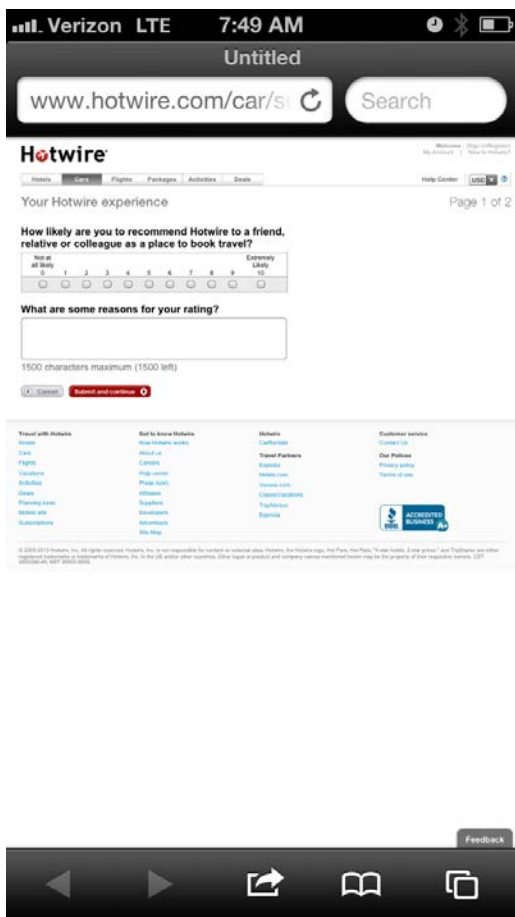

16

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Passive vs versus Active Smartphone Surveys

Completion rates for Mobile users are lower than for computer users for surveys designed for completion online via computer browsers.

All viewed on an iPhone 5

S³DR #6: Question Formats

S³DR #6

Consider reducing the number of response options for grid questions or reorganizing grid questions as single questions per screen.

Consider organizing response options vertically or horizontally with scale labels provided per occurrence (see Peterson, 2013).

If Multiple choice/select all that apply require a long list of alternatives, consider converting question into free response with as many single-text fields as answers expected (i.e. what are three of your current research interests – list up to three).

S³DR #8

Sliderbars, sum tallies and drag and drop sorters may not work on all devices.

These question types should be tested extensively using emulators prior to their adoption in your mobile survey.

Text entry fields should be wide enough so that users can see their entire entries without scrolling horizontally. Use this type of entry judiciously.

Decisions about types of input/forms or input should include consideration of number of taps or clicks required (NTR or NCR) to enter (and register) an answer.

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Horizontal Scrolling Experiment (Peytchev & Hill, 2010)

smartphonedev.rti.org/Default.aspx?Ca 3G

5) How often do you eat vegetables?

Far more than I should	More than I should	Slightly more than I should	As much as I should	Slightly less than I should	Less than I should	Far less than I should
○	○	○	○	○	○	○

6) How often do you eat fruit

Far more than I should	More than I should	Slightly more than I should	As much as I should	Slightly less than I should	Less than I should	Far less than I should

Favorites | **Menu**

smartphonedev.rti.org/Default.aspx?Ca 3G

5) How often do you eat vegetables?

Far more than I should	More than I should	Slightly more than I should
○	○	○

6) How often do you eat fruit?

Far more than I should	More than I should	Slightly more than I should
○	○	○

Favorites | **Menu**

More Questions

More Responses

No Significant Differences Noted

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Some Grid Examples on Mobile Devices

Example of Grids – reworked for mobile surveys

Source: Peterson et al. (2013) http://bit.ly/1i5WYo0

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Got Health Apps Study Screenshots Illustrating Question Layout and Response Choice Feedback
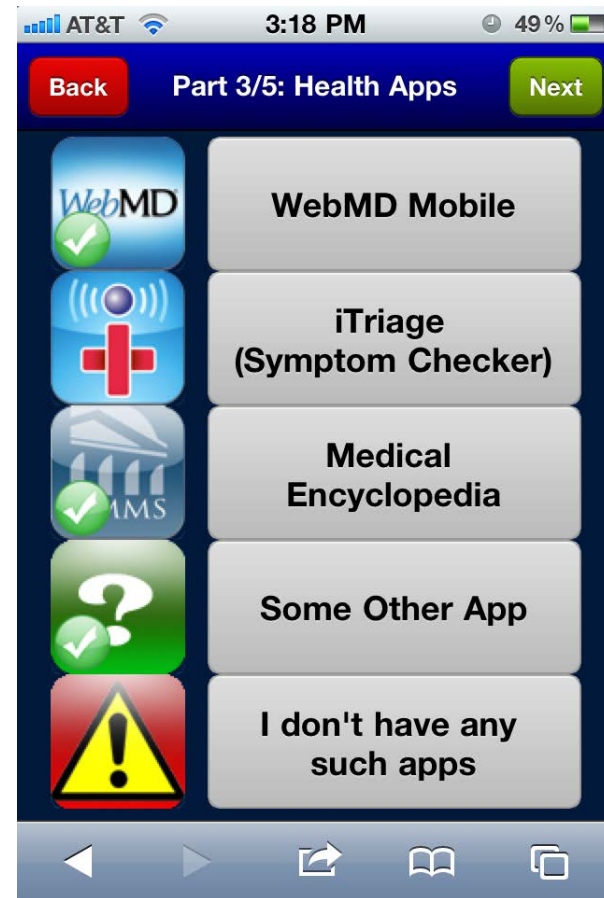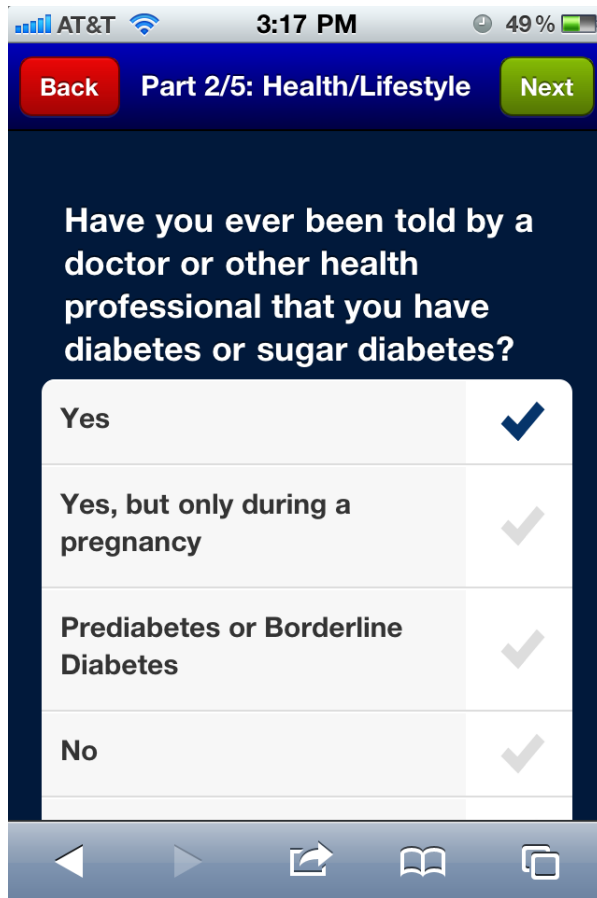
Source: Buskirk and Andrus (2014)
http://fmx.sagepub.com/content/early/2014/04/08/1525822X14526146.full.pdf?ijkey=jZzKaocZyiG6YNn&keytype=ref

Optimizing for English Versions may not be sufficient!

Questions or their answer choices (in English) that appear to be well optimized and presented using mobile browsers may not be optimally presented in another language

ENGLISH VERSION
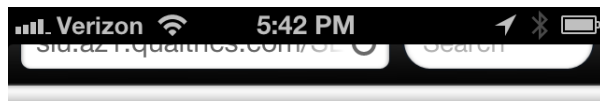
How likely are you to take all of your vacation this year?

Very Unlikely	Unlikely	Undecided	Likely	Very Likely
○	○	○	○	○

How likely are you to apply for another position this year?

Very Unlikely	Unlikely	Undecided	Likely	Very Likely
○	○	○	○	○

0% [_____] 100%

SPANISH VERSION
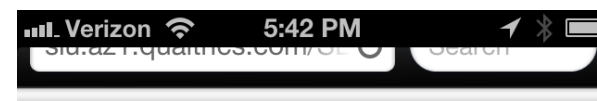
¿Qué probabilidad hay que tome todas sus vacaciones este año?

Muy improbable	Improbable	Indeciso	Probable	Mu proba
○	○	○	○	○

¿Qué tan probable es usted para solicitar otro puesto este año?

Muy improbable	Improbable	Indeciso	Probable	proba
○	○	○	○	○

0% [_____] 100%

23

Paging Versus Scrolling Question Presentation More of an issue in tiny screens.

- **Scrolling question presentation in mobile surveys presents a series of survey items on a single page**
  - Requires respondents to scroll (vertically) in order to see (and answer) all survey questions on the page
- **Paging question presentation in mobile surveys limits the number of questions per page**
  - Generally one question per page and the respondent navigates multiple pages in order to complete the survey
  - Buskirk and Andrus (2014) present a hybrid with two questions per page to limit (a) the vertical scrolling required on mobile; (b) the overall number of pages needed for survey completion and (c) increase comparability for desktop version

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Closer look at Paging versus Scrolling

Survey Outcomes for Mobile Respondents	Paging	Scrolling
Ease of Completion (Mavletova and Couper, 2014)	✓	✗
Lower Break-off rates (McGeeney and Marlar, 2013; Mavletova and Couper, 2014)	✓ ✗	✗ ✓
Shorter Completion Times (Mavletova and Couper, 2014)	✗	✓
Lower Overall Item Nonresponse (Mavletova and Couper, 2014)	✓	✗
Fewer Technical Difficulties when Completing Survey	✗	✓
Greater variety of question types/inputs	✓	✗
Maximizes stored data if internet connection is lost and respondent returns to the webpage for completion	✓	✗
Easy Facilitation of skip pattern logic	✓	✗

Source: http://bit.ly/1nqe6lb

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Beware of the Pagination/Scrolling Mashup!

Just because it's optimized for smaller screens doesn't mean it's optimized for respondents!

- Presentation of questions only without their response options will save space on a screen, but makes data collection/completion a mine field!

- Example from Major League Baseball!
  - https://www.fansatbat.mlb.com/PORTAL/default.aspx

The survey question (depicted on an iPhone 5):
"Are any of these networks included in your current cable lineup?"

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Using the NTR (number of taps required) metrics to help weigh design choices, in practice.

Radio Button Version (all devices)

List/Dropdown iOS and Stock Android

Selector Android (some browsers)

Numeric, open ended questions using new HTML input options Number and Tel

How many miles per year do you drive the car that you personally drive most often. (Enter a number between 0 and 50000)
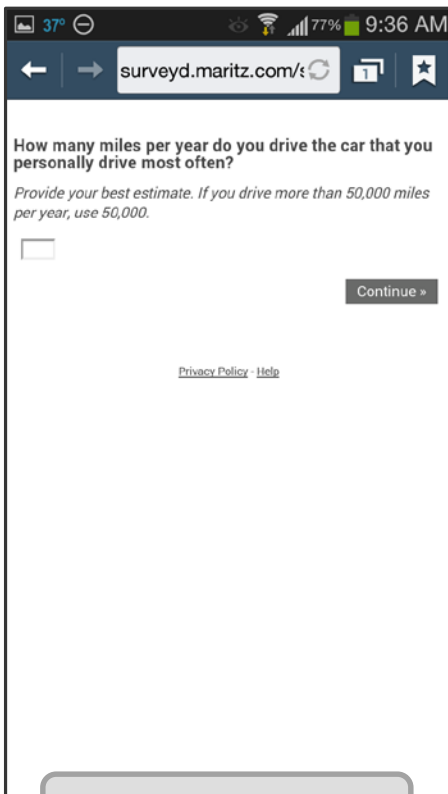
Question Page
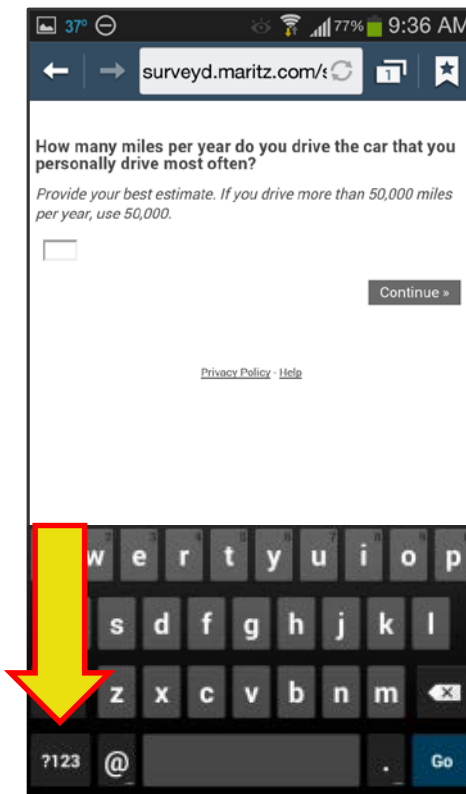
Default Input
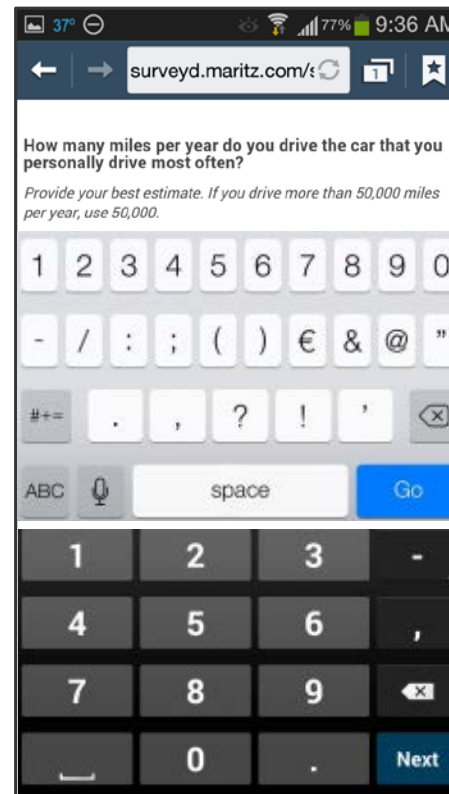
Using HTML5 "number" input type

By using the HTML5 "tel" input type, a numeric keypad similar to what is displayed when making calls is displayed on all devices.
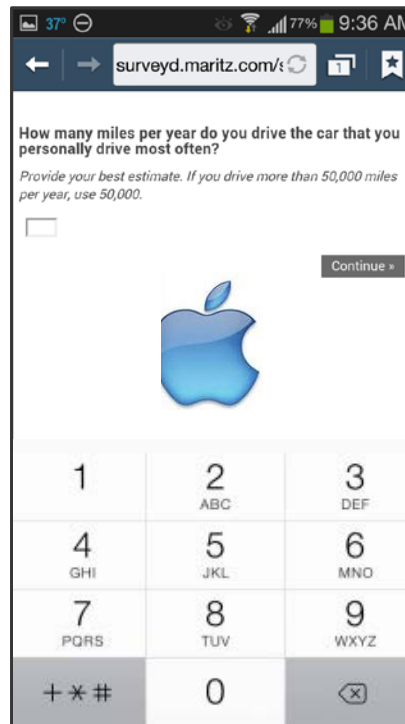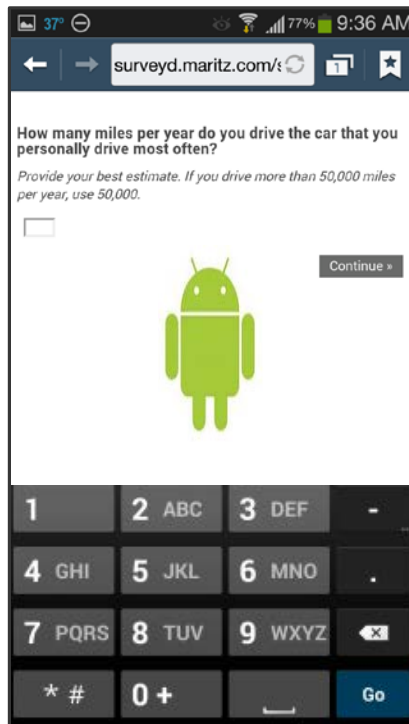
Formats consistent across devices in terms of number entry. Note however, that if decimals are required, then iOS keypad does not offer this capability directly.

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S³DR #10: Buttons, Tabs and More Buttons

Response selections, action buttons and navigation tabs in surveys should be made as large as possible on mobile surveys.

Touch input differs from Mouse input.

Fattest Fingers – Average width of index finger is 11 mm with a range of under 7 for babies to over 19 for tall athletes.

Make sure to include padding around important navigation tabs (next/continue/enter) to avoid accidental taps .

S³DR #10

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Importance of Button Sizes

% OF MISSED TAPS

| | 1 in 30 taps (3%) will miss the target | 1 in 100 (1%) | 1 in 200 (0.5%) |
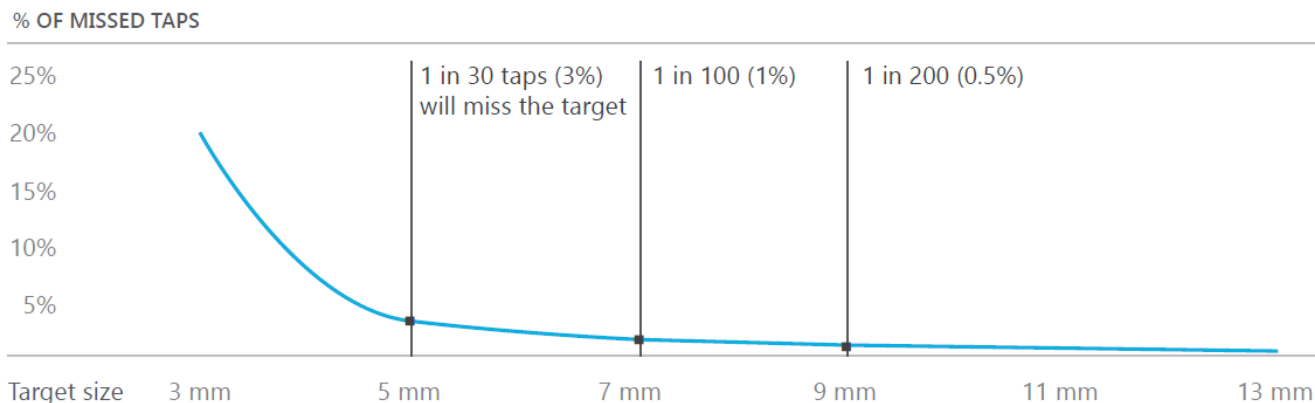
- 🔴 Make buttons/tabs large enough to not be missed/avoid mistaps
    - 40 pixels (7 mm by 7mm) GOOD
    - 50 pixels (9mm by 9 mm) BETTER
    - 30 pixels (5 mm by 5 mm) OK
- 🔴 Give enough buffer around/between tabs/buttons
    - Padding of at least 2mm (10 pixels) between targets

Source: Microsoft Touch Guidance
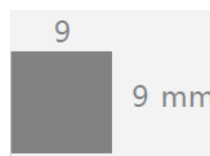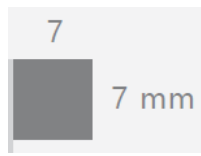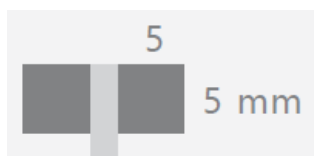
One accidental tap could be missing data!

From Michaud, Buskirk and Saunders (2014)

- We included slider bars as input options for scale questions. The slider bar button was made large enough to drag across phone and tablet devices.

- On smartphones such as iPhone, the "continue" tab was too close to the upper answer choices, so people who dragged to either 7 or 8 could have tapped the continue button by accident on the way to a rating of 9 or 10.

- In the radio button version, people attempting to tap an 8 9 or 10 could have tapped continue on the way there and recorded no data.

**Before adding padding of 4 pixels**

We would like to understand your attitudes about your auto insurance company. For the following questions, please consider all of the interactions you have had with Allstate.

Overall, how satisfied are you with Allstate?

Please be sure to move each scale to the appropriate rating before continuing. If you'd like to leave the answer where it begins, please click on the circle to answer.

Not at All Satisfied   Completel Satisfied

Continue »

After Padding Added

We would like to understand your attitudes about your auto insurance company. For the following questions, please consider all of the interactions you have had with Allstate.

Overall, how satisfied are you with Allstate?

Please be sure to move each scale to the appropriate rating before continuing. If you'd like to leave the answer where it begins, please click on the circle to answer.

Not at All Satisfied   Completel Satisfied

Continue »

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RWD for Surveys would be a strategy that takes an online (computer survey) and thinks about how to render it down to tablet and then down to smartphones.

SURVEY → SURV → SU
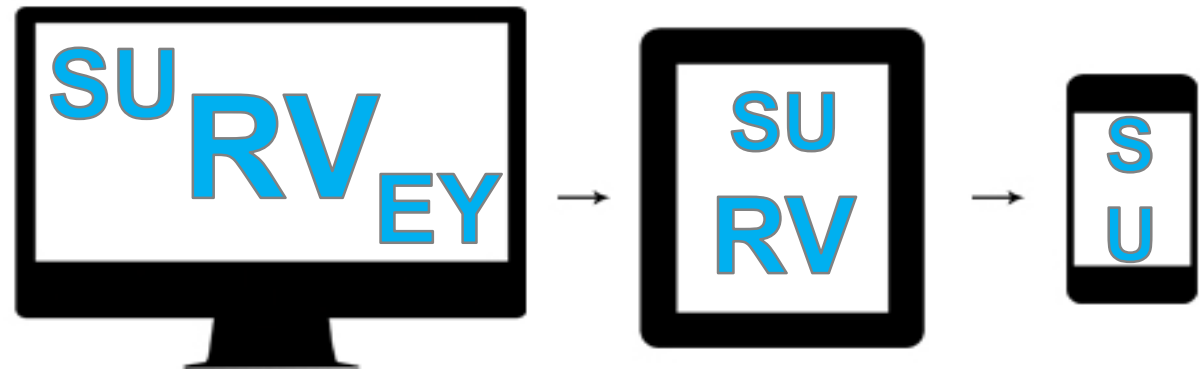
Mobile First RWD would take a mobile survey and progressively push it to larger devices with potentially different functionality.

SVY? → SVY? → SVY?

Source: http://web3canvas.com/what-is-mobile-first-responsive-design/

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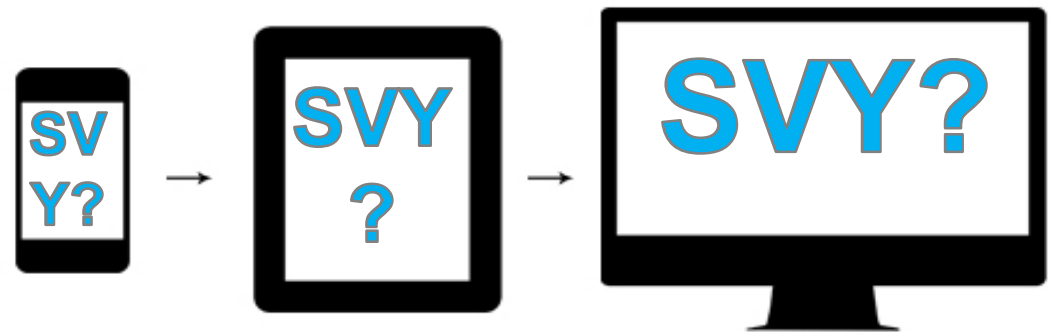
Responsive and Mobile Responsive Web Design

- **Responsive web design (RWD) is a method for web design that uses fluid grids, images and media queries to change the displayed layout based on the size of the device (view port size).**
  - Media queries govern when and how the fluid layouts appear on given devices and is managed by the respondent's device
  - Single HTML source code delivered to all devices (one size fits all)
- **Mobile-first Responsive Web design is a method that begins with the mobile version first and pushes the web page to respond to larger devices via progressive enhancement.**
  - Additional layout attributes and survey functionality can be added progressively, in real time for respondents accessing website using larger devices.
- **References**
  - Frost (2011) http://bit.ly/1gOcOPK   Passani (2013) http://bit.ly/1i9G8Wg
  - Wroblewski (2011) http://bit.ly/1gOcS2d

34

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S³DR#14: Pre-Testing Mobile Surveys

S³DR #14

There is a great deal of functionality that is consistent across mobile smartphones- but there is enough inconsistency to require extensive pre-testing of your mobile survey across multiple platforms.

Consider using smartphone emulators to pretest the mobile version of your survey or alternatively a virtual device laboratory to test mobile versions of your survey.

Test availability of flash content using a resource such as:
http://www.adobe.com/flashplatform/supported_devices/smartphones.html

(or on your mobile phone/emulator)
http://www.adobe.com/software/flash/about/

Suggested Emulators for Popular Smartphones – know it can be done from your desktop, not just by rounding up everyone's cell phones.

- iPhone: http://iphonetester.com/

- Android Devices: http://www.addictivetips.com/windows-tips/download-google-android-emulator/

- Blackberry Devices: http://www.blackberry.com/developers/downloads/simulators/index.shtml

- Microsoft Devices: http://www.microsoft.com/download/en/details.aspx?displang=en&id=25191

Source: http://sixrevisions.com/web-development/mobile-web-design-best-practices/

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Active Mobile Browser Survey Development

A multi-screen strategy is a must to succeed with today's constantly-connected consumers. But one size doesn't fit all when it comes to creating the perfect configuration. Many factors come into play, and you know your own business needs best. – Google 2013 http://bit.ly/1i9e3P1

and SURVEY

Three main approaches to developing an active mobile browser survey:

- Responsive Web Design (RWD) for Survey Pages
  - Mobile-First RWD
- Adaptive Designs
  - Responsive Design with Server Side Components (RESS)
- Separate Mobile Web site developed for Surveys

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Labels for Open Ended Fields

Labels Top Aligned

Download

First Name

Last Name

Confirm Email *

Company

Phone

DOWNLOAD 10 ONLINE SURVEY TIPS

Labels Within Fields

Your personal info

First name

Email

Password

Re-enter password

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From Wroblewski, 2012
http://bit.ly/1eFrXaG

Call to action requires vertical scrolling with top aligned labels

Labels for Open Ended Questions Top or Within?

Pros for Labels at Top	Cons for Labels at top	Pros for Labels within	Cons for Labels within
Minimize completion time	Requires more space	Saves vertical space	Hint text can be misconstrued as a completed item
Easier coding (no indents/ tables)			
Accessibility: label then field in order	Results in longer pages (requiring scrolling)	Reduces page length for pages with multiple open-ended questions	Depending on tap location the hint text may not disappear from the respondents answer
Supports multiple screen resolutions			
More space for the item (horizontally)		Can save on horizontal scrolling required compared to left aligned labels	Once respondent begins typing, the full question or item is no longer fully visible
Reduces horizontal scrolling			

Source1: Wroblewski, 2012 http://bit.ly/1eFrXaG Source 2: Penzo, 2006: http://bit.ly/1iuOFC2

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Final Comment!

I leave you with this final word from Sir Richard Branson to encourage all of you to continue to:

- invest in experimentation in the mobile survey arena and
- share your results

"The **best, most solid way out of a crisis** in a changing market is **through experiment and adaptation.**"

Richard Branson
Business Stripped Bare – Adventures of a Global Entrepreneur

so that we can continue to develop and use best practices for these very cool (and smart) devices!