Online Surveys Aren't Just for Computers Anymore! Exploring Potential Mode Effects Between Smartphone vs. Computer-Based Online Surveys

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Phase II
Exploration of Mode Effects

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Main Study Objective

Do mode effects exist between online surveys completed via computer versus smartphone?
Surveys with Smartphones in the Literature...

- Buskirk and Andrus (2012) Mobile Surveys Via Smartphones
- Callegaro (2010) Devices Used to Take Online Surveys...
- Couper (2010) Online to Mobile Study
- Kinesis Survey Software White paper (2010)
- National Survey of Student Engagement (NSSE)
- Zahariev et al. (2009) Mobile Device Web Surveys Compared to Computer Online Surveys
Panelists from the SSI’s online U.S. SurveySpot Panel were screened for type of cell phone

A random subset of panelists who owned an iPhone were selected to receive further screening questions

Final Phase Recruitment and screening occurred between May 2, 2011 and May 4, 2011.

Prior to randomization to mode, eligible panelists were stratified/blocked by:
- Education Level: <Bachelors and ≥ Bachelors
- Age Group: <40 and ≥ 40
- Sex

Randomization to mode was carried out separately within each of the 8 strata/blocks
- (approximately 75% to iPhone and 25% to Computer)
The iPhone version of the survey was developed as an “app-like” mobile browser survey (Buskirk and Andrus, 2012).

Survey was completely encased inside the browser experience but appeared like an app.

Online version was generated from the same platform.

Considerations were taken to make the surveys as comparable as possible (i.e. number of questions per screen, etc.)
Six main survey sections (120 questions possible)

- Screen in
- “Your APPS”
- “Health and Wellness”
- “APPs You Use”
- “App Check”
- “Your Phones”
Primary Mode Effects Outcomes grouped into 3 broad categories:

- Recruitment and Response related outcomes
  - Completion rates
  - Drop-off rates

- Survey completion related outcomes
  - Total time required to complete survey questions
  - Primacy option selection rate
  - Item missing rates

- Attributes of survey responses
  - Number of characters entered among open-ended items
  - Distributions recorded for questions using slider bars
GHAS Results: Recruitment

**Online Panelists Screened for iPhone:** 16051

**Panelists who Reported Owning iPhone:** 2053

**Panelists Selected to receive Stratification Demographic Questions:** 1339

<table>
<thead>
<tr>
<th>Final Status</th>
<th>iPhone</th>
<th>Computer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never Entered Cite</td>
<td>650</td>
<td>16</td>
</tr>
<tr>
<td>Ineligible</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Partial Complete</td>
<td>99</td>
<td>83</td>
</tr>
<tr>
<td>Complete</td>
<td>221</td>
<td>209</td>
</tr>
</tbody>
</table>

**# Panelists Randomized to Survey Mode:** 1310
- **Computer:** 328
- **iPhone:** 982
GHAS Results: Recruitment – Drop-off Rates by Section and Survey Mode

Survey Section:
- Intro
- iPhone Screen
- Your Apps
- Health & Life
- App Use
- App Icons
- Your iPhone

Survey Mode:
- COMPUTER
- iPHONE

Cumulative Drop-off Percentage:
- Intro: 28.4%
- iPhone Screen: 28.4%
- Your Apps: 30.9%
- Health & Life: 32.0%
- App Use: 32.0%
- App Icons: 32.0%
- Your iPhone: 32.0%
GHAS Results: Recruitment – Completion Rates

Assignment Stratum

- <BS, >=40, MALES
- <BS, >=40, FEMALES
- <BS, <40, MALES
- <BS, <40, FEMALES
- >=BS, >=40, MALES
- >=BS, >=40, FEMALES
- >=BS, <40, MALES
- >=BS, <40, FEMALES

Survey Completion Rate

- 67.9%
- 22.8%
GHAS Results: Survey Completion – Completion Times (minutes) by Mode

Time Spent on Survey Questions (mins)
Survey Completion Times by Survey Mode with Outliers Removed

<table>
<thead>
<tr>
<th>Mode</th>
<th>Mean (st. dev)</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPhone</td>
<td>12.4 (13.8)</td>
<td>8.3</td>
</tr>
<tr>
<td>Computer</td>
<td>17.9 (18.6)</td>
<td>12.4</td>
</tr>
</tbody>
</table>
Illustration of Primacy Response Options

**iPhone**

**Computer**

The image shows a screenshot of a mobile health app survey on an iPhone and a computer screen. The survey asks, "Including your iPhone, how many cell phones do you own for making and receiving calls?" The options include:

- I do not own an iPhone
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

The image highlights the "I do not own an iPhone" option and the number 1, indicating the primacy response options.
GHAS Results: Survey Completion – Rate at which Primary Option Selected
GHAS Results: Survey Responses – Number of Apps Owned by Mode
GHAS Results: Survey Responses – Digits Typed for Total Dollars Spent on All Apps

Computer
- 37.8%
- 5.7%
- 9.3%
- 6.2%

iPhone
- 42.2%
- 4.1%
- 6.0%
- 11.5%
- 12.9%
- 1.4%
- 0.9%

Characters Typed for Total Dollars Spent on All Apps
Of all the apps you currently have downloaded on your iPhone, what percentage of them were free?
GHAS Results: Survey Responses—Percentage of Apps that are Free

![Bar charts showing the percentage of apps that are free for both Computer and iPhone.]
Summary

Very few significant differences noted for primary mode effect outcomes

While not significant, many of these results may be practically important

- Evidence of iPhone respondents having wide range of slider bar responses
- Evidence of scrolling to complete items
- Evidence of iPhone respondents typing responses to open ended items
Limitations/Implications

- Study was designed to maximize internal validity
  - Actual estimates of completion time and other survey responses may not apply to broader population of smartphone users.

- Results here focused on comparing iPhone versus Computer Online Completion
  - The results may not apply across other smartphone platforms (e.g. Blackberry, Windows)

- No significant difference does not imply equality (i.e. that no differences exist)
  - Used an item-level type I error rate of .01 to control for the overall experimentwise error rate;
  - Tests of mode effects were all two-tailed

- More well-designed mode effects studies involving smartphones are needed to provide external confirmation of results
The End!

Thank You!

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References


GHAS Results: Survey Completion—Median Time in Sections

[Graph showing median time spent on different sections using a computer vs. an iPhone. The graph includes various categories such as 'Your APPS', 'Health & Lifestyle', 'Weight APPS', etc., with lines representing different groups (e.g., '<=40, >=40, M, F').]
Primacy Response Options Illustrated

Which if any of the following apps have you downloaded to help you track your EXERCISE? Please click on all that apply.

- Body FITNESS Free
- All-in Pedometer
- Pedometer FREE
- Pedometer FREE
- Six Pack Pro
- DailyBurn
- Some Other App
- I don't have any such apps
Why an interest in iPhones?

- Majority of iPhone and Google Android Smartphone users report being drawn to the devices because of diversity of apps available (Helmreich and Dorit, 2009).
- The number of iPhone apps now exceeds 134K (newmaconline.com, 2010).
- iPhones estimated to be the most common smartphone used to access internet based surveys via mobile devices (Kinesis, 2010).
- Roughly 40% of iPhone users are between 30 and 54 years old (NeilsenWire, 2009).
- Utilization of data services among 30-49 year old cellular phone /Smartphone owners is continuing to rise (Smith, 2010).
Study Objectives: APP Recognition

Determine whether iPhone users recognize apps: name, icon or both?

Can iPhone users recognize the names and icons (only) of 8 common apps chosen from games, lifestyle and health categories?

Will this recognition vary by mode?

Rationale: We envision a version of this survey being executed via RDD sample screening for iPhone with a choice of mode- iPhone web or iPhone voice.

With the voice option, could we just list the name of apps or would we need to describe the actual icon image of the apps.