What is the Impact of Smartphone Optimization on Long Surveys?
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National Survey of Student Engagement
Indiana University Bloomington
AAPOR 70th Annual Conference
May, 2015

Introduction & Purpose
Widespread adoption of mobile technologies has dramatically impacted the landscape for survey researchers (Buskirk & Andrus, 2012), and those focusing on college student populations are no exception.

- Optimizing surveys for smartphones is of interest to many but ideal formats are still being developed.
- This study investigated the impact that one smartphone optimization approach had on a long college student survey.

Research Questions
Are there differences in respondent characteristics by smartphone optimization status.

How does optimization impact:
- early abandonment,
- completion,
- item nonresponse,
- duration,
- straight-lining,
- subjective evaluations,
- measurement invariance for scales?
Study Details

- NSSE 2015 winter/spring administration
- 10 US colleges/universities
- Sample: 38,245 first-year & senior students
- Sample divided equally by smartphone optimization availability
- 7,735 respondents; 7,347 included in study

NSSE Desktop View

NSSE Smartphone View

Optimized – Vertical Position

Unoptimized – Vertical Position

Results
Respondent Characteristics

- Optimized respondents looked very similar to unoptimized and desktop groups:
  - Gender, Age, Race/Ethnicity, Parental education, Cumulative grades, Part-time enrollment, Academic major
- Statistically significant differences found but not very large

Early Abandonment

Optimized group less likely to abandon the survey upon viewing the very first page of survey items.

- First-Year Students:
  - Optimized: 5%
  - Unoptimized: 12%
  - Desktop: 4%
- Seniors:
  - Optimized: 22%
  - Unoptimized: 10%

Missing Data

Optimization appears to reduce missing data though variation exists between first-year and senior populations.

Duration

About 18% decrease in duration compared to unoptimized group—even lower than desktop.

- First-Year Students:
  - Optimized: 12.2
  - Unoptimized: 15.0
  - Desktop: 13.0
- Seniors:
  - Optimized: 12.2
  - Unoptimized: 14.6
  - Desktop: 12.9
Straight-lining

Optimized straight-lined less than unoptimized group

<table>
<thead>
<tr>
<th></th>
<th>Optimized First-Year</th>
<th>Unoptimized First-Year</th>
<th>Optimized Seniors</th>
<th>Unoptimized Seniors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page 1 scales</td>
<td>1.4</td>
<td>1.0</td>
<td>1.1</td>
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<td>Page 2 scales</td>
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</tbody>
</table>

Subjective Evaluations

Optimization better ease of use and visual design.

<table>
<thead>
<tr>
<th></th>
<th>Optimized First-Year</th>
<th>Unoptimized First-Year</th>
<th>Optimized Seniors</th>
<th>Unoptimized Seniors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of use</td>
<td>59%</td>
<td>41%</td>
<td>55%</td>
<td>40%</td>
</tr>
<tr>
<td>Visual Design</td>
<td>61%</td>
<td>40%</td>
<td>55%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Measurement Invariance

Across the three groups, all first-year and senior scales met scalar invariance criteria, except for Learning Strategies

<table>
<thead>
<tr>
<th></th>
<th>First-Year</th>
<th>Seniors</th>
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</thead>
<tbody>
<tr>
<td>Higher-Order Learning</td>
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<tr>
<td>Reflective and Integrative Learning</td>
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<tr>
<td>Quantitative Reasoning</td>
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<td>Discussions with Diverse Others</td>
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<td>Student-Faculty Interaction</td>
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<td>Quality of Interactions</td>
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<tr>
<td>Supportive Environment</td>
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</tbody>
</table>

Conclusions

- Optimization can improve data quality even for long surveys, while also maintaining scale properties.
- Smartphone optimized respondent data quality rivals that of desktop respondents.
- Some measures indicate differences between younger and older smartphone respondents in the sample. What does this mean for ongoing optimization efforts?
- College student survey developers should focus on optimization as smartphone usage continues to increase.
Thank you!

Copy of this and past presentations can be found at:

nsse.iub.edu/html/publications_presentations.cfm

Additional NSSE information can be found at:
nsse.indiana.edu

Feel free to contact us with any questions regarding this study or NSSE.
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