

What is the Impact of Smartphone Optimization on Long Surveys?

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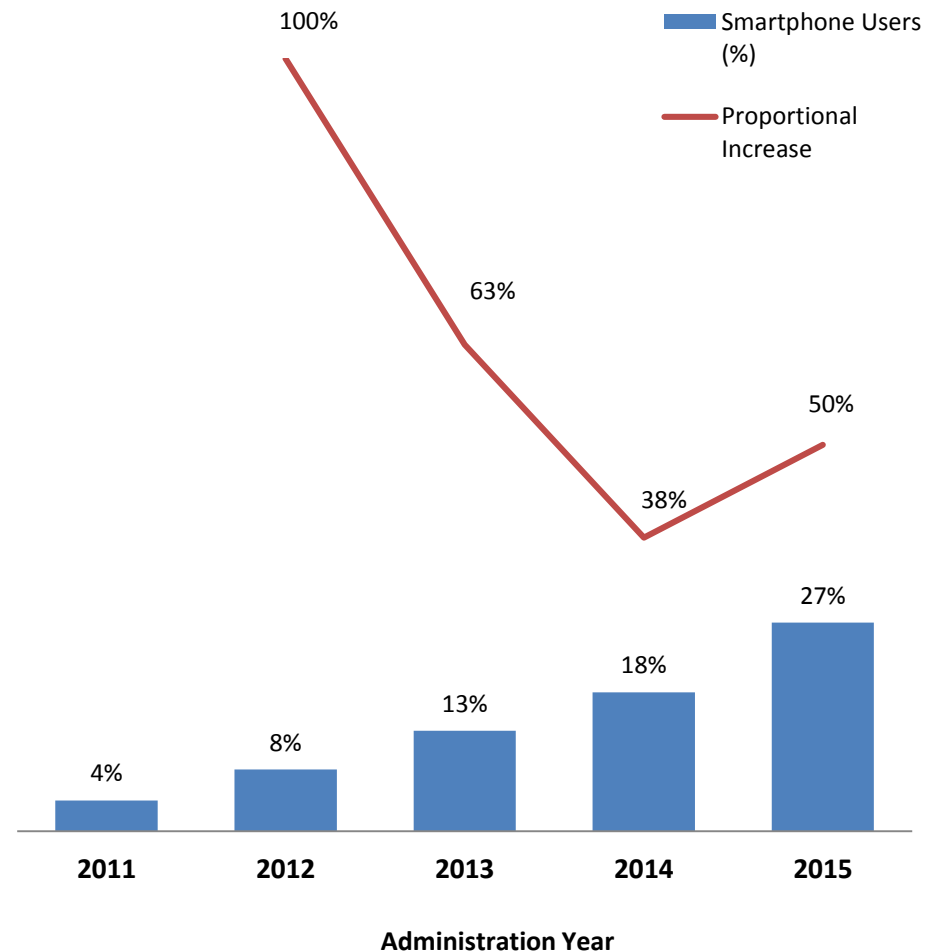
Introduction & Purpose

- 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.

National Survey of Student Engagement

- NSSE aims to understand the curricular and co-curricular engagement of first-year and senior college students using over 100 survey items.
- Since 2000, ~ 5 million students from about 1,500 US and Canadian institutions participated.
- Formatted for “computer” though increasing numbers use smartphones to complete.

NSSE Smartphone Respondents



Research Questions

Are there differences in **respondent characteristics** by smartphone optimization status.

How does optimization impact:

- a) early abandonment,
- b) completion,
- c) item nonresponse,
- d) duration,
- e) straight-lining,
- f) subjective evaluations, and
- g) 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

National Survey of Student Engagement ...

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NSSE
national survey of student engagement
THE COLLEGE STUDENT REPORT

0% Complete

During the current school year, about how often have you done the following?

	Very often	Often	Sometimes	Never
Asked questions or contributed to course discussions in other ways	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prepared two or more drafts of a paper or assignment before turning it in	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Come to class without completing readings or assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attended an art exhibit, play, or other arts performance (dance, music, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Asked another student to help you understand course material	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Explained course material to one or more students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prepared for exams by discussing or working through course material with other students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worked with other students on course projects or assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gave a course presentation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

During the current school year, about how often have you done the following?

	Very often	Often	Sometimes	Never
Combined ideas from different courses when completing assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Connected your learning to societal problems or issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Included diverse perspectives (political, religious, racial/ethnic, gender, etc.) in course discussions or assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Smartphone View

Optimized – Vertical Position



During the current school year, about how often have you done the following?

Prepared two or more drafts of a paper or assignment before turning it in

Very often Often Sometimes Never

Come to class without completing readings or assignments

Very often Often Sometimes Never

Attended an art exhibit, play, or other arts performance (dance, music, etc.)

Very often Often Sometimes Never

Asked another student to help you



Unoptimized – Vertical Position



During the current school year, about how often have you done the following?

	Very often	Often	Sometimes	Never
Asked questions or contributed to course discussions in other ways	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prepared two or more drafts of a paper or assignment before turning it in	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Come to class without completing readings or assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attended an art exhibit, play, or other arts performance (dance, music, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Asked another student to help you understand course material	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Explained course material to one or more students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prepared for exams by discussing or working through course material with other students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worked with other students on course projects or assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Given a course presentation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

During the current school year, about how often have you done the following?

	Very often	Often	Sometimes	Never
Combined ideas from different courses when completing assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Connected your learning to societal problems or issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Included diverse perspectives (political, religious, racial/ethnic, gender, etc.) in course discussions or assignments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Examined the strengths and weaknesses of your own views on a topic or issue	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tried to better understand someone else's views by imagining how an issue looks from his or her perspective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learned something that changed the way you understand an issue or concept	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Connected ideas from your courses to your prior experiences and knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

During the current school year, about how often have you done the following?

	Very often	Often	Sometimes	Never
Talked about career plans with a faculty member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Worked with a faculty member on activities other than coursework (committees, student groups, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussed course topics, ideas, or concepts with a faculty member outside of class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discussed your academic performance with a faculty member	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

During the current school year, how much has your coursework emphasized the following?

	Very much	Quite a bit	Some	Very little
Memorizing course material	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Applying facts, theories, or methods to practical problems or new situations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



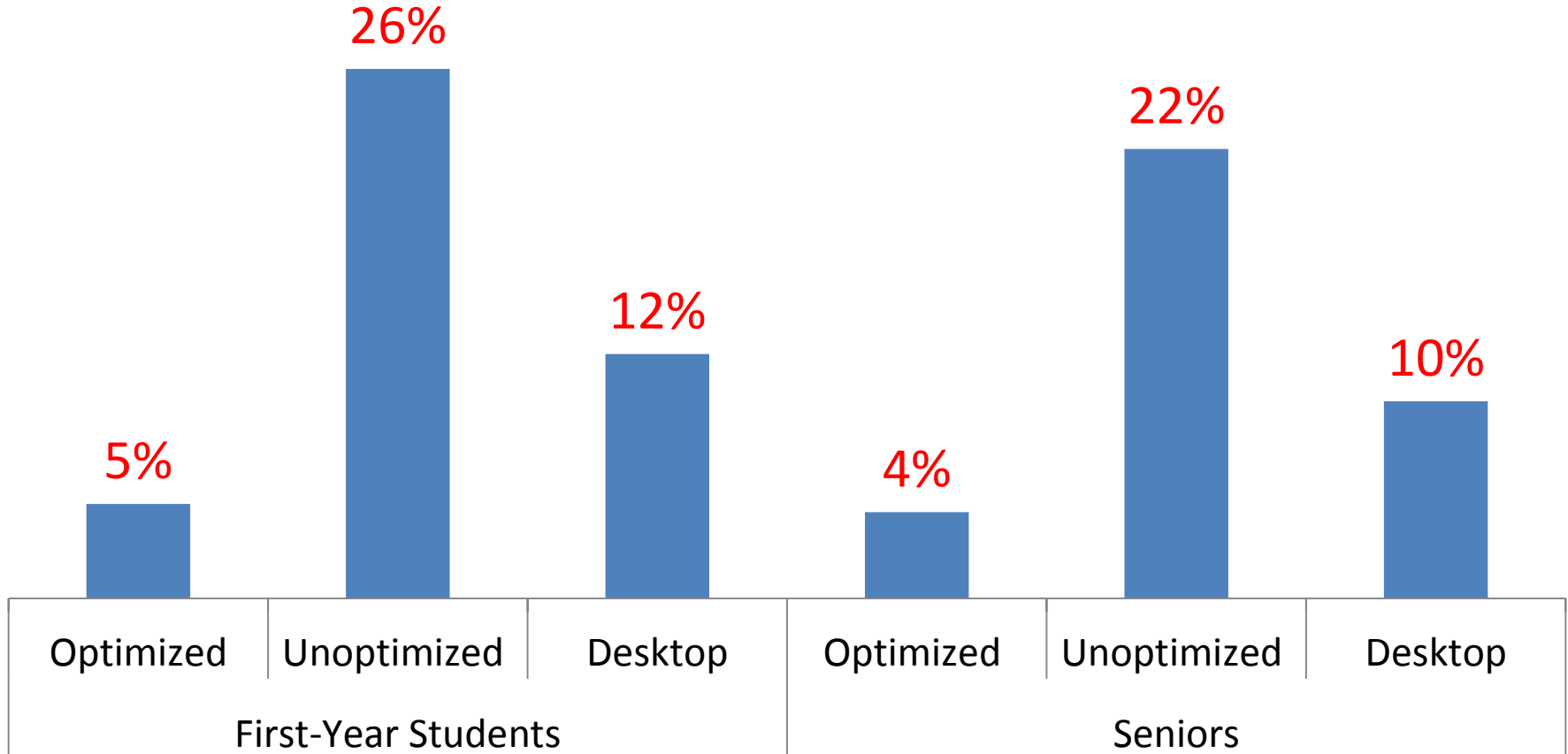
Results

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

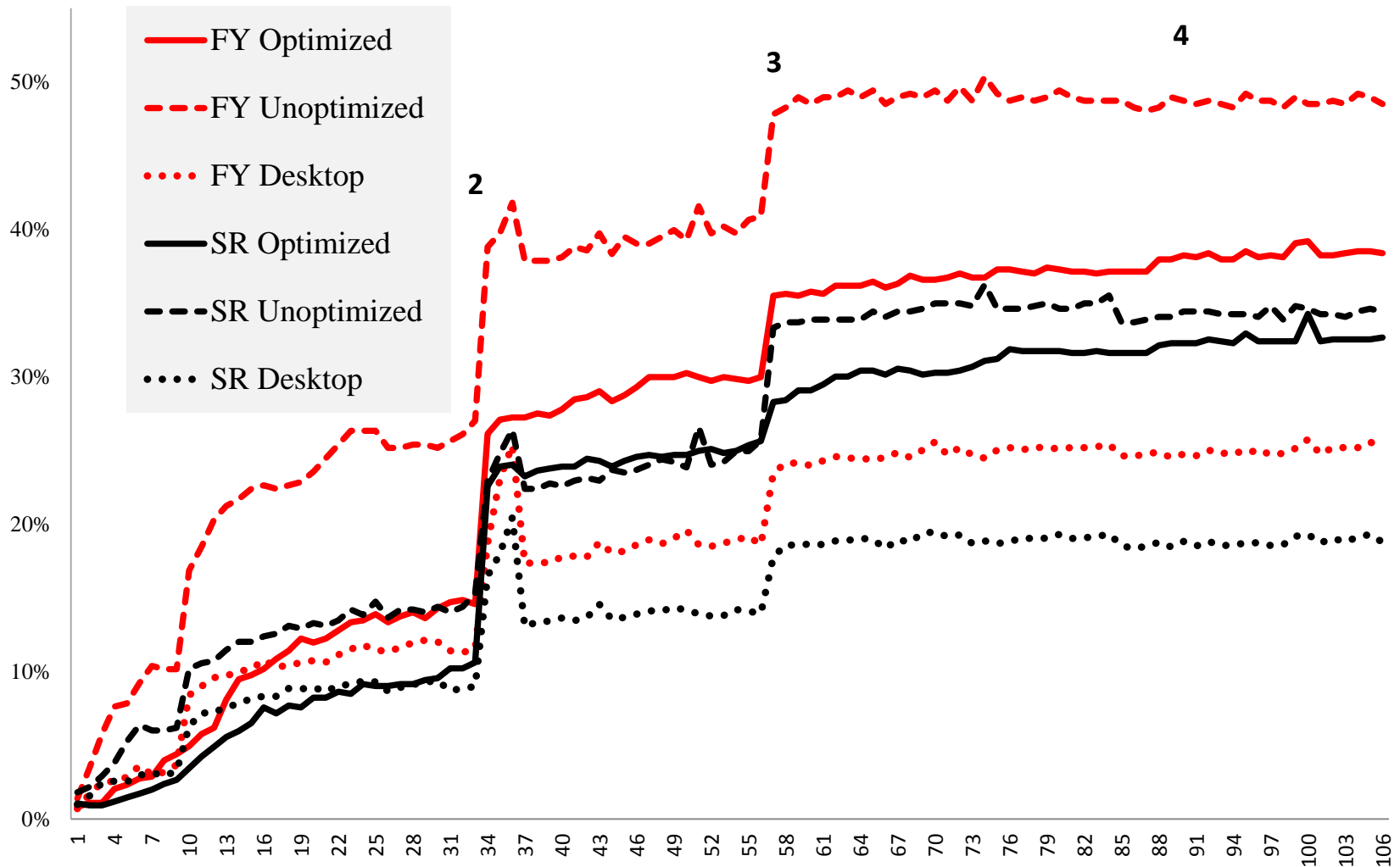
Early Abandonment

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



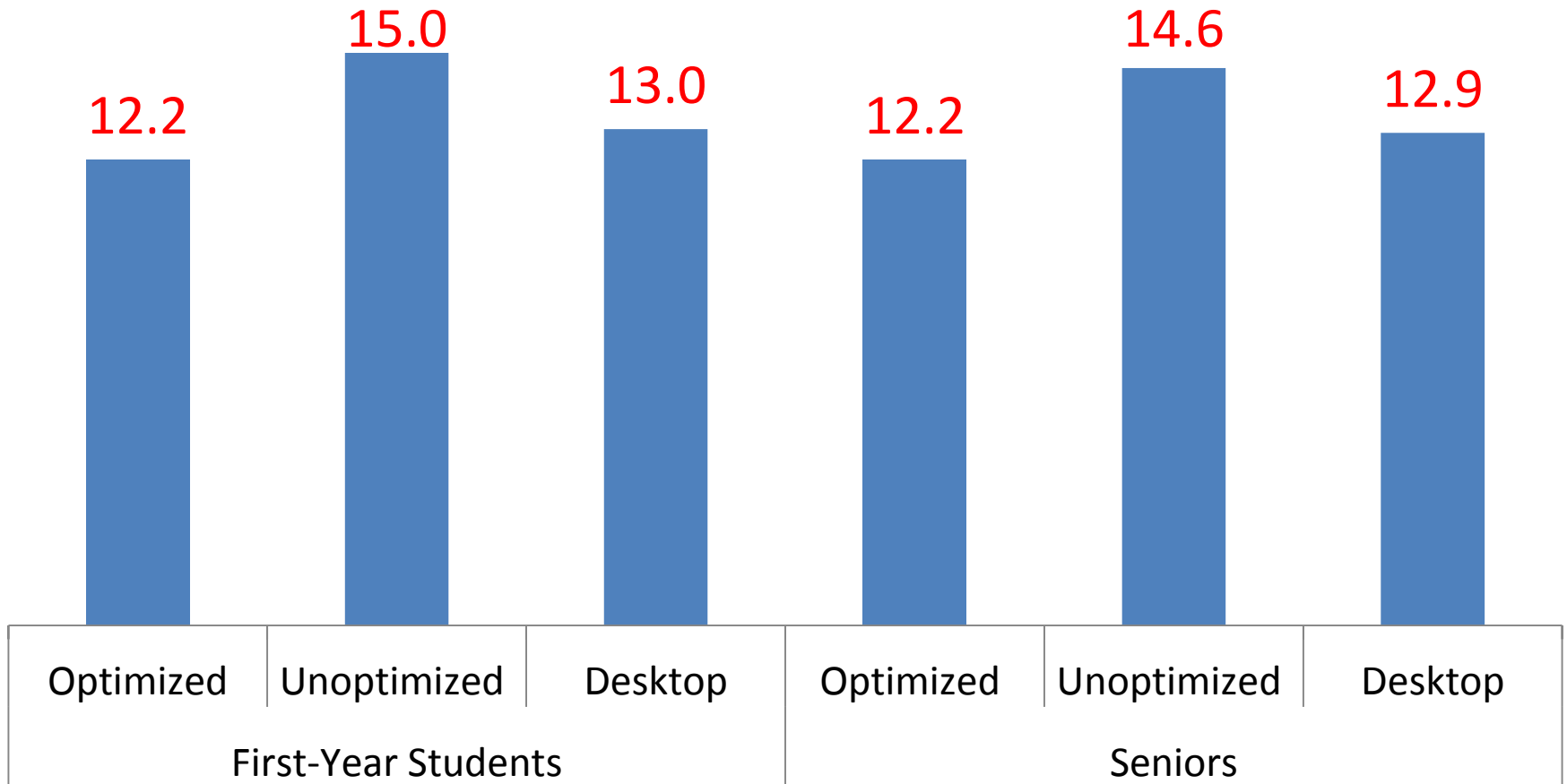
Missing Data

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



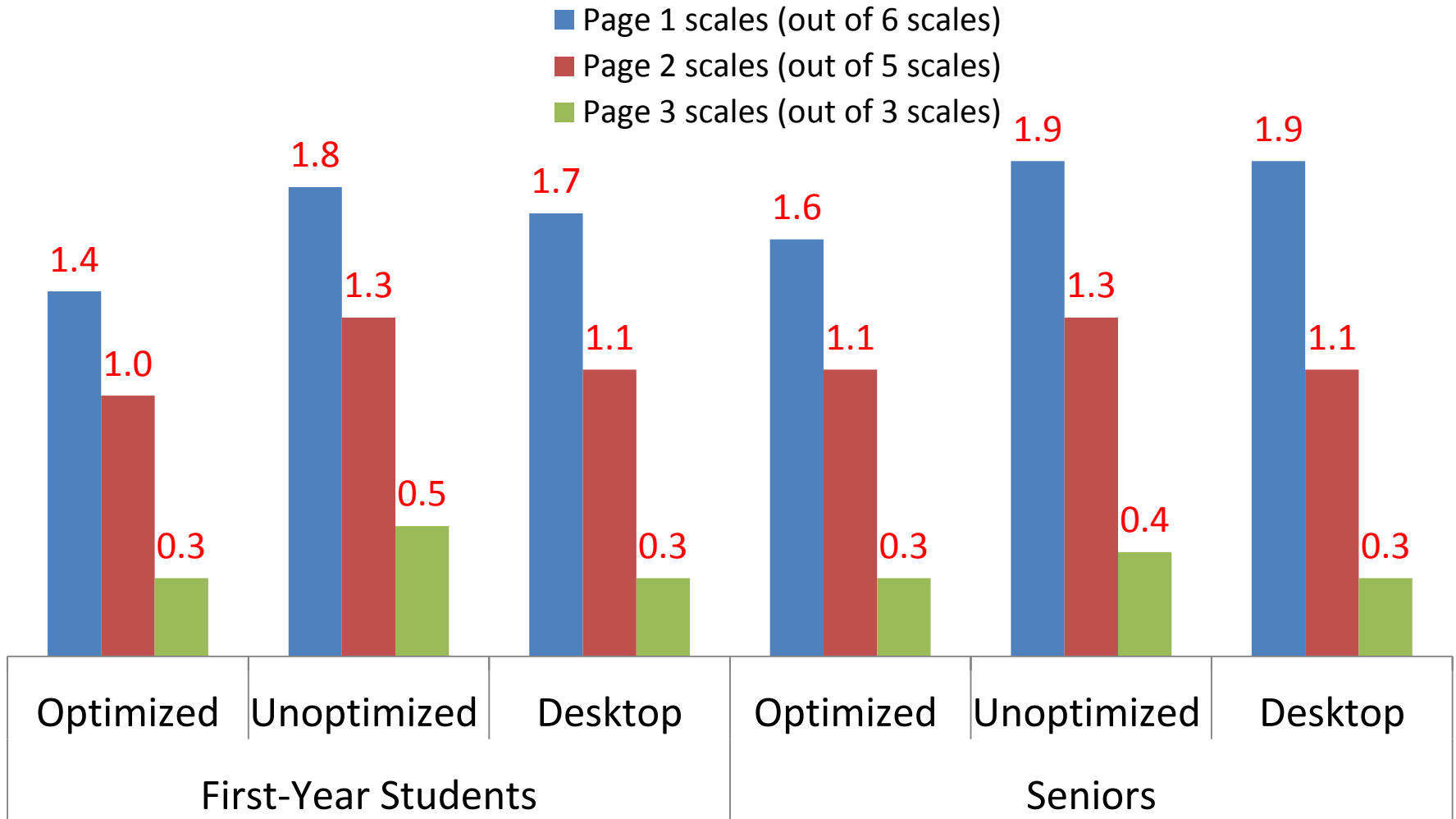
Duration

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



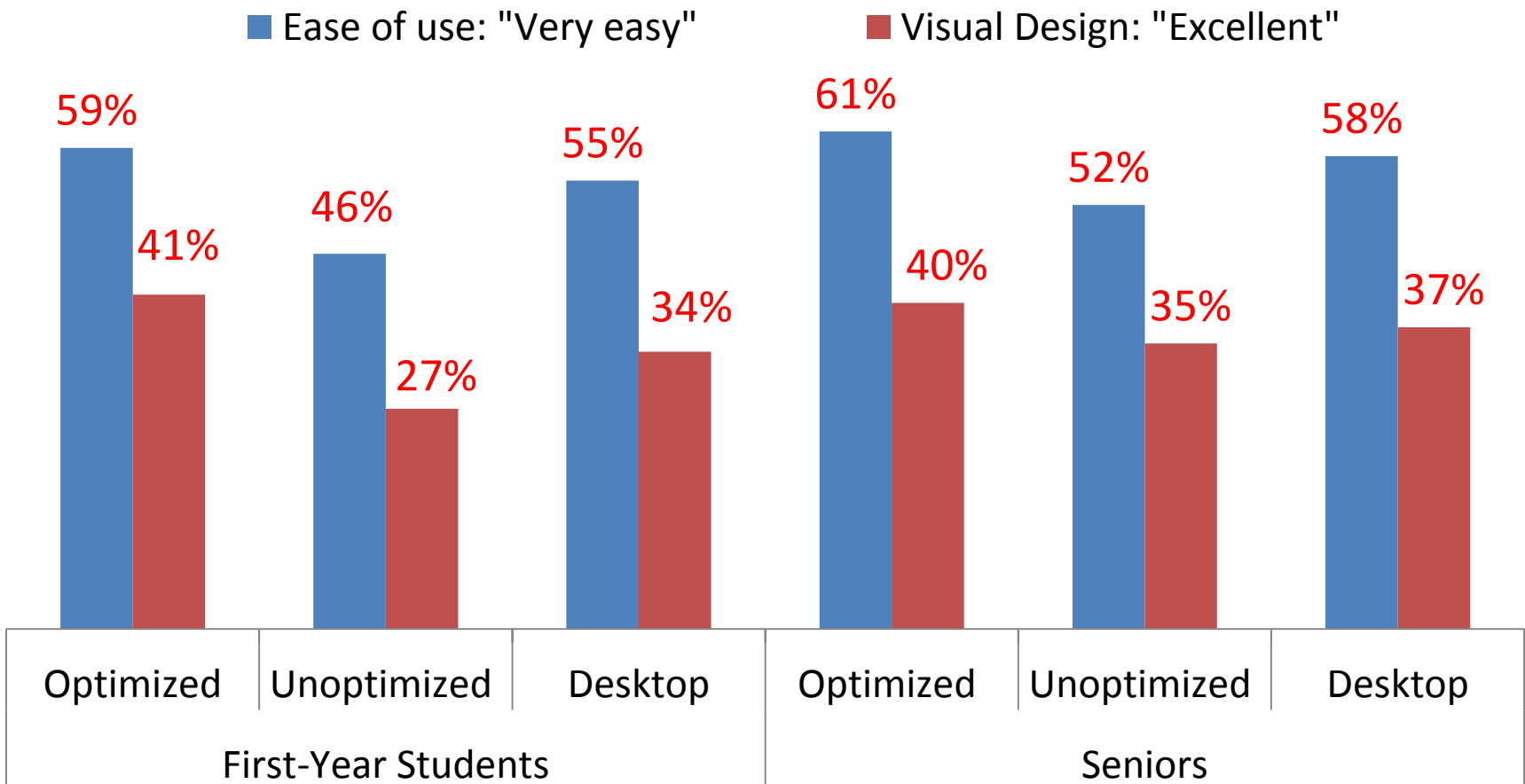
Straight-lining

Optimized straight-lined less than unoptimized group



Subjective Evaluations

Optimization betters ease of use and visual design.



Measurement Invariance

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

	First-Year	
	Students	Seniors
Higher-Order Learning	scalar	scalar
Reflective and Integrative Learning	scalar	scalar
Quantitative Reasoning	scalar +	scalar
Learning Strategies	<i>variant</i>	<i>variant</i>
Collaborative Learning	scalar +	scalar
Discussions with Diverse Others	scalar	scalar +
Student-Faculty Interaction	scalar	scalar
Effective Teaching Practices	scalar	scalar +
Quality of Interactions	scalar	scalar
Supportive Environment	scalar	scalar

Conclusions

- Optimization can improve data quality *even for a long survey*, 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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