Mobility Enabled:
Effects of Mobile Devices on Survey Response and Substantive Measures

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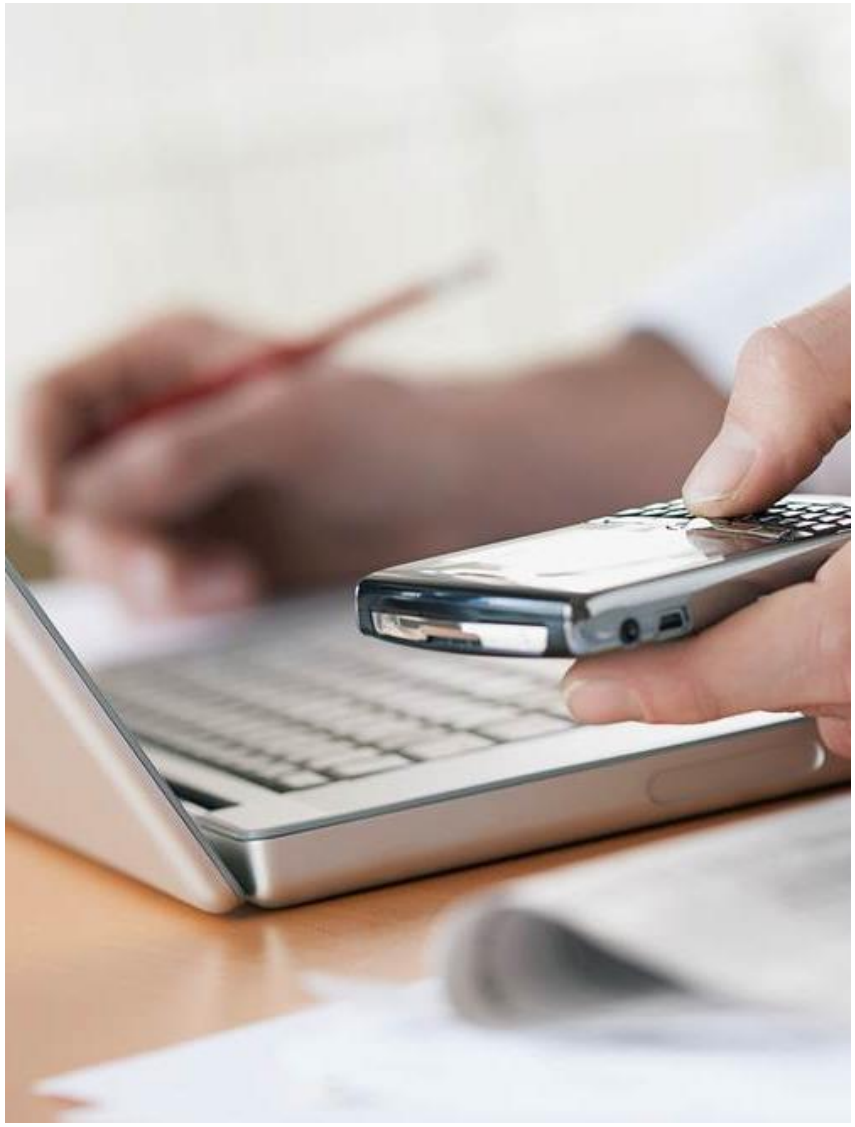
Acknowledgements



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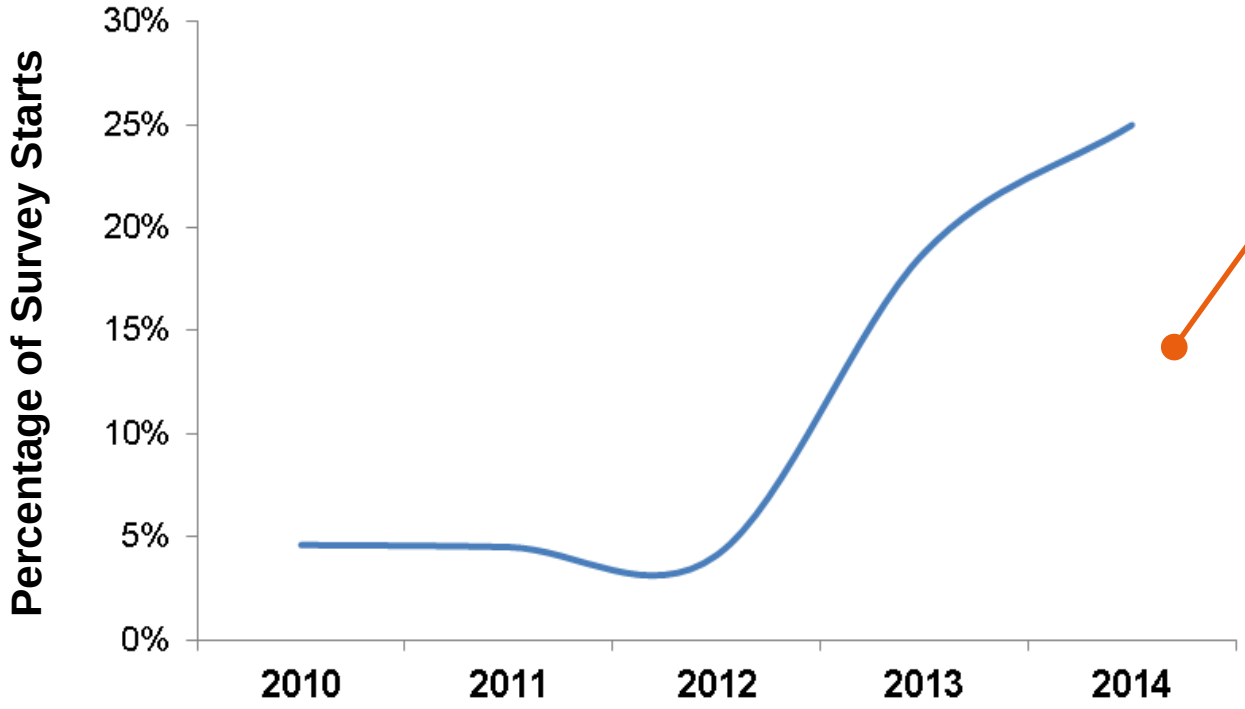
Eugene Kagan, and
Liju James

Online Surveys are Increasingly Mobile

About 25% of respondents are completing our online surveys on mobile devices.

15% on Smartphones

10% on Tablets

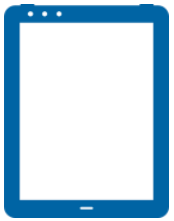


The percentage of surveys being taken on mobile devices has increased dramatically over the last few years.

Mobile Respondents – Do They Matter?

- **Demographic differences across device preference:**

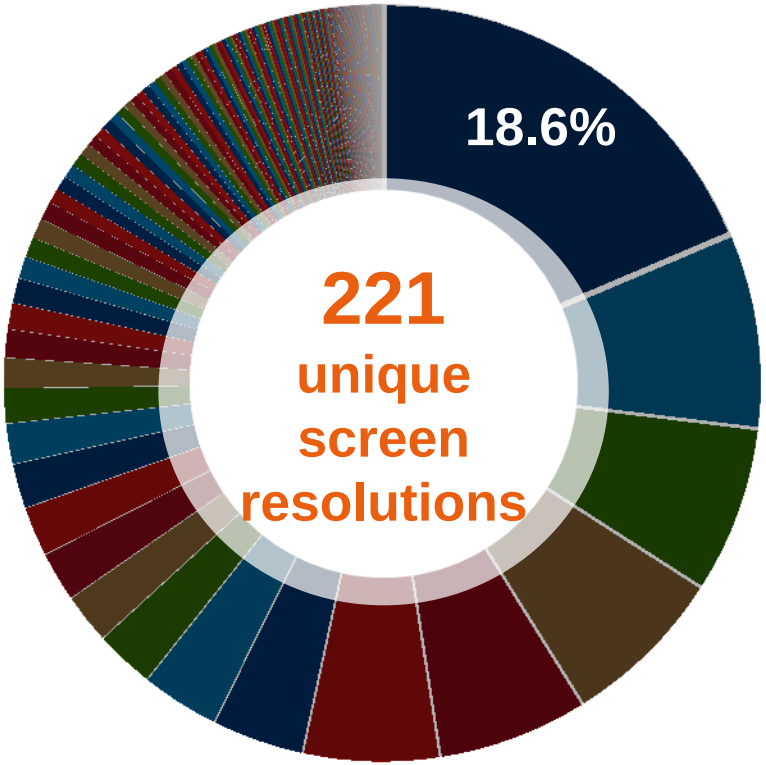
Respondents = younger, lower education and income, Hispanic and African American



Respondents = more middle-aged, higher education and income

- **Mobile respondents also:**
  - **Take longer to complete surveys**
  - **Have higher survey breakoff rates**
  - **And tend to have higher rates of suboptimal response, such as item nonresponse, failing trap questions**

Screen Size – Diversity of Screen Real Estate



Designing online surveys for mobile respondents first will:

- **Increase data quality**
- **Increase response and completion rates**
- **Improve survey experience and panel retention**
- **Decrease sampling and coverage error**

Methodology

Research on Research

- **This study used GfK's KnowledgePanel®, the largest probability-based online panel in the US with approximately 55,000 members and average cooperation rates of 60%. About 65% of the panel has been recruited with address-based sampling with the remaining recruited with dual-frame phone sampling.**

- **Three sample groups, all with access to a Desktop/Laptop *and***

Research on Research

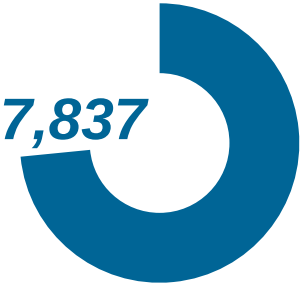
To control self-selection bias, participants were randomly assigned to completion device.

Invited

10,672

Responded

7,837

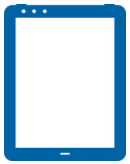


Used assigned device

4,555

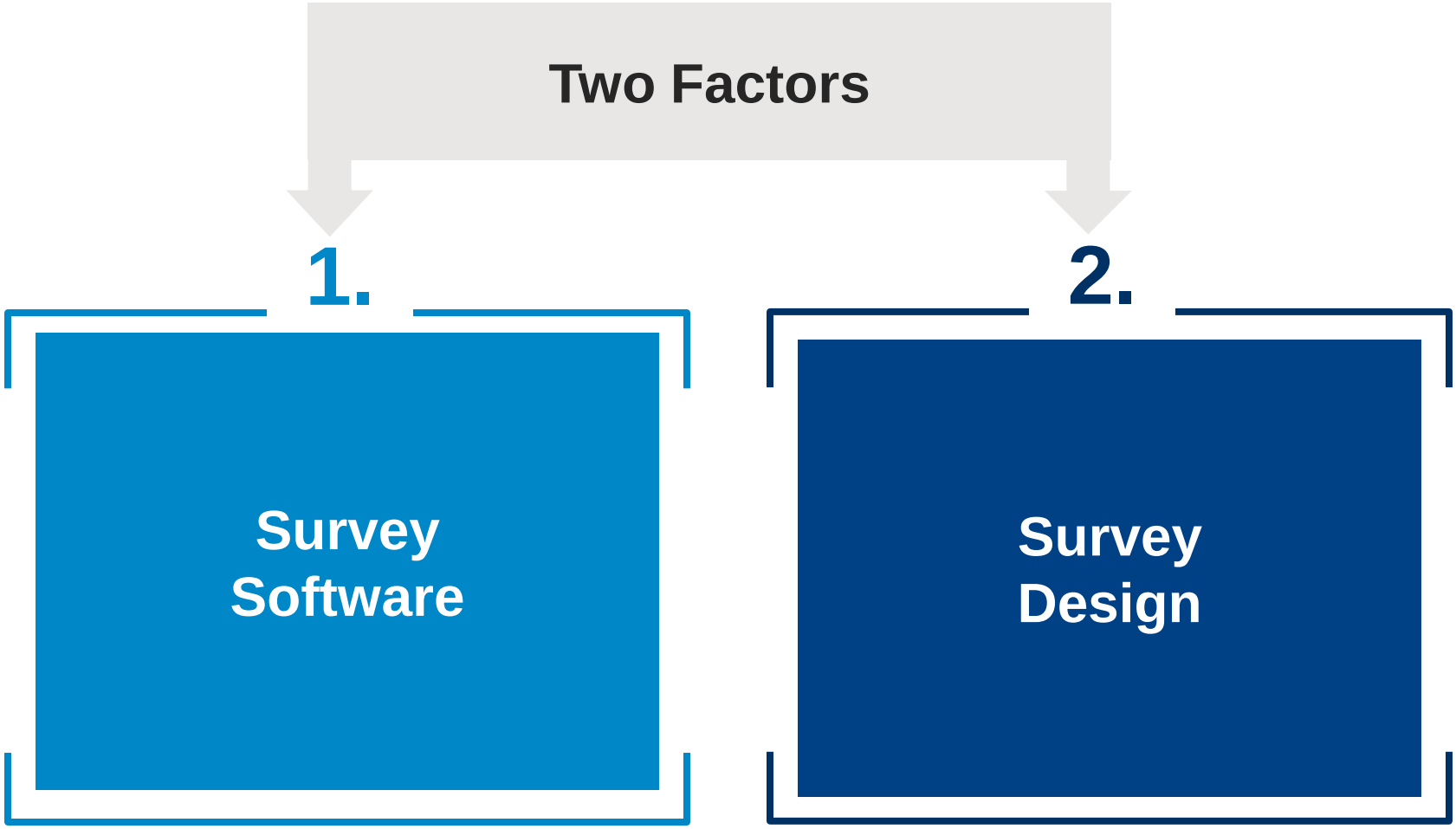
1,497 Desktop/laptop respondents

1,483 Smartphone respondents

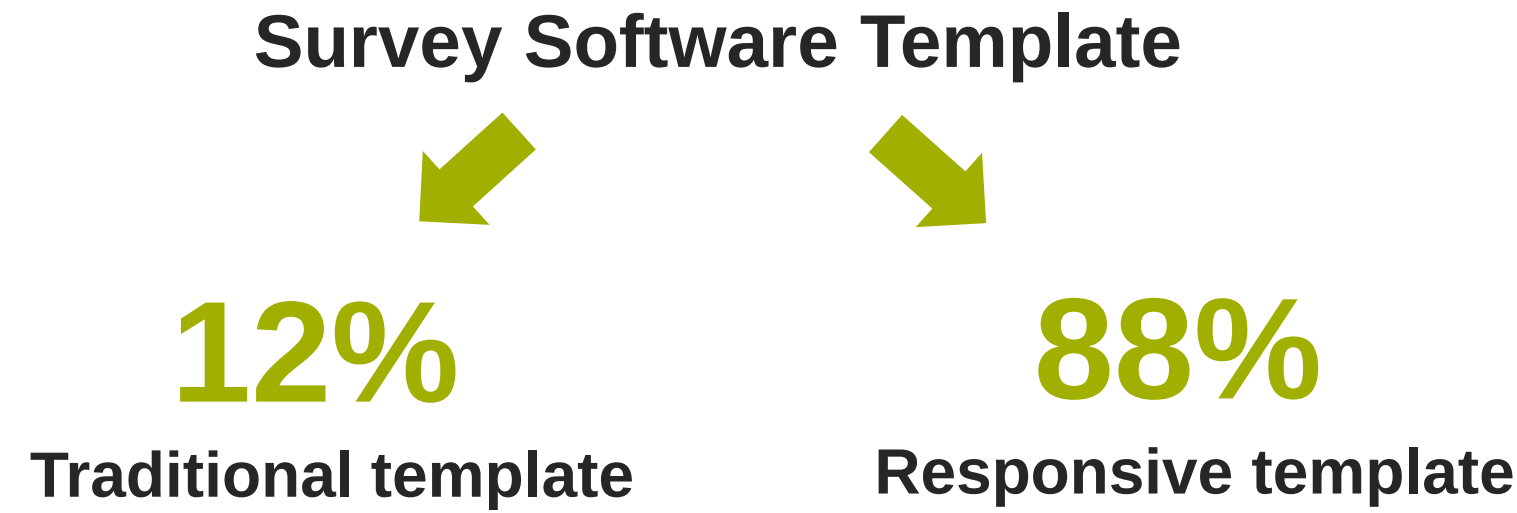


1,575 Tablet respondents

What Researchers Can Control

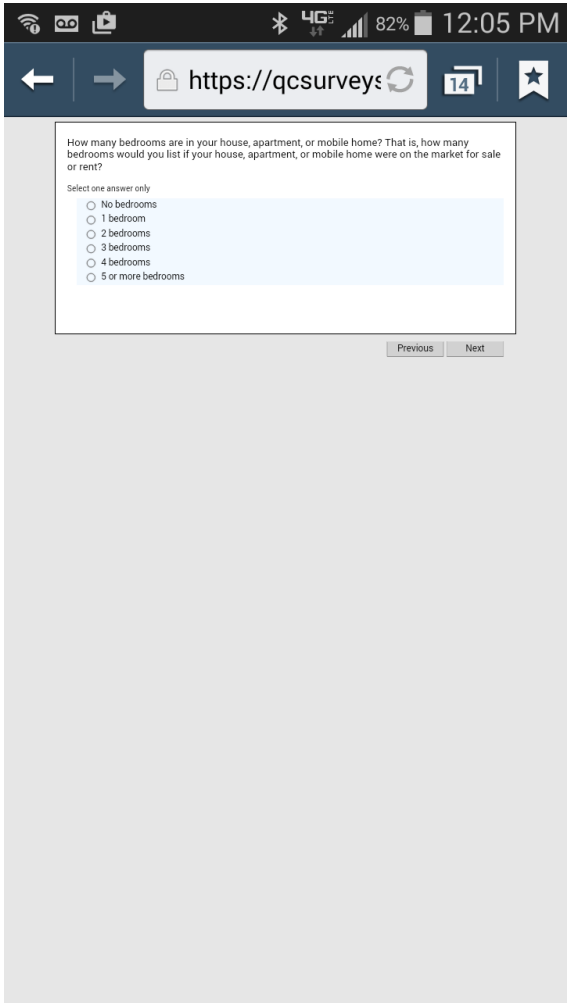


Experimental Assignment



Traditional Template – Mobile Devices

First Look



Traditional Template – Mobile Devices

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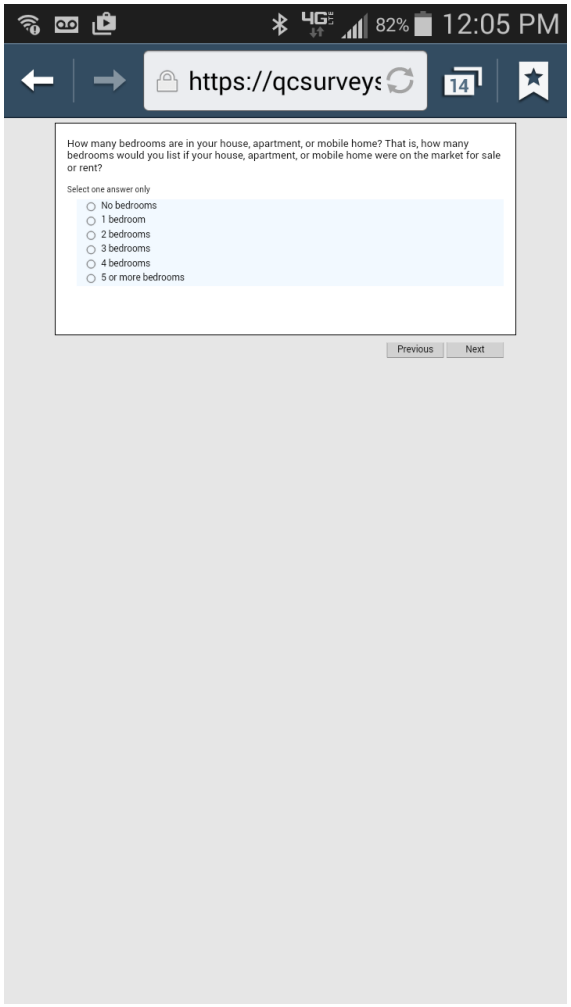
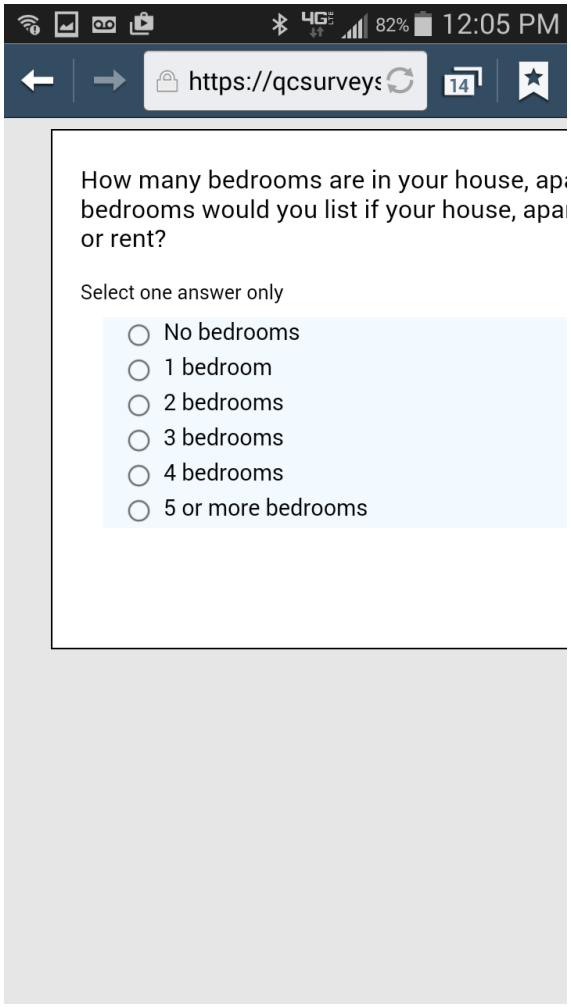


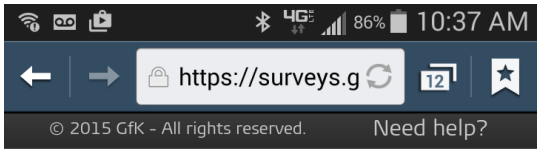
After Zooming



After zooming in, question is still difficult to read. It does not automatically reformat to fit the screen, but requires scrolling left to right to read the question.

Responsive Template – Mobile Devices

Smartphone



How many bedrooms are in your house, apartment, or mobile home? That is, how many bedrooms would you list if your house, apartment, or mobile home were on the market for sale or rent?

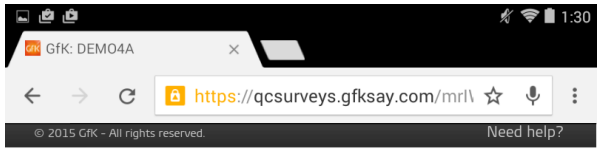
Select one answer only

- No bedrooms
- 1 bedroom
- 2 bedrooms
- 3 bedrooms
- 4 bedrooms
- 5 or more bedrooms

Previous | Next

The responsive template automatically resizes the survey text to fit the detected screen size.

Tablet



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- 1 bedroom
- 2 bedrooms
- 3 bedrooms
- 4 bedrooms
- 5 or more bedrooms

Previous | Next

Experimental Assignment

Mobile Friendliness

50%

Mobile unfriendly

50%

Mobile friendly

Example:
Mobile Friendly vs. Unfriendly

Mobile Unfriendly – longer question and response options

Which of the following best describes the type of cellphone you currently use? If you have more than one cellphone, please think of the one you use most often and select one response.

Select one answer only

- ○ Basic cellphone – a wireless phone that is used primarily for calls and messaging, and may have the ability to download music, videos, and ringtones. A basic phone does not require a data plan; examples include Samsung Brightside, LG Extravert or Revere, Pantech Jest.
- ○ Smartphone – a wireless phone with an operating system (OS) offering advanced capabilities, including the ability to send and receive email, visit any web site and download apps from an app store market. Smartphone examples include iPhone, BlackBerry, Android smartphones such as the Motorola Droid RAZR M, LG Lucid 2, or the Samsung Galaxy S IV and Windows Phones such as HTC Windows Phone 8x and Nokia Lumia 928. These phones require a data plan.
- ○ Do not have a cellphone

Example:
Mobile Friendly vs. Unfriendly

Mobile Friendly – shorter question and response options

Which of the following best describes the type of cellphone you currently use?

Select one answer only

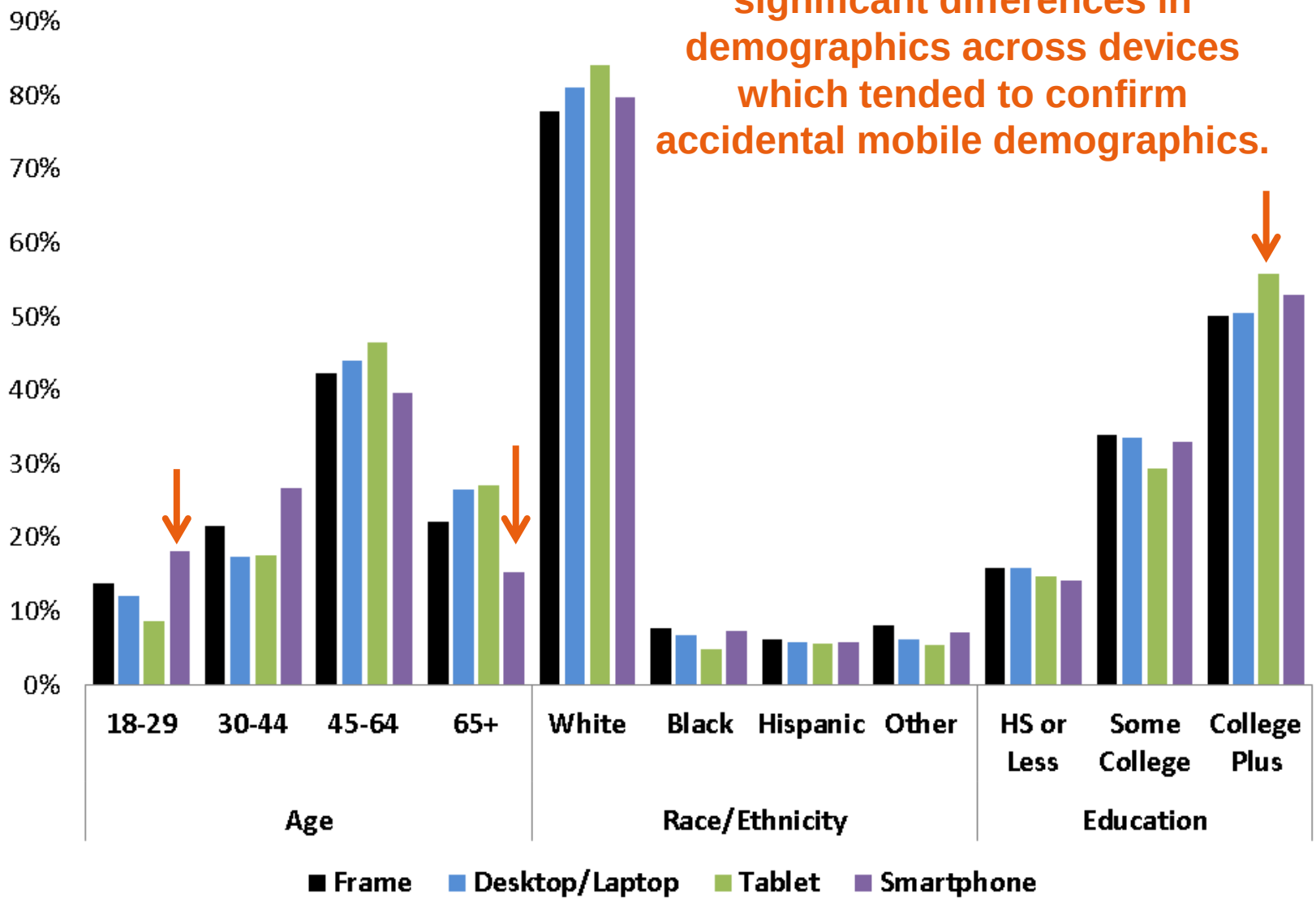
- Basic cellphone –used mostly for calls and texting, does not require a data plan.
- Smartphone –can be used for calls, texting, browsing the Internet, emailing, downloading apps, and typically requires a data plan.
- Do not have a cellphone

Previous Next

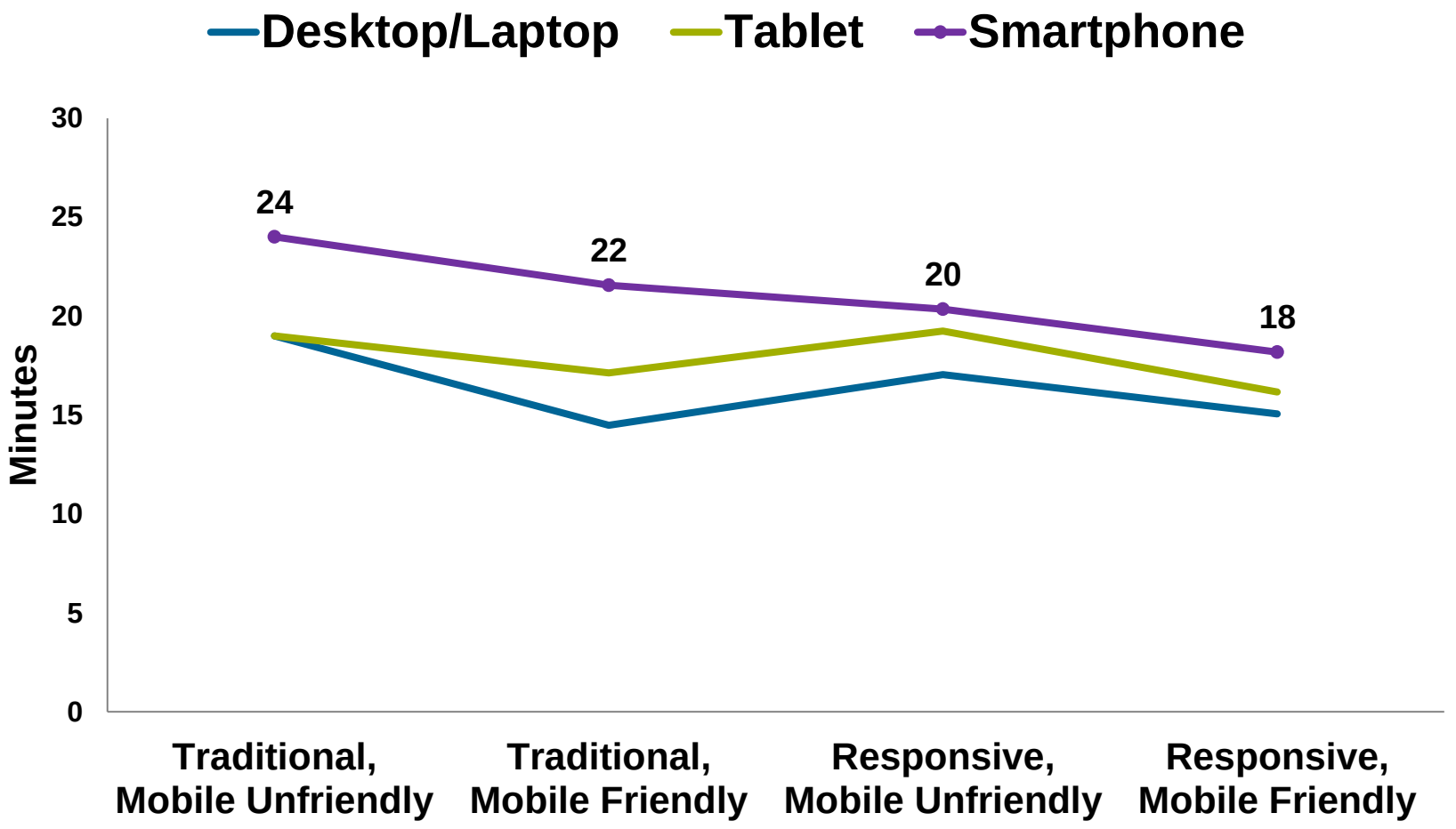
Results

Demographics

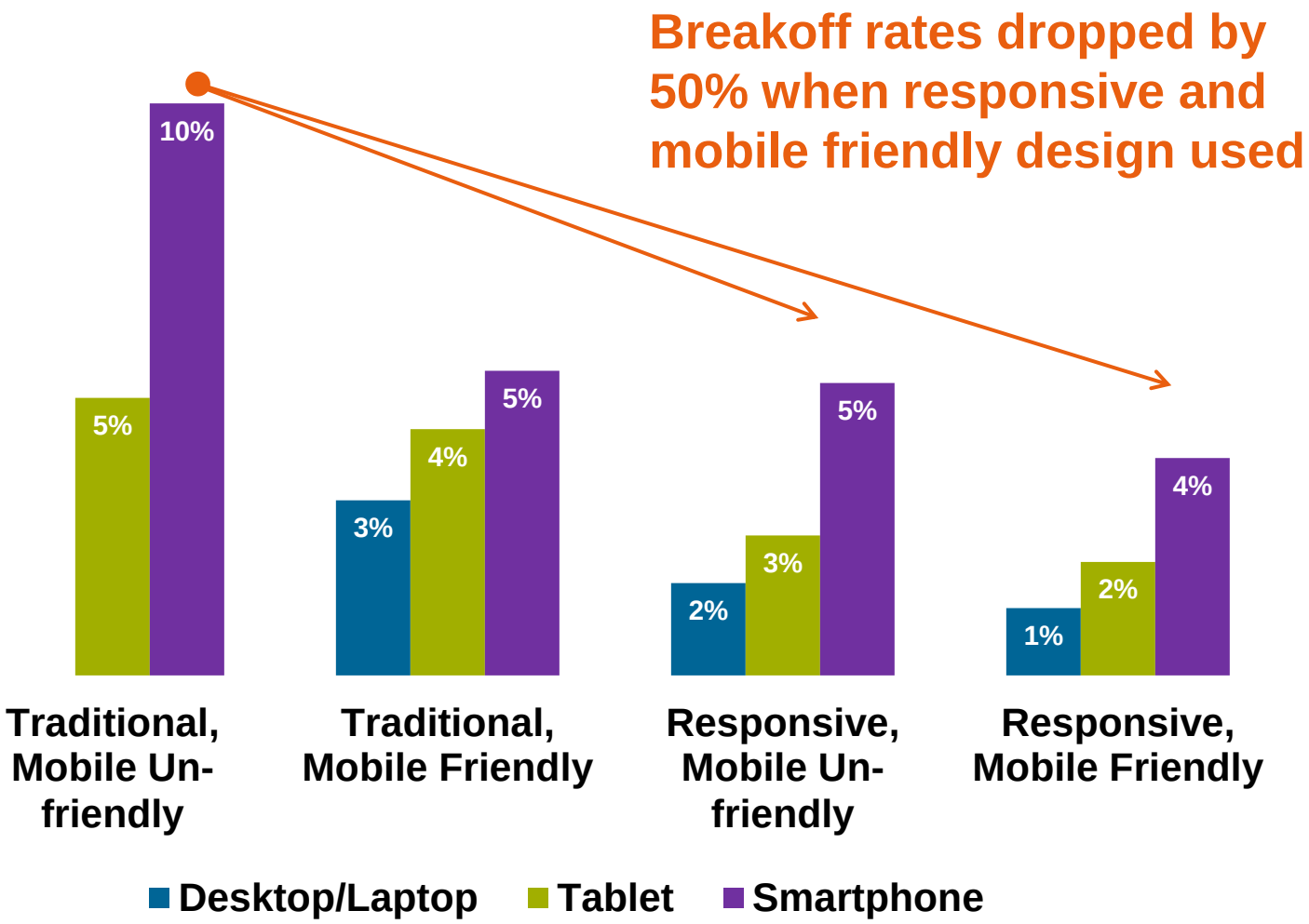
In spite of random assignment, there were some statistically significant differences in demographics across devices which tended to confirm accidental mobile demographics.



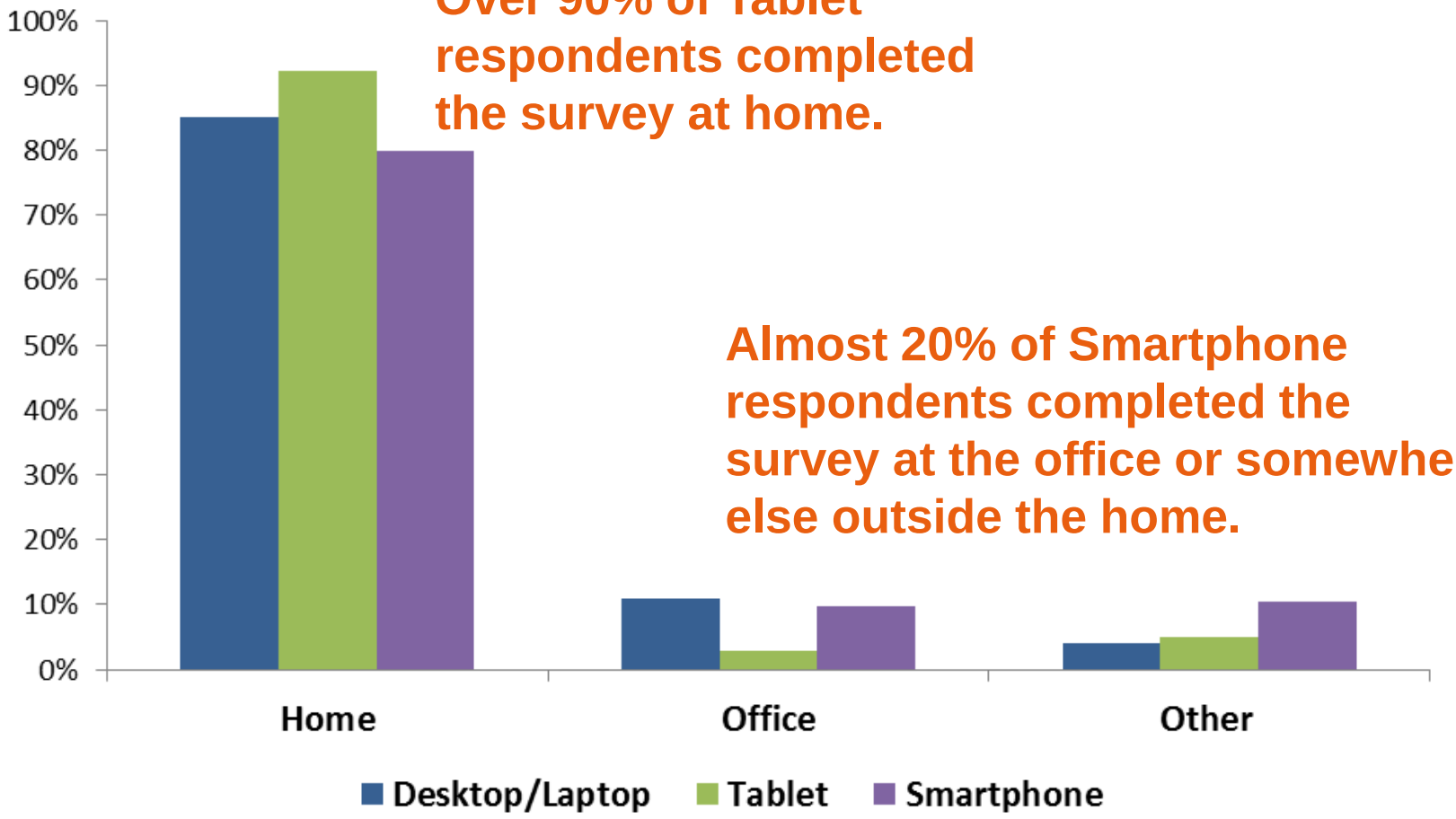
Median Survey Completion Times



Survey Breakoff Rates



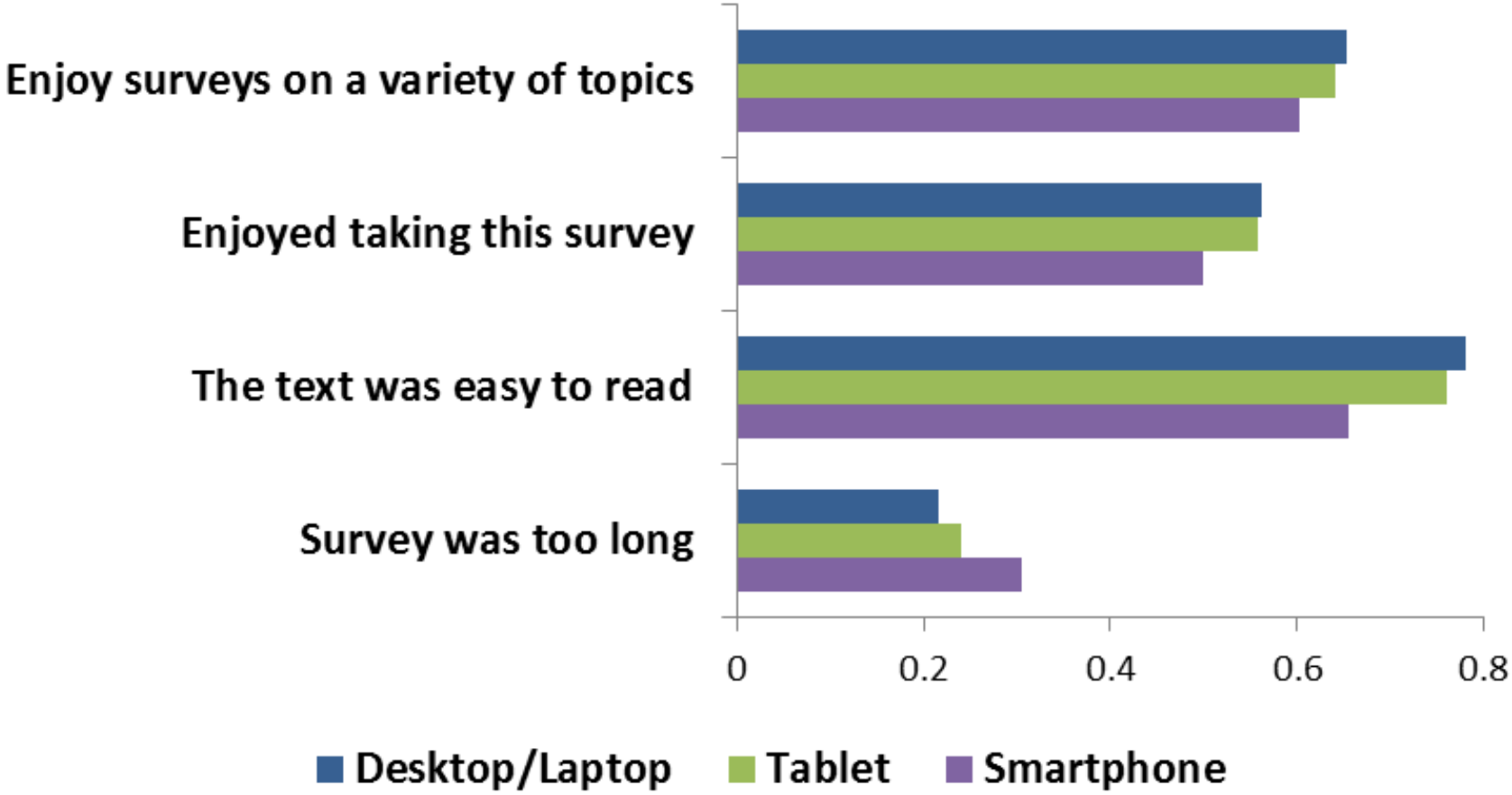
Survey Location



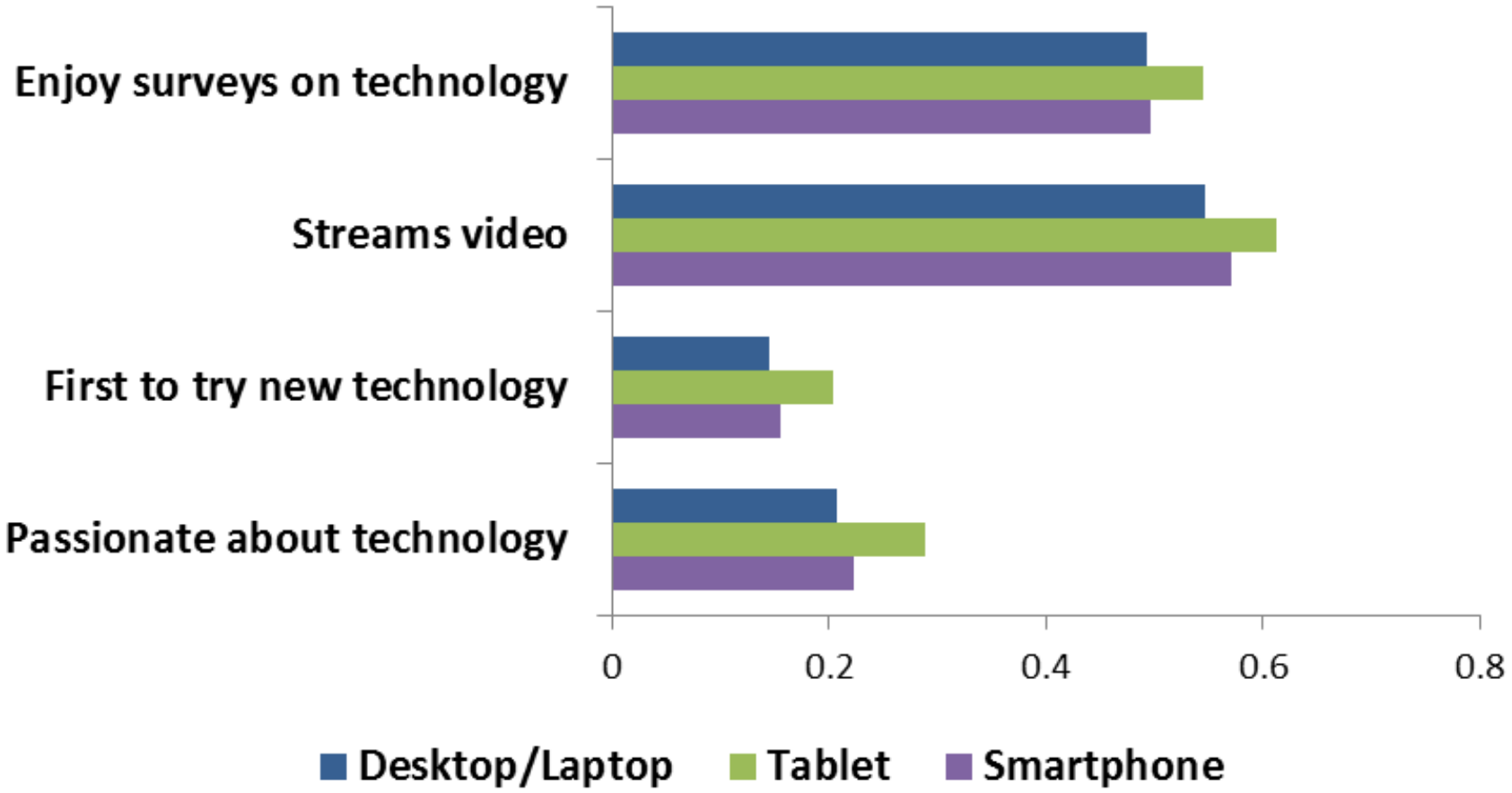
Device Effects

- **Device effects occur when responses to a question on one device differ significantly from responses when answered on a different device.**
- **Most studies have a difficult time teasing apart device effects from sample differences because they rely on accidental mobile respondents.**
- **In this study, random assignment controlled for self-selection effects.**
- **However, due to differential nonresponse, we used demographic covariates to further equate respondent groups across devices.**

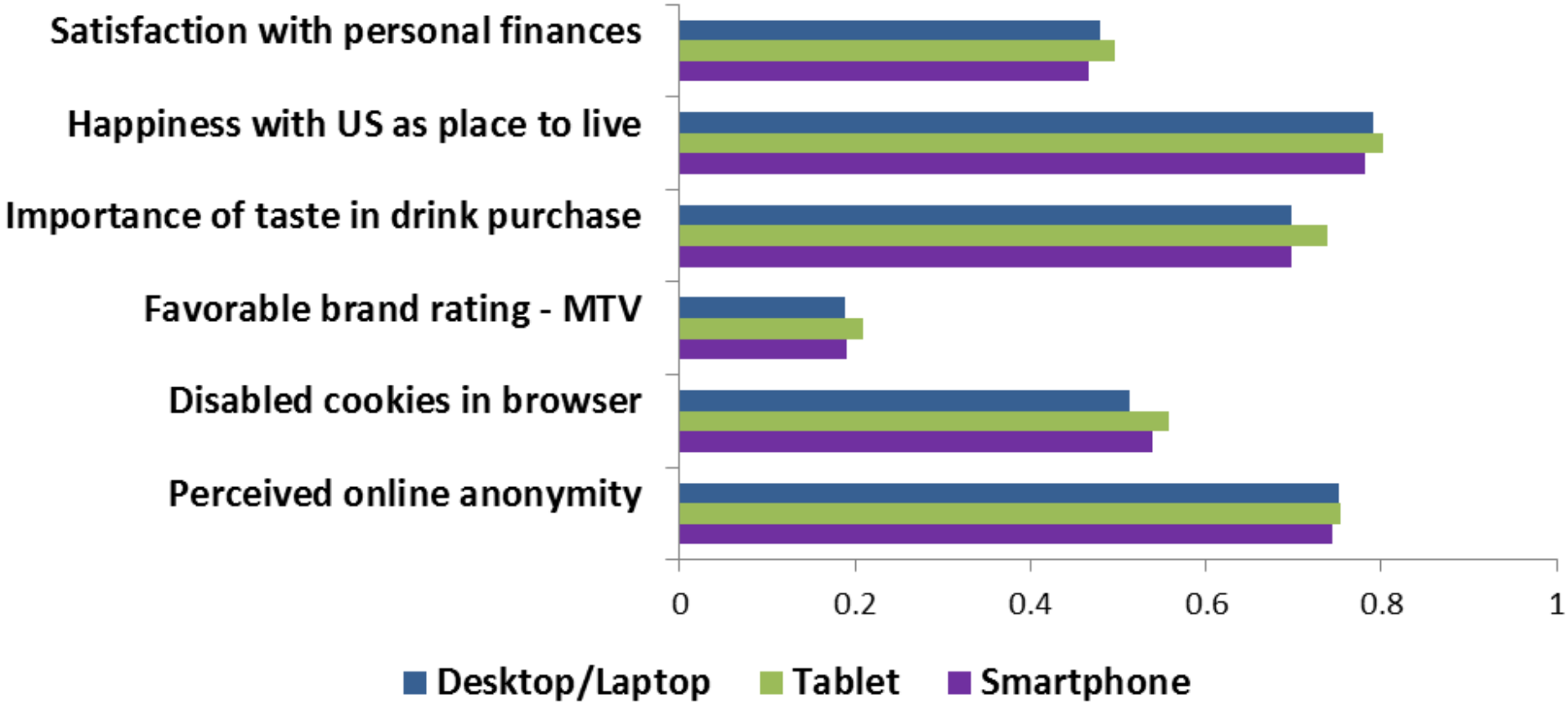
Device Effects were present when measuring – Survey Experience:



Device Effects were present when measuring – Technology:



No device effects across range of topics:



Device Effects

- **No interactions with template version or mobile friendliness of questionnaire – when present, device effects were consistent across these experimental conditions.**

- **No clear pattern of device effects by response format – assessed single item with varying scale lengths, vertical vs. horizontal response presentation, grids.**

Device Effects or Sample Composition?

- **To investigate whether or not technology-related device effects were due to nonresponse bias, we compared responses to five questions on early adoption of new products and technology between respondents and non-respondents by survey completion device.**

- **Three of the five questions showed a statistically significant difference between respondents and non-respondents among tablet respondents only, with tablet respondents being more likely to be early adopters than tablet non-respondents.**

- **This supports the idea that the technology-related device effects may actually be due to attitudes of responders rather than device effects.**

Replicating Experimental Findings Across Devices

- **Previous research has shown a higher endorsement rate for items when presented in a Yes/No Grid than a Multiple Response Format (aka 'Select all that apply').**

- **We wanted to see if this experimental finding is replicated across devices or if the experimental manipulation has a differential influence on endorsement rates between the two response formats by device type.**

Yes/No Grid

While using the Internet, have you ever done any of the following things?

Select one answer from each row in the grid

	Yes	No
Given inaccurate or misleading information about yourself	○	○
Set your browser to disable or turn off cookies	○	○
Encrypted your communications	○	○
Used a temporary username or email address	○	○
Used a fake name or untraceable username	○	○
Cleared cookies and browser history	○	○
Deleted or edited something you posted	○	○
Asked someone to remove something that was posted about you online	○	○
Used a public computer to browse anonymously	○	○
	Yes	No

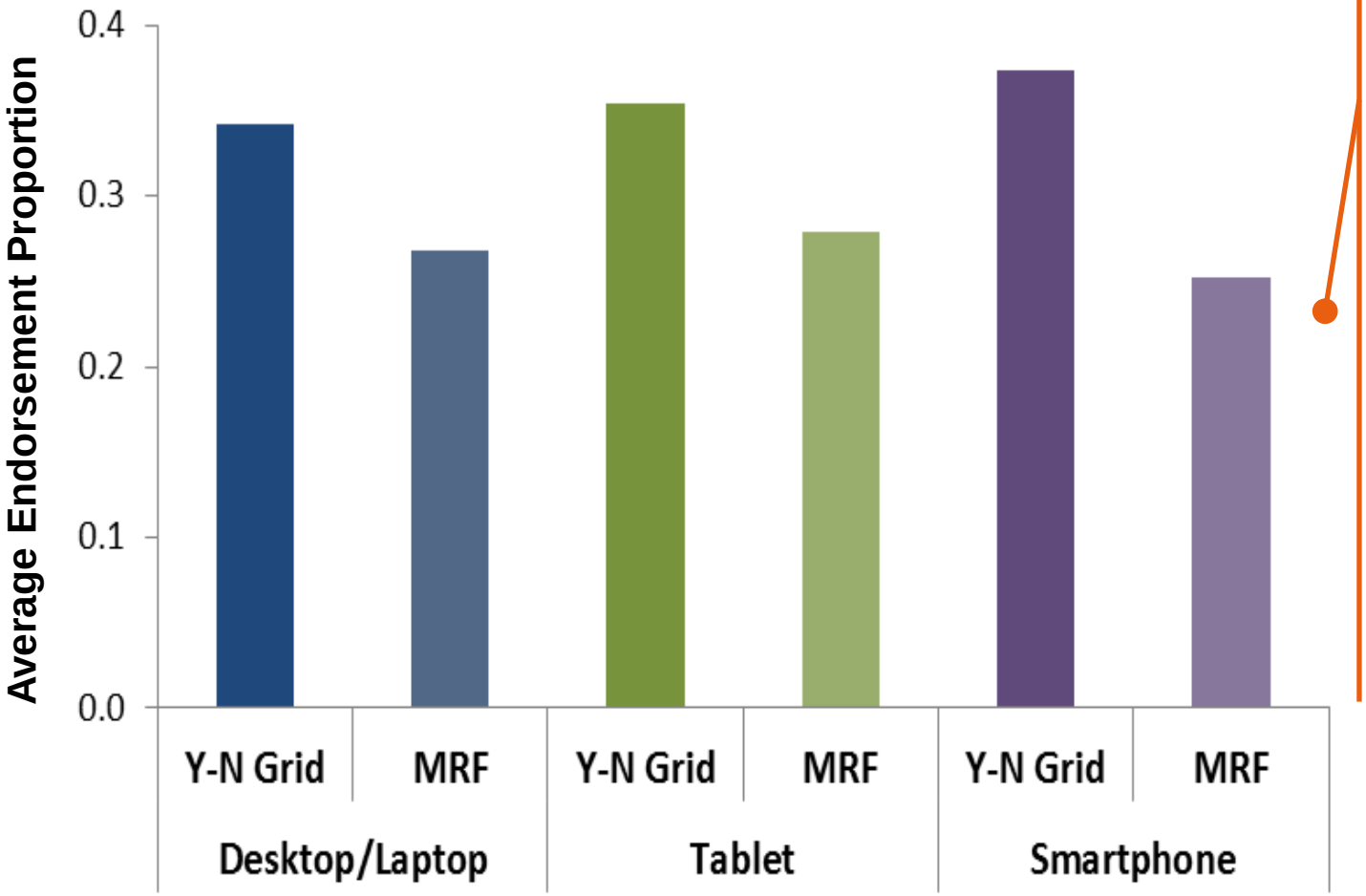
Multiple Response Format

While using the Internet, have you ever done any of the following things?

Select all answers that apply

- ☐ Given inaccurate or misleading information about yourself
- ☐ Set your browser to disable or turn off cookies
- ☐ Encrypted your communications
- ☐ Used a temporary username or email address
- ☐ Used a fake name or untraceable username
- ☐ Cleared cookies and browser history
- ☐ Deleted or edited something you posted
- ☐ Asked someone to remove something that was posted about you online
- ☐ Used a public computer to browse anonymously
- ☐ I've done none of these

Yes/No Grid vs. Multiple Response



There was no interaction between response format and device – the Yes/No Grid yielded higher endorsement rates than Multiple Response regardless of survey device.

Conclusions

Conclusions

- **Mobile respondents are not all the same. Demographic differences due to differential nonresponse tended to support findings with “accidental mobile” respondents.**

- **Smartphone respondents appear to be more mobile than both desktop/laptop and tablet respondents. Tablet respondents most likely to complete survey at home.**

- **On the whole, device usage does not appear to affect responses, though there was some indication that choice of device may be affected by participants' attitudes and behaviors (e.g., early adopters and tablet respondents).**

Conclusions

- **To minimize device effects it is essential to minimize breakoff and nonresponse bias.**
- **Improving survey display for mobile respondents helps, but it is not enough – we also need to approach questionnaire design with a mobile-first mentality. We saw decreased completion times and breakoff rates for mobile devices with the responsive template and mobile friendly design.**
- **Benefits of the mobile-friendly design were also extended to desktop/laptop respondents in terms of reducing time to complete the survey, which reduces respondent burden.**

Discussion

- **What is the effect of the growing number of mobile respondents on survey data and trends across time?**
  - **What if we do nothing to address the growing number of mobile respondents?**
  - **What if we only implement the responsive survey design with no adjustment in questionnaire design?**
  - **What if we implement mobile-first questionnaire design principles (e.g., reducing responses, changing scales, shorter surveys)?**
- **Are there surveys that can not be made mobile friendly? If so, how do we handle them?**

Thank you!

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