The Impact of Mobile First and Responsive Web Designs

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“You might not be interested in war mobile surveys but war is they are interested in you.”

— Leon Trotsky Me
The Mobile Challenge

- More respondents are going mobile.
- Mobile break-off rates are higher.
- Maintaining two designs can be costly and can impact data quality.

- Can we apply general web design principles to address these problems?
- Can one design improve the experience for mobile users without negatively impacting desktop users?
Experiment #1: Methods

- Web design assigned randomly
  - 50% standard
  - 50% mobile first (M1)
- Device chosen by respondent
- Post-survey evaluation items (de Bruijne and Wijnant 2013)
  - Pleasant layout, easy to complete, could be learned quickly, professional look
- Analyze break-off rates, survey duration, response distribution
Experiment #1: Administration

- Survey on campus computing
  - Field period: spring 2014
  - Sample size: 4000
    - Faculty, staff, students
  - Average duration: 8.7 minutes
  - Response rate: 40% (RR2)
  - Smartphone component: 7%
    - Students: 14%

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Experiment #1: Standard Design

Desktop:

University Information Technology Services
User Satisfaction Survey 2014

General Services

Overall, how satisfied are you with the services and support offered by UITS (uits.iu.edu) during the past year (e.g., Support Center consulting at 812-855-6789, Student Technology Centers, email, wired and wireless network access, telephones, research computers, library online catalog, and administrative systems)?

Not at all Satisfied ____________________________ Very Satisfied ____________________________ Not Applicable

1 2 3 4 5

Overall, how important are UITS systems and services to your work or study?

Not at all Important ____________________________ Very Important ____________________________ Not Applicable

Not at all Important ____________________________ Very Important ____________________________ Not Applicable

1 2 3 4 5

How would you rate your computer expertise?

Novice ____________________________ Expert

1 2 3 4 5

Smartphone:
Experiment #1: M1 Design

Desktop:

Smartphone:
Experiment #1 Findings:

- Impact of M1 on smartphones
  - Break-off rate declined: 29.8% to 20.7%
  - Shorter duration: 8.84 to 7.2 minutes
  - Rated higher on “easy to complete” by .7%*

- Impact of M1 on desktops
  - Break-off rate increased: 6.7% to 7.2%
  - Shorter duration: 9.25 to 8.29 minutes*
  - Rated lower on “professional look” by .4%*
  - Many comments on scrolling

- Minimal impact found in means comparison

* = Statistically significant at p < 0.05
Experiment #2: Methods

- Web design assigned randomly
  - 65% standard
  - 35% responsive web design (RWD)
- Device chosen by respondent
- Post-survey evaluation items
- Analyze break-off rate, duration times, response distribution
Experiment #2: Administration

- Student survey on campus transportation
  - Field period: fall 2014
  - Sample size: 35,689
    - Faculty, staff, students
  - Average duration: 7.1 minutes
  - Response rate: 38% (RR2)
  - Smartphone component: 16.3%
    - Students: 24%
Experiment #2: Standard Design

**Desktop:**

**Smartphone:**

<table>
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<th>Service</th>
<th>Extremely dissatisfied</th>
<th>Dissatisfied</th>
<th>Neither satisfied nor dissatisfied</th>
<th>Satisfied</th>
<th>Extremely satisfied</th>
<th>No opinion</th>
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<tbody>
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<td>IUB Campus Bus</td>
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<td>Bloomington Transit</td>
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<td>Rural Transit</td>
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<td>Disability Services for Students Van</td>
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</table>

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Experiment #2: RWD

Desktop:

Smartphone:
Experiment #2 Findings:

- Impact of RWD on smartphones
  - Break-off rate declined: 17.0% to 15.2%
  - Shorter duration: 7.35 to 7.25 minutes
  - Rated higher on all evaluation items

- Impact of RWD on desktops
  - Break-off rate increased: 5.4% to 6.8%*
  - Shorter duration: 7.27 to 6.72 minutes*
  - Rated higher on all evaluation items*

- Minimal impact on response distribution

* = Statistically significant at p < 0.05
Summary

• While our mobile first design performed well for smartphone users, most improvements were not significant, and the design rated lower with desktop users.

• Our responsive web design scored better with both device groups, but desktop breakoffs were still an issue.
Future Research

- Impact on longer studies
- Different sample make-up
- Item non-response analysis
- Evaluation feedback from non-respondents
- Usability testing on response buttons, visual hierarchy, and other elements