Effects of Pagination on Short Online Surveys

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Pagination is a fundamental decision in web survey design

Goals:
- Optimize completion rate
- Minimize nonresponse bias
- Minimize order effects
- Minimize respondent burden

Options:
1. All questions on a single page (scrolling)
2. Multiple questions per page (grouped)
3. One question per page
Existing Evidence - Study Designs

Vehovar, 2000
- Research on Internet in Slovenia survey, 1996
- Scrolling (n=644) vs. Multiple screens (n=673)
- 7 minute response time

Couper, 2001
- UMich newspaper student survey; attitudes toward affirmative action & admissions policies
- Four grid questions (n=338) vs. 16 single question pages (n=327)
- Additional conditions: with & without progress bars, radio buttons vs text boxes
- Email invitations to web-based survey

Peytchev, 2006
- UMich student life census; evaluation of tobacco, alcohol, drug use
- Scrolling questionnaire (n=970) vs Paging (n=8747)
- Links to skip questions (scrolling) vs automatic skips (paging)
- Email invitations to web-based survey

Gonyea, 2007
- National Survey of Student Engagement; ~160,000 responses from freshmen and seniors
- ~15 minute response time; web and paper modes
Existing Evidence - Results

Vehovar 2000
- No difference in breakoff rate
- Shorter response time for scrolling version (7.8 vs 6.1 minutes)
- Higher item nonresponse (esp. for grids) in scrolling version

Couper 2001
- Shorter response time for grid version (2.8 vs 3.2 minutes)
- Fewer DK/NA responses for grids (1.2 vs 1.7)
- Higher inter-item correlations for grids, but not significant
- Higher straightlining incidence for grid version

Peytchev 2006
- No difference in response or breakoff rates
- Scrolling version
  - Higher item nonresponse
  - Higher 'very likely' to complete next year
  - Longer response time (confounded by skip logic in paged version)

Gonyea 2007
- 17 page survey had higher breakoff vs 4 page survey
- Different response distributions vs prior years' unchanged formats
- Not a random assignment experiment
Experiment Design

'Take our survey' link randomly served to a percentage of visitors on YouTube.com each week

13 question Happiness Tracking Survey (HaTS)
- First question required, others not required

Respondents assigned randomly to 1 of 3 conditions:
- 1 page (scrolling)
- 5 pages (grouped)
- 13 pages (one question per page)
Experiment Design

1 Page
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13

5 Pages
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13

13 Pages
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
## Results: Completion Rate

<table>
<thead>
<tr>
<th>Condition</th>
<th>Number of respondents starting</th>
<th>Number of respondents completing</th>
<th>Completion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 page (scrolling)</td>
<td>6,193</td>
<td>1,851</td>
<td><strong>30.1%</strong></td>
</tr>
<tr>
<td>5 pages</td>
<td>6,066</td>
<td>2,042</td>
<td>34.0%</td>
</tr>
<tr>
<td>13 pages</td>
<td>6,246</td>
<td>2,146</td>
<td>34.6%</td>
</tr>
</tbody>
</table>

Significantly lower completion rate for the scrolling (1 page design)
No statistically significant difference among the 5 and 13 pages
### Results: Response Time

<table>
<thead>
<tr>
<th>Condition</th>
<th>Median Response Time in Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 page (scrolling)</td>
<td>3.8</td>
</tr>
<tr>
<td>5 pages</td>
<td>3.8</td>
</tr>
<tr>
<td>13 pages</td>
<td>4.2*</td>
</tr>
</tbody>
</table>

The 13 pages design took 27 more seconds to be completed. 13 pages requires 12 more clicks, ~2 sec/click + loading page, ~24 sec. No statistically significant difference among the 1 and 5 pages.
### Results: Correlations

<table>
<thead>
<tr>
<th>Condition</th>
<th>Correlation 1 Overall Sat / Watch Videos Sat</th>
<th>Correlation 2 Overall Sat / Net Promoter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 page (scrolling)</td>
<td>.629</td>
<td>.838a</td>
</tr>
<tr>
<td>5 pages</td>
<td>.636</td>
<td>.845a</td>
</tr>
<tr>
<td>13 pages</td>
<td>.638</td>
<td>.777*</td>
</tr>
</tbody>
</table>

In the 13 page version the correlation between overall satisfaction and the net promoter was lower than in the other conditions.

*a Questions appeared on same page*
## Results: Survey Like/Dislike

How much did you like or dislike completing this survey? (7pt fully labeled scale)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 page (scrolling)</td>
<td>4.72</td>
</tr>
<tr>
<td>5 pages</td>
<td>4.75</td>
</tr>
<tr>
<td>13 pages</td>
<td>4.76</td>
</tr>
</tbody>
</table>

No statistically significant differences among conditions
# Results: Early Breakoffs

Q1 to Q2 breakoffs among incompletes

<table>
<thead>
<tr>
<th>Condition</th>
<th>% Breakoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 pages</td>
<td>1.6%*</td>
</tr>
<tr>
<td>13 pages</td>
<td>19.4%</td>
</tr>
</tbody>
</table>

*Q1 and Q2 were on same page
## Results: Middle Breakoffs

Q1 to Q5 breakoffs among incompletes

<table>
<thead>
<tr>
<th>Condition</th>
<th>% Breakoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 pages</td>
<td>15.7%</td>
</tr>
<tr>
<td>13 pages</td>
<td>30.3%</td>
</tr>
</tbody>
</table>
Summary

● Completion rate lower for single-page (scrolling) version

● Response time slightly higher for 13 page version but only because of extra clicks and loading time

● Higher correlation for items on the same page: pagination design does have an effect on inter item correlations

● No difference in perceived enjoyment for these short surveys
Additional Analyses

- % speedsters
- % completes with item nonresponse (# of blanks)
- % incompletes with at least 1 response (5pg vs 13pg)
- Straightlining
Future Research

- Short vs long survey, same topic & sample
- Effect of progress bar + pagination
- Grid vs single item questions + pagination
- Provide time estimates + pagination
- Screen size (mobile phone vs desktop computer)
Thank you!
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