Paper or Plastic? Innovations in Survey Administration

Using an iPad Interface at National Wildlife Refuges and National Parks
Place-based Climate Change Education Partnership (CCEP)

This project is funded by a grant from the National Science Foundation, award number DBI-1059654
Survey Locations

Kenai Peninsula
Puget Sound
Northern Colorado
Washington D.C.
Visitor Survey Meets Technology
Moving from paper to plastic
Steps to Using iSurvey

- Select question format
- Enter questions and corresponding answers
- Purchase time period ($89 per month)
- Employ the survey (no internet required)
- Upload results with a WIFI connection
- Download results into data management system (Excel, SPSS)
- Analyze data
- Write paper, publish, & repeat
iSurvey Features

- Allows for surveying offline
- Many question types including images
- Real time charts and assessments
- Self created data file in SPSS
- GPS coordinates
- Multilingual settings
- Unlimited devices and surveys
- Kiosk modes
Advantages to iPad Surveying

• Faster collection and data entry
• No clipboards, papers, pencils, etc.
• No data entry errors
• Better response rate? Incentive?
• Looks cool
Results

Staff & Visitor Surveys

- Visitor Survey
  - 2,948 total
  - 2,358 National Parks
  - 590 National Wildlife Refuges
    - 51% male / 49% female – average age 45
    - 87% Caucasian / 70% with a college degree
    - 37% democrat / 20% republican / 20% independent
## Cost comparison

<table>
<thead>
<tr>
<th>Interface Type</th>
<th>Device/Printing Cost</th>
<th>Software Cost</th>
<th>Data Entry Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>iPad Survey</td>
<td>$1,958.94(^a)</td>
<td>$400.50</td>
<td>$0</td>
<td>$2,359.44</td>
</tr>
<tr>
<td>Paper Survey</td>
<td>$3,600.00(^b)</td>
<td>$0</td>
<td>$2,158.50(^c)</td>
<td>$5,758.50</td>
</tr>
</tbody>
</table>

- Printing cost based on 3,000 surveys
- Data entry based on GS-4 data entry technician pay rate
- Generation 1 iPads cost $320.00 at time of study
Response Rate

- Average Response Rates for other survey types:
  - Mail ~ 35%
  - Telephone ~ 48%
  - Online ~ 25%
  - Traditional On-site ~ 70%

- Response Rate for this Study
  - iPad On-Site = 68%
## Respondent Preference

- Interface preference measured with 3 variables
- The phrasing differed between iPad and paper surveys

<table>
<thead>
<tr>
<th>Reliability Analysis of User Interface Preference Variables</th>
<th>α</th>
<th>Item total correlation</th>
<th>α if item deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Variable</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User Interface Preference</td>
<td>.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I enjoyed taking this survey on an iPad/paper</td>
<td>.65</td>
<td></td>
<td>.72</td>
</tr>
<tr>
<td>I would rather take surveys on iPad/paper</td>
<td>.54</td>
<td></td>
<td>.85</td>
</tr>
<tr>
<td>I would enjoy taking future surveys on an iPad/paper</td>
<td>.62</td>
<td></td>
<td>.60</td>
</tr>
</tbody>
</table>
## Visitor Preference

### Difference in Interface Preference Between Groups Surveyed via Paper or via an iPad

<table>
<thead>
<tr>
<th>Variable</th>
<th>iPad</th>
<th>Paper</th>
<th>df</th>
<th>t</th>
<th>p</th>
<th>η</th>
</tr>
</thead>
<tbody>
<tr>
<td>I enjoyed taking this survey on an iPad/paper</td>
<td>1.17</td>
<td>0.34</td>
<td>2653</td>
<td>-14.80</td>
<td>&lt;.001</td>
<td>0.28</td>
</tr>
<tr>
<td>I would rather take surveys on iPad/paper</td>
<td>1.18</td>
<td>0.08</td>
<td>296</td>
<td>-14.21</td>
<td>&lt;.001</td>
<td>0.29</td>
</tr>
<tr>
<td>I would enjoy taking future surveys on an iPad/paper</td>
<td>1.27</td>
<td>-0.12</td>
<td>2590</td>
<td>-21.84</td>
<td>&lt;.001</td>
<td>0.43</td>
</tr>
<tr>
<td>User interface preference</td>
<td>1.38</td>
<td>0.09</td>
<td>1657</td>
<td>-16.67</td>
<td>&lt;.001</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Note. Each variable was coded on a 5-point scale. 2 = strongly agree; 1 = agree; 0 = neutral; -1 = disagree; -2 = strongly disagree.
Conclusion

• In this study iPad on-site surveys when compared to paper and pencil on-site surveys:
  • Received comparable response rates
  • Were less expensive
  • Were preferred by respondents

• Other findings show iPad surveys:
  • Took less time to complete
  • Took less time to analyze
  • Were negatively affected by some environmental conditions
Questions?

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