A Comparative Analysis of Mail and Internet Surveys

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Mail vs. Internet

- Recent decrease in response rates to mail surveys
- Decrease in funding for social science-based research projects
- Growth in internet use may make internet-based surveys the “next big thing”

*But, are they the same?*
Why Online?

- Speed of distribution
- Cost
- No data entry
- Advanced capabilities
- No more paper cuts!
Response Rates

• Online response rates are typically lower (Kaplowitz et al., 2004; Fricker and Schonlau, 2002; Smee and Brennan, 2000)

• Kaplowitz et al. (2004) found that combining pre-notification via postcard can increase response rates

• Lower response rates could indicate non-response bias in online surveys (Manfreda, 2001)
Quality of Data

• Representative?

• Quality of data collected is related to the respondent’s internet proficiency (Fricker and Schonlau, 2002)

• Dillman (2000) recommends using a mixed-mode strategy to overcome this effect
Purpose of the Research

Social benefits monitoring of coastal restoration

Pilot test social benefits questions

Compare results of mail and internet surveys
Project Background

- Zuma Beach, Malibu, CA
- Coastal creek restoration took place in 1997
- *Science-Based Restoration Monitoring of Coastal Habitats*, Chapter 14 (Salz and Loomis, 2004)
Sampling Methods

- Sampling period
- Field intercepts
- Zones
- Representativeness
On-site Refusal Rate

1,416 Agreed to Participate
1,223 Refused to Participate
47% On-site Refusal Rate

Refusal Reason | Number
--- | ---
Did not wish to participate | 857
Under 18 years old | 103
Language barrier | 207
Already intercepted | 53
Non-resident of the U.S. | 3
TOTAL | 1,233

On-site Refusal Rate: 47%
Survey Implementation

Total of 1416 Useable Names/Addresses

Mail Version
949 sent out
Followed the Dillman Total Design Method (1978)

Internet Version
467 sent out
Schedule similar to that of the mail version
SurveyMonkey was used to track responses and send repeats to non-responders
Modal Response Rates

• Each mode had similar rates of non-delivery
• The response rates between the two modes are not significantly different (p=0.205)

<table>
<thead>
<tr>
<th></th>
<th>Initial Sample</th>
<th>Non-Deliverable</th>
<th>Effective Sample</th>
<th>Completed Surveys</th>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mail Survey</td>
<td>949</td>
<td>66</td>
<td>883</td>
<td>441</td>
<td>50%</td>
</tr>
<tr>
<td>Online Survey</td>
<td>467</td>
<td>71</td>
<td>396</td>
<td>173</td>
<td>44%</td>
</tr>
</tbody>
</table>
Survey instrument contained 144 variables

14 expected significant differences ($\alpha = 0.1$)

15 actual significant differences
Respondent Demographic Profiles

Mail Survey Respondents

41* years
White
$75,000-$99,000*

Online Survey Respondents

45* years
White
$100,000-$124,999*

* Significantly different at the 0.1 level
Difference in Responses

• Significant differences were found for 3 questions in which respondents were asked to assess the level of one item on a scale (Discrete Visual Analog Scale items)

  – In each instance, respondents assigned higher ratings in the paper version of the survey
This same effect was observed in Likert scale items, though to a lesser extent.
One Possible Explanation

• The differences in responses to this type of question could be attributed to probability

• We expected 14 differences due to probability

• The 15 observed differences could easily be attributed to probability
Format-Associated Response Effect

• The numbered scales/Likert rankings used in the paper version may have helped respondents anchor their response.

• The use of radio buttons in the online version may have made it difficult for a participant to tie their response to a numerical value.

25. On the scale below, please indicate how familiar you are with the restored Zuma Creek area at Zuma Beach. (Please circle one response)

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all familiar</td>
<td>Extremely familiar</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tbody>
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Implications

• With certain types of recreation activities, web-based surveys may be just as effective as mail surveys.

• Question formatting plays a role in how a participant responds to a question.

• Online surveys seem to complement (not replace) information gathered in mail surveys.
Future Directions

• More research is needed in this area, particularly with Discrete Visual Analog Scale and Likert-type items

• As technology spreads, online surveys may begin to replace mail surveys – how representative will these be?

• Can social networking sites serve as a way of obtaining a sample/distributing surveys?
Questions?