Demographic Question Placement and Its Effect on Item Response Rates and Means in a Veterans Health Administration Survey

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Introduction

VA uses demographic questions to identify classes of respondents having unusual survey answer patterns (e.g., Do nurses tend to have lower scores on perceptions of workplace civility?).

Strategic Question: How can we increase the response rate for demographic questions without decreasing the response rates for or the validity of survey questions?

Tactical Question: Will moving the demographic questions from the end of the survey to the beginning be effective?
Introduction(2)

The literature was not much help.

- Lack of consensus
- Relatively few empirical studies
- Diversity of experimental approaches and conditions

Authors recommending or presenting findings in support of demographic question placement at the end of questionnaires:

- Roberson and Sundstrom, 1990
- McColl et al., 2001
- Dillman, 2007
- Jackson, 2009
- Whitley, 1996
- Fink, Bourque, & Fielder, 2003
- Stoutenbourgh, 2008
- Colton & Colvert, 2007
Authors recommending or presenting findings in support of demographic question placement at the beginning of questionnaires:

Frick, Bachtiger, & Reips, 1999
Colton & Colvert, 2007
Babbie, 2008
Drummond, Sharp, Carsin, Kelleher, & Comber, 2008

Authors presenting findings of no effect of demographic question placement on questionnaire response rates:

Giles & Field, 1978
Green, Murphy, & Snyder, 2000
Hypothesis 1. Placement of demographic questions at the beginning of the questionnaire will result in a higher demographic item completion rate in comparison to placing demographic questions at the end.

Hypothesis 2. Placement of demographic questions at the beginning of the questionnaire will not result in decreased non-demographic item completion rates in comparison to placing demographic questions at the end.

Hypothesis 3. Placement of demographic questions at the beginning of the questionnaire will not result in meaningful differences in non-demographic item means in comparison to placing demographic questions at the end.
Methods

Data Source: Winter 2010 Voice of the VA (VoVA)

• Voluntary, confidential, web-based survey offered to all VA employees.

• VoVA administered 3 times per year.

• Used for ad hoc survey questions and as trial vehicle for new survey contents and formats.

• Winter 2010 VoVA had 7 content subsurveys assigned randomly to respondents opening the link to the Web page gateway to the survey.

• Three of the 7 subsurveys were further randomized into 2 versions: one with demographic questions at the beginning and one with demographic questions at the end. The 2 versions were otherwise identical.

• The themes of the 3 subsurveys were leadership (Survey 1), conflict resolution (Survey 2), and culture and goals (Survey 5).
Methods(2)
Characteristics of Winter VoVA 2010

• First time administered. Thus not familiar to employees and did not have established internal marketing process.
• No incentives used.
• Employees could respond at any time or place, including work time.
• Employees were encouraged to participate through weekly email messages and by the efforts of some supervisors.
• Identity of non-responders was not known, so there was no way to follow-up.
Methods(2)

Characteristics of Winter VoVA 2010

- Employees who did not use computers routinely in their work were provided access in a relatively private space.
- Overall response rate to Winter VoVA 2010 was 33.4% (75,574/226,547)
- 4,508 respondents answered at least one question of the six surveys analyzed for this report.
- Surveys with no nondemographic questions answered were removed from analyses.
- Respondents could move forward and backward within the survey.
- Last 10 nondemographic survey items for each of the 3 subsurveys were identical.
## Results

### Completion Patterns of the 2010 VoVA, by Questionnaire Version and Demographic Question Placement

**NOTE:**  *ns* = nonsignificant. Fisher's Exact test,  *p* ≤ .05 Fisher's Exact test; **p** = *p* < .001 Fisher's Exact test; DA = demographic questions at end. DB = Demographic questions at beginning.

<table>
<thead>
<tr>
<th></th>
<th>1-DA</th>
<th>1-DB</th>
<th>2-DA</th>
<th>2-DB</th>
<th>5-DA</th>
<th>5-DB</th>
</tr>
</thead>
<tbody>
<tr>
<td>**(1)**Total questionnaires assigned to on-line respondents</td>
<td>802</td>
<td>800</td>
<td>765</td>
<td>765</td>
<td>688</td>
<td>688</td>
</tr>
<tr>
<td><strong>(2)</strong> Blank questionnaires (no demographic and no non-demographic questions answered) n (proportion of total)</td>
<td>29 (0.04) <em>ns</em></td>
<td>33 (0.04) <em>ns</em></td>
<td>24 (0.03) <em>ns</em></td>
<td>34 (0.04) <em>ns</em></td>
<td>52 (0.08)** ns*</td>
<td>23 (0.03)** ns*</td>
</tr>
</tbody>
</table>
Item response rates, Survey 1
Item response rates, Survey 1
“Don’t knows” set to missing.
Item response rates, Survey 2
Item response rates, Survey 5
<table>
<thead>
<tr>
<th>Survey</th>
<th>Average percent missing: Demographic questions</th>
<th>Average percent missing: Non-demographic questions</th>
<th>Mean scores: Non-demographic questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-DA</td>
<td>13.92&lt;sup&gt;a&lt;/sup&gt;</td>
<td>14.67&lt;sup&gt;d&lt;/sup&gt;</td>
<td>2.84&lt;sup&gt;g&lt;/sup&gt;</td>
</tr>
<tr>
<td>1-DB</td>
<td>1.85&lt;sup&gt;a&lt;/sup&gt;</td>
<td>14.19&lt;sup&gt;d&lt;/sup&gt;</td>
<td>2.78&lt;sup&gt;g&lt;/sup&gt;</td>
</tr>
<tr>
<td>2-DA</td>
<td>12.31&lt;sup&gt;b&lt;/sup&gt;</td>
<td>13.61&lt;sup&gt;e&lt;/sup&gt;</td>
<td>2.75&lt;sup&gt;h&lt;/sup&gt;</td>
</tr>
<tr>
<td>2-DB</td>
<td>1.59&lt;sup&gt;b&lt;/sup&gt;</td>
<td>12.84&lt;sup&gt;e&lt;/sup&gt;</td>
<td>2.78&lt;sup&gt;h&lt;/sup&gt;</td>
</tr>
<tr>
<td>5-DA</td>
<td>7.88&lt;sup&gt;c&lt;/sup&gt;</td>
<td>6.21&lt;sup&gt;f&lt;/sup&gt;</td>
<td>3.29&lt;sup&gt;i&lt;/sup&gt;</td>
</tr>
<tr>
<td>5-DB</td>
<td>1.80&lt;sup&gt;c&lt;/sup&gt;</td>
<td>5.24&lt;sup&gt;f&lt;/sup&gt;</td>
<td>3.27&lt;sup&gt;i&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Average Percent Missing and Mean Scores for 2010 VoVA, 3<sup>rd</sup> Module By Survey Version and Demographic Question Placement

NOTE:  a,b,c  p < .001, T-test;  d,e,f,g,h,i  p > .05, T-test.
Difference in survey item means (before minus after), Survey 1
Conclusions

- Hypothesis 1. Placement of demographic questions at the beginning of the questionnaire did result in a higher demographic item completion rate.

- Hypothesis 2. Placement of demographic questions at the beginning of the questionnaire did not result in decreased non-demographic item completion rates.

- Hypothesis 3. Placement of demographic questions at the beginning of the questionnaire did not result in meaningful differences in non-demographic item means.
Discussion

So where should demographic items be placed?
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It depends.
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Although our results do not resolve the question, we did show that at least sometimes it is advantageous to place demographic questions at the beginning of surveys. Based on these results, VA has changed the placement of demographic questions to the beginning on its annual All Employee Survey.
Limitations

- Low response rate
- Might not generalize well to other survey populations, presentation modes, or content
- Insufficient number of respondents to do subgroup analysis
- No information on non-participants
For more information, please contact VHA National Center for Organization Development (NCOD)

Telephone: (513) 247-4680
Email: VHANCOD@va.gov
Website: http://vaww.va.gov/NCOD
         http://www.va.gov/NCOD
Slides which follow are included in case there is a question about the content.

They will not be part of the presentation.
Survival Distribution Function

last_item_answered

STRATA: Survey=1a Survey=1b