Forced answering in online surveys: Is it really a reactance effect that reduces data quality?

18th ESA Midterm Conference of RN 21: Quantitative Methods

Conference Theme: Data quality in quantitative research 2016, 13.-15.10

Session 6: Interviewer effects and measurement errors – further discussions
The forced answering (FA)-option

The FA (or forced response) option forces the respondent to answer or enter a response to each single item.

- Items cannot be skipped without answering
- Rationale: No missing data
Effects of FA on different quality parameters

- Less item-nonresponse (Albaum et al., 2010, 2011; Roster et al., 2014)
- Inconclusive results for FA on dropouts
  - No effects on dropouts (Albaum et al., 2010, 2011; Roster et al., 2014)
  - Higher dropouts (Décieux et al., 2015a, O’Neil, Penrod & Bornstein 2003; Stieger et al. 2007)
  - Earlier dropouts (Décieux et al., 2015b; Mergener et al., 2015)
- Decrease of validity of answers (Décieux et al., 2015a)
Reactance effect

Reactance appears when an individual's freedom is threatened and cannot be directly restored (Brehm, 1966).

Individual freedom refers to all subjectively perceived alternatives, actions, opinions, and beliefs.

In case this personal freedom is restricted, individuals feel pressured.

Reactance defines the motivation to restore this loss of freedom.
FA & reactance

- FA conditions can be conceived of as an induction of reactance because the respondent is denied the choice to leave a question unanswered.

- The FA scenario should result in an internal pressure to disclose information that respondents might not want to reveal.

- The effect may be exacerbated when sensitive or personal topics are concerned.

- Therefore, the FA option should be experienced by the respondent as a loss of freedom.
Theoretical model

Condition: FA vs. NFA

Reactance

Dropout/Faking
Sample overview

- Students at two German universities (contacted via e-mail)
- Effective sample: $N = 914$
- Age: $M = 26.1$ years, $SD = 6.6$
- Sex: 54.7% females ($n = 498$)

Survey design

- Randomization across two experimental conditions (NFA vs. FA)
- Cover story / survey topic: partnership and sexuality
- 68 items with different types of response formats (Likert-items, open-end questions, etc.)
- Median response time = 9.4 minutes
- no incentives
Survey design (I)

**FA condition**
- „You have to answer each question to reach the next page.“

**NFA condition**
- „If you do not want to answer a question, you can skip it, without giving an answer.“
Survey design (II)

Dropout-Button

Wie lange leben Sie schon in dieser Partnerschaft?

- Weniger als 1 Jahr
- 1 bis unter 2 Jahre
- 2 bis unter 5 Jahre
- 5 bis unter 10 Jahre
- 10 und mehr Jahre
Measures

- **Trait reactance** (assessed prior to the experimental manipulation):
  - 18 item scale (Merz, 1983) ($\alpha = .84$)
  - Sample item: „I become frustrated when I am unable to make free and independent decisions“. Answer categories from 1 to 5

- **State reactance**:
  - 4 item scale ($\alpha = .70$)
  - Sample item: „The questionnaire made me angry“. Answer categories from 1 to 5

- **Faking**:
  - „How many questions did you not answer honestly?“

- **Personal sensitivity**
  - „How personally sensitive did you find the questions in this survey?“
Questionnaire structure

Introduction
Demography
Trait reactance

Manipulation
68 questions about partnership and sexuality

Dropout-Button

Debriefing
State Reactance
Self-reported faking
Personal sensitivity

...
### Results (I): Descriptives & intercorrelations

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</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>
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<td>.02</td>
<td>.04</td>
<td>.05</td>
<td>.10**</td>
<td>.11***</td>
<td>.03</td>
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<tr>
<td></td>
<td>males</td>
<td></td>
<td>.11; .24</td>
<td>-.04; .09</td>
<td>-.03; .10</td>
<td>-.02; .12</td>
<td>.04; .17</td>
<td>.05; .18</td>
<td>-.04; .10</td>
<td>-.08; .06</td>
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<td>Age</td>
<td>26.06</td>
<td>6.63</td>
<td>.01</td>
<td>.10**</td>
<td>.09*</td>
<td>-.05</td>
<td>-.05</td>
<td>-.05</td>
<td>-.15***</td>
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<td></td>
<td></td>
<td></td>
<td>-.05; .08</td>
<td>.04; .17</td>
<td>.02; .16</td>
<td>-.11; .02</td>
<td>-.11; .02</td>
<td>-.12; .02</td>
<td>-.22; -.08</td>
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<td>Condition&lt;sup&gt;a&lt;/sup&gt;</td>
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<td>-.01</td>
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<td>.08*</td>
<td>.07*</td>
<td>-.03</td>
<td>.00</td>
<td>.03</td>
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<td>-.07; .06</td>
<td>.01; .15</td>
<td>.00; .13</td>
<td>-.09; .04</td>
<td>-.06; .07</td>
<td>-.04; .10</td>
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<td>4.</td>
<td>Trait Reactance</td>
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<td>-.07*</td>
<td>-.03</td>
<td>-.05</td>
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<td>.07; .20</td>
<td>-.09; .04</td>
<td>-.13; .00</td>
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<td>-.12; .01</td>
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<td>State Reactance</td>
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<td>.06</td>
<td>.10**</td>
<td>.03</td>
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<td>.07; .28</td>
<td>-.01; .12</td>
<td>.03; .17</td>
<td>-.04; .10</td>
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<td>Dropout&lt;sup&gt;a&lt;/sup&gt;</td>
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<td></td>
<td>.73***</td>
<td>.01</td>
<td>-.01</td>
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<td></td>
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<td>-.06; .08</td>
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<td></td>
<td></td>
<td>-.10; .04</td>
<td>-.20; -.06</td>
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<tr>
<td>8.</td>
<td>Faking&lt;sup&gt;a&lt;/sup&gt;</td>
<td>25.7%</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.07*</td>
<td></td>
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<tr>
<td></td>
<td>faking</td>
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<td></td>
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<td></td>
<td></td>
<td>.00; .14</td>
<td></td>
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<tr>
<td>9.</td>
<td>Personal Sensitivity</td>
<td>4.09</td>
<td>1.04</td>
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</tbody>
</table>

*Note. * p < 0.05, **p < 0.01; <sup>a</sup> higher values depict male sex, FA, dropout, faking respectively*
Results (II): Survival analysis

Log-Rank-Test:
$\chi^2=4.3$, $df=1$, $p < .05$

Cox regression:
HR = 1.47;
95% CI [1.02; 2.11]
Results (III): Mediation analysis

Bootstrap results (10,000 samples) for indirect effects (95% CI):

Direct effect: .48 [-.47; 1.44] (1.62)
Total effect: .73 [-.18; 1.65] (2.08)

Note. * p < .05, ** p < .01, *** p < .001; Mediation models. Coefficients of the dropout model are presented above the lines, below the line coefficients for the faking model (square parentheses: 95% confidence interval, round parentheses: OR).
Results (IV): Open-ended question

- Open-ended answers were coded in two categories
  - semantically meaningful vs. semantically non-meaningful answers
  - two coders, Krippendorff’s $\alpha = .97$ (Hayes, & Krippendorff, 2007)

- More non-meaningful answers in FA condition
  - NFA: 0.8%,
  - FA: 3.6%,
  - $r = .09$, $p = .027$, OR =4.62, 95% CI [1.29; 29.49]

- Respondents in the FA condition gave shorter answers
  - number of signs that had been filled in;
  - NFA: $M = 74.3$, $SD = 67.5$;
  - FA: $M = 54.2$, $SD = 56.6$;
  - $t(456.82) = 3.91$; $d = 0.31$, 95% CI [0.16; 0.47]
Limitations

- Reactance was measured after dropout
- Correlational test of mediation
- Convenience sample (student population)

Summary & conclusion

- point-biserial correlations are low, but odds ratios are high
- First support for postulated mediation model: reactance as underlying psychological mechanism
- FA leads to satisfying behaviour
Thank you for your attention!

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Literature


Appendix (I): Cumulative Complete Data

Cumulative Complete Data

Group  
NFA  
FA

Cumulative Complete Data

<table>
<thead>
<tr>
<th>Questionnaire Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>30</td>
</tr>
<tr>
<td>60</td>
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Questionnaire Progress