CAPTURING THE INTERACTION BETWEEN QUESTION ORDER EFFECTS AND VISUAL LAYOUT: RESULTS FROM AN ONLINE EXPERIMENT

Adam Stefkovics
adam.stefkovics@tatk.elte.hu
assistant lecturer
ELTE, TÁTK, Budapest, Hungary

Júlia Koltaí
senior lecturer
ELTE, TÁTK, MTA, Budapest, Hungary

Zoltán Kmetty
assistant professor
ELTE, TÁTK, MTA, Budapest, Hungary

This presentation was supported by the EU-funded Hungarian grant EFOP-3.6.3.-VEKOP-16-2017-00007
Main research question: are question order effects the same on item-by-item and grid formats?

Question order effects

- Earlier items in a questionnaire can affect later responses.
- Priming
- Accessibility hypothesis (Bishop et al., 1982; Tourangeau et al., 1989)
- Interpretative framework
- Standards for later comparisons
- Welfare attitudes have been shown to be sensitive to question order
- Order effects depend on a number of things
Item-by-item format vs. grid format

- Grids require more extrinsic cognitive load from the respondents (they look more complex).
- Respondents give more negative ratings to grids.
- When cognitive load is high, respondents are likely to satisfice (Krosnick, 1991).
- Higher intra-item correlations, lower completion time, more straightlining, nondifferentiation and item-nonresponse in grids, especially in large grids.
- In contrast, spending more time with a question may indicate deeper cognition – item-by-item format.
- However, existing evidence is mixed.
What do these imply on question order effects?

- The manifestation of context effects can be subject to how well the priming question is processed

  A deeper cognition in item-by-item formats may lead to stronger priming and question order effects

- BUT, following the interpretive heuristic (Tourangeau et al. 2004) of *near means related*, questions are presented close to each other in a grid format, thus, they may be interpreted as conceptually related.

  Respondents may still be influenced by earlier questions in grid formats, but due to spatial proximity
THE CURRENT STUDY

- **Welfare attitudes** – questions from the ESS round 8
- Target item (E10): *To what extent you agree or disagree that social benefits and services in Hungary prevent widespread poverty?*
- Priming item (E13): *To what extent do you agree or disagree that social benefits and services in Hungary make people lazy?*
- Intervening item (E9): *To what do you agree or disagree that social benefits and services in Hungary place too great a strain on the economy?*

<table>
<thead>
<tr>
<th>Question order treatment</th>
<th>Group1 (ESS - control)</th>
<th>Group2</th>
<th>Group3</th>
<th>Group4</th>
<th>Group5</th>
<th>Group6</th>
</tr>
</thead>
<tbody>
<tr>
<td>treatment</td>
<td>E13 after E10</td>
<td>E13 after E10</td>
<td>E13 before E10</td>
<td>E13 before E10</td>
<td>E13 before E9</td>
<td>E13 before E9</td>
</tr>
<tr>
<td>Visual Treatment</td>
<td>Grid</td>
<td>Item-by-item</td>
<td>Grid</td>
<td>Item-by-item</td>
<td>Grid</td>
<td>Item-by-item</td>
</tr>
<tr>
<td>N</td>
<td>200</td>
<td>180</td>
<td>180</td>
<td>180</td>
<td>180</td>
<td>180</td>
</tr>
</tbody>
</table>
THE CURRENT STUDY

- **Welfare attitudes** – questions from the ESS round 8
  - Target item (E10): *To what extent you agree or disagree that social benefits and services in Hungary prevent widespread poverty?*
  - Priming item (E13): *To what extent do you agree or disagree that social benefits and services in Hungary make people lazy?*
  - Intervening item (E9): *To what do you agree or disagree that social benefits and services in Hungary place too great a strain on the economy?*

**Expectations:**
- Placing E13 before E10 will shift responses in a negative way.
- This effect will weaken or diminish if E9 intervenes.
- We expect similar order effects on both visual formats (explorative).
DATA

- Non-probability based online panel (opt-in)
- Quota sample
- Survey experiment
- 1100 respondents
- December 2018
- In both formats, scales (1–5) were presented vertically
- Fully-labelled
- Grids contained six items, and were not adapted to the device of completion.
- The same matrix appeared on every type of device, therefore scrolling was required in small screen sizes.
RESULTS

Dunnett’s-tests on mean differences

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.62</td>
<td>3.32</td>
<td>3.53</td>
<td>3.93 *</td>
<td>3.36</td>
<td>3.68</td>
<td></td>
</tr>
</tbody>
</table>

P values are based on Dunnett’s tests comparing treatment groups to the control group,
*p < .05; **p < .01; ***p < .001.
## RESULTS

### OLS on E10

<table>
<thead>
<tr>
<th></th>
<th>Est.</th>
<th>2.5%</th>
<th>97.5%</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Intercept)</td>
<td>4.73</td>
<td>4.13</td>
<td>5.32</td>
<td>0.00</td>
</tr>
<tr>
<td>E13 before E10</td>
<td>0.55</td>
<td>0.31</td>
<td>0.79</td>
<td>0.00</td>
</tr>
<tr>
<td>Grid format</td>
<td>0.01</td>
<td>-0.16</td>
<td>0.18</td>
<td>0.89</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.17</td>
<td>-0.33</td>
<td>-0.02</td>
<td>0.03</td>
</tr>
<tr>
<td>Age</td>
<td>-0.01</td>
<td>-0.01</td>
<td>0.00</td>
<td>0.09</td>
</tr>
<tr>
<td>Education</td>
<td>0.14</td>
<td>0.04</td>
<td>0.25</td>
<td>0.01</td>
</tr>
<tr>
<td>Settlement size</td>
<td>-0.03</td>
<td>-0.14</td>
<td>0.08</td>
<td>0.59</td>
</tr>
<tr>
<td>Political interest</td>
<td>-0.12</td>
<td>-0.19</td>
<td>-0.06</td>
<td>0.00</td>
</tr>
<tr>
<td>Fill length</td>
<td>-0.01</td>
<td>-0.02</td>
<td>-0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Big screen</td>
<td>-0.24</td>
<td>-0.40</td>
<td>-0.07</td>
<td>0.00</td>
</tr>
<tr>
<td>Big Five Cons.</td>
<td>0.05</td>
<td>-0.02</td>
<td>0.13</td>
<td>0.15</td>
</tr>
<tr>
<td>E13 before E10*Grid format</td>
<td>-0.53</td>
<td>-0.86</td>
<td>-0.21</td>
<td>0.00</td>
</tr>
</tbody>
</table>
RESULTS

OLS on E10

Question order
- Original
- E13 before E10

Layout

E10

3.2 - 4.2
RESULTS

OLS on E10

Question order

Education
- Low
- High school
- Diploma

E10

Original

E13 before E10
RESULTS

OLS on E10

<table>
<thead>
<tr>
<th>Question order</th>
<th>I-by-I</th>
<th>grid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E13 before E10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Education
- Low
- High school
- Diploma
RESULTS

OLS on E10

Question order

Screen

- big screen
- small screen
RESULTS

OLS on E10

Graph showing results for OLS on E10. The graph includes two subplots: one for 'I-by-I' and another for 'grid'. Each subplot compares 'E10 Original' and 'E13 before Original'. The y-axis represents the value of E10, ranging from 3.2 to 4.4. The graph also includes error bars indicating the variability of the data. The x-axis represents the question order. The legend on the right side of the graph indicates 'big screen' and 'small screen' data points. The graph is associated with the Faculty of Social Sciences and ESRA logos.
RESULTS

- Item-nonresponse was higher on grids and when question order was manipulated
- But, no differences in terms of intra-item correlation or straightlining.
CONCLUSIONS

• Question order does matter when measuring welfare attitudes.
• Item-by-item formats are more sensitive to question order.
• A trade-off?
• Further research is needed to understand the underlying mechanisms.
• Use the two formats simultaneously with caution!
THANK YOU FOR YOUR ATTENTION!

Adam Stefkovics
adam.stefkovics@tatk.elte.hu
assistant lecturer
ELTE, TÁTK, Budapest, Hungary