Supplementing Cognitive Interviewing by Eye Tracking to Pretest Survey Questions

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Shortcomings of Cognitive Interviews

- Reactive method, interviewer effects
- Qualitative data (subjective interpretation)
- Inability of respondents to verbally express themselves
- Difference between laboratory and field settings
Benefits of Eye Tracking

- Nonreactive behavior
- No interviewer effects
- More objective data
- Quantitative data
- No bias in ability to express oneself verbally

But: Eye tracking alone does not provide direct access to a participant’s thoughts

Combining cognitive interviewing and eye tracking to pretest survey questions
Research question

• Is eye tracking an effective supplement to cognitive interviewing?
• Do both approaches identify the same questions as problematic?
• Do both approaches identify the same number of problems?
• Do they reveal the same or different types of problems?
# Experimental Study

<table>
<thead>
<tr>
<th>Eye tracking and cognitive interviewing (3-step design)</th>
<th>Cognitive interviewing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tracking of eye movements and observation of behavior</td>
<td>--</td>
</tr>
<tr>
<td>2. Cognitive interviews with a standardized interview protocol</td>
<td>Cognitive interviews with a standardized interview protocol</td>
</tr>
<tr>
<td>3. Additional probing questions</td>
<td>Additional probing questions</td>
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</tbody>
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- Standardized interview protocol with predefined probing questions for 13 items/questions of a 52-item questionnaire
- Administration of all questions
Experimental Study

- Peculiar reading patterns:
- long/repeated fixations on a word
- re-readings of specific words or text passages
- regressions from answers to question text
- correction of the chosen response category
- skipping questions
Experimental Study

- Participants: N = 83 (41/42), Mage = 36, from 17 to 76
- 52 questions/items
- Questions adapted from ISSP, ESS, ALLBUS
- 5 Interviewers, each one conducted an equal number of interviews in both conditions
- Interview protocol: Predefined general probing questions
Results:
Number of problematic questions identified

Eye tracking: 25
Cognitive interviewing: 20

<table>
<thead>
<tr>
<th>Eye tracking identifies a problematic question</th>
<th>Cognitive interview identifies a problematic question</th>
<th>Problematic questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>18</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>7</td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td>2</td>
</tr>
</tbody>
</table>
Results:
Number and Types of unique problems

<table>
<thead>
<tr>
<th>Number of unique problems identified</th>
<th>CI</th>
<th>EYE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>164</td>
<td>166</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Type of problems</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehension</td>
<td>84,1 % (138)</td>
<td>83,7 % (139)</td>
</tr>
<tr>
<td>Retrieval</td>
<td>1,8 % (3)</td>
<td>1,2 % (2)</td>
</tr>
<tr>
<td>Judgment</td>
<td>2,4 % (4)</td>
<td>3,0 % (5)</td>
</tr>
<tr>
<td>Response Selection</td>
<td>11,6 % (19)</td>
<td>11,5 % (19)</td>
</tr>
<tr>
<td>Questionnaire Navigation</td>
<td>0,0 % (--)</td>
<td>0,6 % (1)</td>
</tr>
</tbody>
</table>
Conclusion

- Eye tracking is a useful supplement
- Eye tracking provides additional insights into the behavior of participants and the underlying response processes
- Eye tracking allows to screen an entire questionnaire
- Eye tracking is slightly more time consuming
Thank you for your attention!

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