Designing the Questionnaire of Tomorrow

*Current Best Practices and Future Goals*

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Content

• Radical Innovation Areas

• Rationale of Research on Mobile CAWI

• Mobile Devices and Questionnaires

• Future Research
Radical Innovation Programs

Advanced Data Collection

Big Data Statistics

Information Dialogue
SURVEY METHODOLOGY

Data Collection Innovation Network (WIN)
Mobile Devices and Questionnaires
Mobile response keeps increasing, ...
smartphone respondents differ from other respondents, ...

*Based on data from only 4 months containing 6 surveys and just over 15,000 responses*

smartphone respondents differ from other respondents, ...

*Based on data from only 4 months containing 6 surveys and just over 15,000 responses*
and higher break-off, longer completion time and other device specific effects

*Based on data from only 4 months containing 7 surveys (shortest is mobile friendly, the rest is mobile unfriendly) and just over 15,000 responses
Objectives of Research

• Higher Response Rates
• Lower Break-off Rates
• Maintain Data Quality

\[ R_{b-o} = f(\text{time, “annoyance”}) \]

screen size
question type
lay-out
environment of use
connectivity

......

......
Data Collection Strategy

- CAWI: Phone – Tablet - Desktop
- CATI
- CAPI

Multi Mode

Hybrid Mode
What to do with mobile devices?

1. Do nothing
2. Explicitly discourage the use of a mobile device
3. Make the survey mobile friendly
4. Optimize surveys for mobile devices
5. Build a specific app for mobile devices
What to do with mobile devices?

1. Do nothing
2. Explicitly discourage the use of a mobile device
3. Make the survey mobile friendly
4. Optimize surveys for mobile devices
5. Build something specific for mobile devices
1. Do nothing (smartphone unfriendly survey)
... but we still see surveys like this
2. Explicitly discourage the use of a mobile device

Possibilities to discourage:
• In the survey invitation
• On the introduction page
• Blocking mobile device access

→ Ineffective and only results in higher non-response
3. Make the survey mobile friendly\(^1\)

The Design Heuristics for Smartphone Questionnaires\(^2\):

1. Readability
2. Ease of selection
3. Visibility across the page
4. Simplicity of design features\(^3\)
5. Predictability across devices

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Design rules

• Design requirements for question types

• New question types

• New opportunities for data collection
  (sensors and the nature of mobile device)
4. Optimize surveys for mobile devices

**Question types:**
- Single choice
- Multiple choice
- Open-ended
- Dropdown
- Sliders/VAS
- Grids
- Ranking

**Other aspects:**
- Auto scroll/auto forward
- Size of the buttons
- Use of icons
- Questionnaire length
- Progress bars
- Amount of text
Single choice questions

Social Media Channels

4. Do you use Social Media?
A. Yes
B. No

5. What social media channels do you use?

25. Administrators, nurse managers, physicians, nurses, and other staff maintain frequent communication to prevent each other from being surprised or caught off guard by decisions.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

NERVOUSNESS.
Zou u en de medewerkers bij een vriend of collega

0 = zeer ongewenst, 9 = zeer gewenst
Multiple choices questions

report incidents of shoplifting. If you have a question about what constitutes one of these crimes, please refer to the "Definitions" section, located under the answer choices.

How would you categorize your app(s)? Select all that apply.

- [ ] Communication
- [ ] Finance
- [ ] Compliance
- [ ] HR & Recruiting
- [ ] CRM
- [ ] Identity & Access Management
- [ ] Data Backup / Migration
- [ ] Media & Design
- [ ] Digital Rights Management
- [ ] Productivity
- [ ] DLP / CASB
- [ ] SIEM / Analytics
- [ ] Education
- [ ] Workflow

3. Rotation #: Please indicate what Reflection Rounds you participated in and which month it started.

Period 3:2
- [ ] Family Medicine
- [ ] Pediatrics
- [ ] Ambulatory IM
- [ ] Surgery
- [ ] None

Period 3:4
- [ ] Family Medicine
- [ ] Pediatrics
- [ ] Ambulatory IM
- [ ] Surgery
Social Media Channels

4. Do you use Social Media?
   A. Yes
   B. No

5. What social media channels do you use?
Open-ended questions

- Higher non-response
- More abbreviations
- Auto correction errors
- Typos
- Shorter answers
- Takes more time
- Similar content
- Larger text fields result in longer answers
Open-ended questions

- Higher non-response
- More abbreviations
- Auto correction errors
- Typos
- Longer shorter answers
- Takes more time
- Similar content
- Larger text fields result in longer answers
Drop-down questions

Avoid using drop-down questions
- Stronger primacy effects
- Higher item missings
- Error prone
- Browser lay-out might vary

⇒ make sure the respondent knows the name of the option and sort the list in a logical way
⇒ make the list searchable
Date pickers / calendar

Please answer the following questions about your most recent experience at FedEx Office.

Please enter the date of your visit.
Select from the calendar below or enter the date in this format (mm/dd/yyyy).

Please select the time of your visit.
- Between 7am and 3pm
- Between 3pm and 7pm
- Between 7pm and 11pm
- Between 11pm and 7am

Lot number:
292

UPC
29ws

Expiration / Best By Date

Information in this field is not required to collect information (such as security, etc.) or do not enter such information.
Single vertical

Single horizontal

Carousel

Accordion

Grid questions (1)
Grid questions (2)

<table>
<thead>
<tr>
<th>Question</th>
<th>Fixed below</th>
<th>Traditional</th>
<th>Fixed right</th>
<th>Expanding 1</th>
<th>Expanding 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>How often do you use each of these internet browsers in a typical week of browsing on your primary computer?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chrome</td>
<td>Never</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firefox</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet Explorer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opera</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safari</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How often do you use the following browsers on your smartphone?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don't use at all</td>
<td>Use occasionally</td>
<td>Use around half the time</td>
<td>Use most of the time</td>
<td>Use all the time</td>
<td></td>
</tr>
</tbody>
</table>
Slider & visual analog scale (VAS) questions

Slider

VAS
Slider & visual analog scale questions

Sliders are difficult to use
VAS might be a viable option
Ranking/order questions

Rank the reasons you chose University of the Pacific: (Optional Question)
(Please rank the following in order of importance, 1- most important)

1. Specific program
2. Family attended
3. Prestige
4. Proximity to home
5. Financial aid or cost
6. Athletics
7. Other

6. Arrange the following Social Media channels based on the amount of time spent on them and your preference (click&drag):

1. Twitter
2. Google+
3. Youtube
4. Facebook
5. Pinterest
6. Instagram
7. Tumblr
8. LinkedIn

finished sorting?

Learning Effect
Automated scrolling/auto forward

- It can make the survey process quicker, but beware:
  - Not applicable on all question types
  - Can cause longer duration for manual forward questions
  - Risk of higher item non-response (skipping pattern)
  - More use of the navigation buttons
- Need for animated movement
- Only show next button when needed

*Paper Haan, Bakker (2018). Testing an auto forward design in a long online survey. In publish*
Effect of the size of the buttons
Possible use of icons

• Humans are better at picture recognition than reading
• Finding the perfect icon is hard
• Less errors when showing both icon and text
• A lot of continuous experimenting is needed to fine-tune icons!
Completion time: mobile unfriendly

Why does smartphone questionnaires take longer:

- Zooming (bad visibility/readability)
- Requires finer motor skills
- The need to scroll
- Typing
- Slower/unstable internet connection
- Distraction/presence of others
Completion time: mobile friendly

Why does smartphone questionnaires take longer:

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- The need to scroll
- Typing
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- Distraction/presence of others
Completion time: mobile optimized

Why does smartphone questionnaires take longer:

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- Requires finer motor skills
- The need to scroll
- Typing
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  - Distraction/presence of others
Progress bars

Graphical

Textual

Graphical & textual

* Villar et al. (2013)
Progress bars

Graphical

Textual

Graphical & textual

Fast-to-slow

Constant

Slow-to-fast

* Villar et al. (2013)
5. Build something specific for mobile devices

• Make use of the 24-7 availability
• WhatsApp surveys
• Gamification
• Sensors
• Wearables
• Mobile device panel app
• Augmented/ Virtual reality
WhatsApp surveys
Gamification

– Can we use game elements to increase interest in surveys?
– Don’t ask, interact!
– Can a narrative be added to the survey?
  - Poses a question and tells a story to answer it
– Reward feedback
– What other game elements can be used?
Example of using a narrative

“Please make a list of all your favourite shops...”

“Build your mall”
Sensors (internal and external)

- GPS
- Camera
- Heart Rate & ECG
- Gyroscope / Accelerometer
- Microphone
- ...
- ...
- ...
Wearables
Example wearable vs. survey

Self-reports vs accelerometer

% of people doing recommended amount of physical activity

<table>
<thead>
<tr>
<th>Category</th>
<th>Self-reported</th>
<th>Accelerometer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>39</td>
<td>6</td>
</tr>
<tr>
<td>Women</td>
<td>29</td>
<td>4</td>
</tr>
<tr>
<td>Boys (11-15)</td>
<td>30</td>
<td>7</td>
</tr>
<tr>
<td>Girls (11-15)</td>
<td>16</td>
<td>0</td>
</tr>
</tbody>
</table>

Health Survey for England (2008)
Virtual Reality
Overview of best practices

- Mobile first design
- Responsive design
- Only vertical scrolling
- Simple design
- Mainly use single/multiple choice & open-ended questions
- Randomize order of answers
- Simple, clear and concise question wording

Request Future Paper(s):
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Ongoing and Future Research

- Comparison between radio buttons vs. big buttons vs. mix of both
- Comparison of different multiple choice designs
- Effect of nudging in open-ended questions
- Effect of searchable drop-down questions on data quality
- Compare different grid variants
- Split questionnaire design (planned for 2019)
- Respondent characteristics & break-off (planned for 2019)
- Auto forward and data quality (planned for 2019)
Facts that matter