Questionnaires

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Agenda

I. Definition
II. Form of Administration
III. Question Content and Wording
IV. Format of Questions and Responses
V. Layout and Structure
VI. Pre-test and Pilot
VII. Validity and Reliability
VIII. The Internet and Questionnaires
IX. Evaluation
Definition

„A set of printed or written questions with a choice of answers, devised for the purpose of a survey or statistical study“

Oxford Dictionaries

It can be combined with other research methods such as case study, action research, design and creation
Definition

When to use questionnaires?

• Reach a large number of people
• Not to explore new, difficult or controversial issues
• Obtain standardized data
• With a predefined range of answers
• The respondents are able to answer the questions
• You have enough money and time
Popular Questionnaires

NASA-TLX (Task Load Index)
NASA-TLX - Example

„Eye Movement Study of Reading Text on a Mobile Phone using Paging, Scrolling, Leading, and RSVP“ (Gustav Öquist, Kirstin Lundin - December 2007, Finnland)
Popular Questionnaires

SUS (System Usability Scale)

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th></th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I think I would like to use this website frequently.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I found the website unnecessarily complex.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I thought the website was easy to use.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I think I would need Tech Support to be able to use this website.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I found the various functions in this website were well integrated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I thought there was too much inconsistency in this website.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I would imagine that most people would learn to use this website very quickly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I found the website very cumbersome to use.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I felt very confident using the website.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I need to learn a lot about this website before I could effectively use it.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Self-administered

• More people can be asked
• No more „desired-answer“ problem
• All respondents saw the same questions

Source: http://fluidsurveys.com/wp-content/media/feature1.png
Researcher-administered

- Problem that questions might be asked in a different manner
- Higher response rate
- Allows to react to different answers

Source: http://images.wisegeek.com/surveyor-asking-questions.jpg
Wording

• Brief questions, ideally 20 words or less

• Relevant to the overall questionnaire

• Unambiguous words with multiple meanings or that might be unfamiliar with the respondents

• Specific questions and only one question at a time

• Objective wording that not tries to lead the respondents to a particular answer
Question Types

Open Questions

- Collect Opinions
- Space for answer
- Less preparation time
- Wide range of answers
- Responses are harder to decode
- Require more effort from the respondents
Question Types

Closed Questions

- Collect factual data
- Take longer to design
- More quickly analyzed
- Save respondents time
- Frustrating if you cannot find your answer
- Don’t think much about your response
- Putting answers into the respondents mind
Format of Questions

Yes/No answers

Quantity questions
Format of Questions

Agree/disagree with a statement

Degree of agreement (Likert scale)
Format of Questions

Scale questions

Semantic differential
Format of Questions

List questions

Rank order questions
Format of Questions

Multiple choice questions

What mobile devices do you have?
Check any that apply

- Mobile Computer
- Digital Still Camera (DSC)
- Digital Video Camera (DVC)
- Mobile Phone
- Pager
- Personal Navigation Device (PND)
- Other:
Layout and Structure

Formalities & Standards

- Introduction
- Expression of thanks
- Purpose
- Adress & date for returning
Layout and Structure

Clear Instructions
Layout and Structure

General

• logical order the questions
• filter questions to guide respondents
• questionnaire need to be attractive
Pre-test and Pilot

Pilot questionnaire with group of people either representing target respondents or they pretend so.

• helps to find out…
  - where people have difficulties in answering certain questions
  - whether people find questions ambiguous or vague
  - whether people could follow the instructions for how to answer different types of questions
  - whether the pre-defined responses cover all desired answers
  - how long it takes to complete it (reasonable)?
Pre-test and Pilot

**Evaluation** of the questionnaire in a **pre-test**.

- show it to experts in research domain or in questionnaire design
- helps to refine and improve the questionnaire

To find out what people think of the questionnaire…

- ask them to think aloud
- interview
- another questionnaire
Validity and Reliability

A good researcher will consider a questionnaire’s

• **content validity**
  - are the questions a well-balanced sample of the domain to be covered

• **construct validity**
  - are we measuring what we think we are measuring with the questions

• **reliability**
  - questionnaire would yield same results if given repeatedly to the same respondents
    - difficult because respondents change their views, remember answers, opposite view
  - „split half method“
The Internet and Questionnaires

• sending Questionnaire without concerning about
  - postage cost
  - delivery time

• Types of Questionnaires while using internet
  - Email (text or attached file)
  - Web form
The Internet and Questionnaires

Internet questionnaires need to be **shorter** than paper and pencil questionnaire because:

- most people are **slower at typing** and **mouse clicks** than writing
- people can become **tired** and **bored** before reaching end questionnaires
- people like to **surf from page to page** and are reluctant to spend a long time on a single page
- for people on ‘pay-as-you-go‘ connection —> the longer questionnaire takes to complete the more it costs
- the longer the questionnaire takes to complete, the greater the risk that the **network’s connection goes down** —> if work of respondent is lost, he is not willing to do it again
Email vs. Web Questionnaire

Email

+ complete **section by section** and submitted when respondent is ready
- responses shows Email address $\rightarrow$ **reduces anonymity**
- sent as attachment $\rightarrow$ **fear of viruses**
- has to be in a **readable format** (pdf, doc. etc)

Web

+ **drop-down menus** and **radio buttons** for pre-defined answers
+ can be completed and submitted **anonymously**
- provide the option to **save uncompleted form** and only allow submitting when respondent is ready
- implement **control mechanism** to stop answering questionnaire many times e.g. PW ($\rightarrow$ PW reduces anonymity)
- test web form on **different platforms**
Online Tools

Examples:

• SurveyMonkey (www.surveymonkey.com)
• Zoomerang (www.zoomerang.com)
• PollDaddy (www.poll daddy.com)
• LimeSurvey (www.limesurvey.org)

What these survey tools offer:

• Flexible survey look and feel
• Skip logic
• Piping
• Randomization
• Website integration
• Data analysis
Evaluating Questionnaire-based Research

Advantages

+ often more economical than other data generation methods
+ large amount of data can be created for low costs of material and time
+ use of pre-defined answers (closed questions) —> easy for respondents to complete questionnaire & easy for researcher to analyze
+ only few geographical limits, sent out via post, email, telephone
+ self-administration questionnaires need no special social skills of the researcher
Evaluating Questionnaire-based Research

Disadvantages

- pre-defined answer can cause frustration —> refuse to answer & can bias respondents to researcher’s way of seeing things

- cannot query disparities between answers or check truthfulness of answers

- cannot correct misunderstandings, probe for more details, or offer explanations or help

- self-administrated questionnaires are unsuitable for people with poor literacy skills or visual handicaps
Discussion
Good or Bad Question?

Failing to Give Mutually Exclusive Choices.

What is your age?
Choose one of the following answers

- Younger than 10 Years
- 10 to 20 Years
- 20 to 30 Years
- 30 to 40 Years
- 40 to 50 Years
- Older than 50 Years
What is your age?
Choose one of the following answers

- Younger than 10 Years
- 10 to 20 Years
- 21 to 30 Years
- 31 to 40 Years
- 41 to 50 Years
- Older than 50 Years
Good or Bad Question?

Which of the following technologies do you feel will be most relevant in the future?

- FTIR
- DI
- DViT
- PCT
- No answer

Too many acronyms.
Which of the following technologies do you feel will be most relevant in the future?

- Fourier transform infrared spectroscopy (FTIR)
- Diffused Illumination (DI)
- Digital Vision Touch (DViT)
- Projected Capacitive Touch (PCT)
- No answer
Good or Bad Question?

The leading question drives the respondent to the conclusion that the new menu is healthier than the old.

Do you think that the new cafeteria lunch menu offers a better variety of healthy foods than the old one? Choose one of the following answers:

- Yes
- No
- No answer
How do you feel about the new cafeteria lunch menu compared to the old one? Choose one of the following answers.

- The new menu offers a better variety of healthy foods
- The old menu offers a better variety of healthy foods
- The selections are similar
- No answer
Appendix
1. What was the research topic? Were questionnaires an appropriate data generation method for this topic?

2. Was the questionnaire self-administered or researcher-administered? Was this appropriate for this research topic?

3. Is a copy of the questionnaire provided? If yes, does it meet the guidelines given in this chapter for layout and structure? If no, how does that affect your confidence in the research?

4. What question types were used? Open, closed or both? Was this appropriate?

5. Are the questions and possible responses clear, unambiguous, the appropriate format and in the right order?

6. Do the researchers say whether they pre-tested and piloted the questionnaire? If not, how does that affect your confidence in the research?

7. Do the researchers discuss content validity, construct validity and reliability of their questionnaire? If not, how does that affect your confidence in the research?

8. What limitations in their use of questionnaires do the researchers recognize?

9. Can you identify other flaws or omissions in the researchers’ reporting of their use of questionnaires?

10. Overall, how effectively do you think the questionnaire-based approach has been reported and used?