QUESTIONNAIRE DESIGN for Research and Assessment
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Faculty Specialist
“The quality of the data will be no better than the most error-prone feature of the survey design.”

- Floyd J. Fowler, Jr., 2002
AGENDA

Design steps
- Before drafting
- During drafting
- After drafting
What should be the first step of a questionnaire design?
A. Identify population and sampling strategy
B. Develop an analysis plan
C. Write & format questions
D. Define Purpose
E. Pilot questions
Define Purpose
Identify population and sampling strategy
Develop an analysis plan
Write & format questions
Pilot questions
1. Define Purpose

Clarify Concepts
• Health: Medline, PubMed
• Psychological scales: PsycINFO
• Educational: ERIC
Appendix B: Where to find tests

16 categories

1. Define Purpose

Hierarchical approach
1. Define Purpose

Quality of Life

- Mobility
- Dressing
- Feeding
- Leisure Activities

Hierarchical approach
1. Define Purpose

Comparisons of interest
2. Identify Population & Sampling Strategy

Specify population
2. Identify Population & Sampling Strategy

Unit of Analysis
2. Sampling Strategy

Random Sample
2. Sampling Strategy

Stratified sample
Resources

– Explanation of random sample: http://www.youtube.com/watch?v=Q5gB3qX0z-E
– Excel tutorial on random sampling http://www.youtube.com/watch?v=Q5gB3qX0z-E
– Explanation of stratified sampling http://www.youtube.com/watch?v=sYRUYJYOpG0
– Explanation of cluster random sampling http://www.youtube.com/watch?v=QOxXy-I6ogs
– Sample error calculator: https://www.dssresearch.com/KnowledgeCenter/toolkitcalculators/sampleerrorcalculators.aspx
3. Develop an Analysis Plan

- Categorical
- Excellent
- Good
- Fair
- Poor
- Terrible

Interval

Which year were you born in?

Scale of Measurement
WRITE QUESTIONS
Cognitive Process in Answering Questions

- Comprehension
- Information Retrieval
- Judgment and estimation
- Formatting the answer
- Editing the answer
How many times did you spank your child in the past year?
Retrieval

45% forgot being in hospital 1 year later.
Judging & Estimating

1 x 12 months = 12 times
12 times

- 0
- 1-2
- 3-5
- 6 or more
Gosh, maybe just twice!
Mindful of Potential Bias

- Satisfying
- Social desirability
- Yea-saying
- End-aversion
- Positive skew
- Framing
Question Format

• Open-ended
• Closed-ended
Discussion questions:

Which format is more likely to elicit real opinions from respondents?
A. Open-ended
B. Closed-ended
Discussion questions:

Which format allows for new perspectives to emerge?
A. Open-ended
B. Closed-ended
Discussion questions:

Which format is more economical, in terms of time, resources, and money required for analysis?

A. Open-ended
B. Closed-ended
Open-Ended Questions
Rate which one is better:

Question A. In an average week, how often do you cook dinner at home? 
____________________

Question B. In an average week, how many days do you cook dinner at home? 
___ Days per week (0-7)
Rate which one is better:

**Question A.** What business would you most like to see in the Pullman and Moscow area that are currently not available?

______________________________________________________________________________

**Question B.** What businesses would you most like to see in the Pullman and Moscow area that are currently not available?

Business Name #1__________________________________________

Business Name #2__________________________________________

Business Name #3__________________________________________
Rate which one is better:

Question A.
Why did you choose to move to Washington State?
_________________________________________________________

Question B.
Your answer to this question is very important for understanding what brings people to Washington State. Why did you choose to move to Washington State?
_________________________________________________________
_________________________________________________________
_________________________________________________________
_________________________________________________________
General guidelines for open-ended questions

- Specify unit, number, and type of responses
- Provide appropriate space for the answers required
- Provide unit labels
- Motivate respondents to answer
Closed-Ended Questions
Think about the form

1. Avoid overly long questions
2. Avoid unclear or ambiguous questions
3. Avoid negative questions
4. Avoid incomplete questions
## Avoid long questions: Use few words

<table>
<thead>
<tr>
<th>Wordy expression</th>
<th>Succinct expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due to the fact that</td>
<td>Because</td>
</tr>
<tr>
<td>At this point in time</td>
<td>Now</td>
</tr>
<tr>
<td>A small number of</td>
<td>A few</td>
</tr>
<tr>
<td>A considerable number of</td>
<td>Many</td>
</tr>
<tr>
<td>Small in size</td>
<td>Small</td>
</tr>
<tr>
<td>Has the ability</td>
<td>Can</td>
</tr>
<tr>
<td>Ascertain the location of</td>
<td>Locate</td>
</tr>
<tr>
<td>Concerning the matter of</td>
<td>About</td>
</tr>
<tr>
<td>If conditions are such that</td>
<td>If</td>
</tr>
<tr>
<td>In the majority of instances</td>
<td>Usually</td>
</tr>
<tr>
<td>Make a decision</td>
<td>Decide</td>
</tr>
<tr>
<td>Take into consideration</td>
<td>Consider</td>
</tr>
</tbody>
</table>
Avoid unclear or ambiguous questions

**Question A.** How old were you when you had ‘Disease X’?

**Question B.** When did you have ‘Disease X’?
Avoid unclear or ambiguous questions

**Question A.** Have you been swimming in a public pool recently?

**Question B.** Did you swim in a public pool between Monday, April 22 and Monday, April 29, 2013?
Avoid unclear or ambiguous questions

What is the problem with the item below:
I understand what was told to me by:

• Doctor  Yes  No
• Nurse    Yes  No
• Lab technician  Yes  No
• Social worker  Yes  No
Avoid negative questions

QA. Do you favor or oppose not allowing the state to raise taxes without approval of 60% of the voters?
- Favor
- Oppose

QB. Do you favor or oppose requiring 60% approval by voters in order to raise state tax?
- Favor
- Oppose
Avoid negative questions

- Avoid im-, in-, un-
- Half ‘happy’ and half ‘depressed’
Avoid Incomplete Questions

QA. Number of years lived in Hawaii?
___ years

QB. How many years have you lived in Hawaii?
___ years
Think about meaning

• Avoid double-barreled questions
• Avoid loaded/leading questions
Avoid Double-barreled questions

<table>
<thead>
<tr>
<th>QA. My eyes are red and teary.</th>
<th>O True for me</th>
<th>O Not true for me</th>
</tr>
</thead>
<tbody>
<tr>
<td>QB.1. My eyes are red.</td>
<td>O True for me</td>
<td>O Not true for me</td>
</tr>
<tr>
<td>QB.2. My eyes are teary.</td>
<td>O True for me</td>
<td>O Not true for me</td>
</tr>
</tbody>
</table>
Avoid Double-barreled questions

QA. I do not smoke because of the fear of lung cancer.

QB. Do you smoke?
O Yes. Please go to Question C.
O No. ↓

A.1. What are the reasons that you do not smoke?
   (a) Concern about cancer    O Yes   O No
   (b) Fear of heart disease    O Yes   O No
   (c) Dislike of the smell    O Yes   O No
   (d) Religious beliefs       O Yes   O No
   Other, please specify

________________________________________
Avoid loaded questions

Do you often go to your doctor with trivial problems?

Do physicians make too much money?

Considering product X provides substantial cost-saving, would you consider purchasing it for conducting Y procedures?
Think about the respondents

- Don’t use the wrong level of language
- Don’t assume that everyone has an answer
- Don’t make respondents answer questions that don’t apply
Use the right level of language

Are these difficult?

- Nutrition
- Digestion
- Orally
- Tissue

JARGON
## Use simple and familiar words

<table>
<thead>
<tr>
<th>Complex words/phrases</th>
<th>Simple Words/Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhausted</td>
<td>Tired</td>
</tr>
<tr>
<td>Candid</td>
<td>Honest</td>
</tr>
<tr>
<td>Top priority</td>
<td>Most important</td>
</tr>
<tr>
<td>Leisure</td>
<td>Free time</td>
</tr>
<tr>
<td>Employment</td>
<td>Work</td>
</tr>
<tr>
<td>Courageous</td>
<td>Brave</td>
</tr>
<tr>
<td>rectify</td>
<td>Correct</td>
</tr>
<tr>
<td>Occupants of this household</td>
<td>People who live here</td>
</tr>
<tr>
<td>Your responses</td>
<td>Your answers</td>
</tr>
<tr>
<td>Post-school extracurricular activities</td>
<td>What you do after school</td>
</tr>
<tr>
<td>Subnational region</td>
<td>Area of the country</td>
</tr>
</tbody>
</table>
Resources

• Flesch-Kincaid Grade level readability calculator: http://www.standards-schmandards.com/exhibits/rix/index.php

• Question Understanding Aid (QUAID) to check question ambiguity and memory load http://mnemosyne.csl.psyc.memphis.edu/QUAID/quaidindex.html
A word on options

• No more than 7 please!
• All possible options
• Mutually exclusive
• Avoid overlapping options
• Provide balanced scales
• Provide conceptually evenly spaced scales
• Use construct-specific questions
Formatting Considerations

• Brief and clear introduction
• Questions in logical order
• Text & Arrows for skip patterns
• Vertical flow– two columns whenever possible
• White space
• Number every question
Pilot the questions

• Export review
• Think-aloud interview
Online Resources

Survey methodology for public health researchers: selected readings from 20 years of public opinion quarterly:
http://www.oxfordjournals.org/our_journals/poq/collectionspage.html

UNC Center for Public Health Preparedness (CPHP) offers free short internet-based trainings:
http://cphp.sph.unc.edu/training/index.php
Further Readings

References

Questions & Comments

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