

The background of the slide is a light blue-tinted image. It shows a close-up of a hand holding a pencil, positioned as if about to write on a document. The document contains several multiple-choice questions, numbered 30 through 36. Each question has four options labeled A, B, C, and D, with the letters enclosed in small circles. The text is centered in a white rectangular box.

# **QUESTIONNAIRE DESIGN for Research and Assessment**



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“The quality of the data will be no better than the most error-prone feature of the survey design.”

- Floyd J. Fowler, Jr., 2002



# Concept of Interest

**Logic**



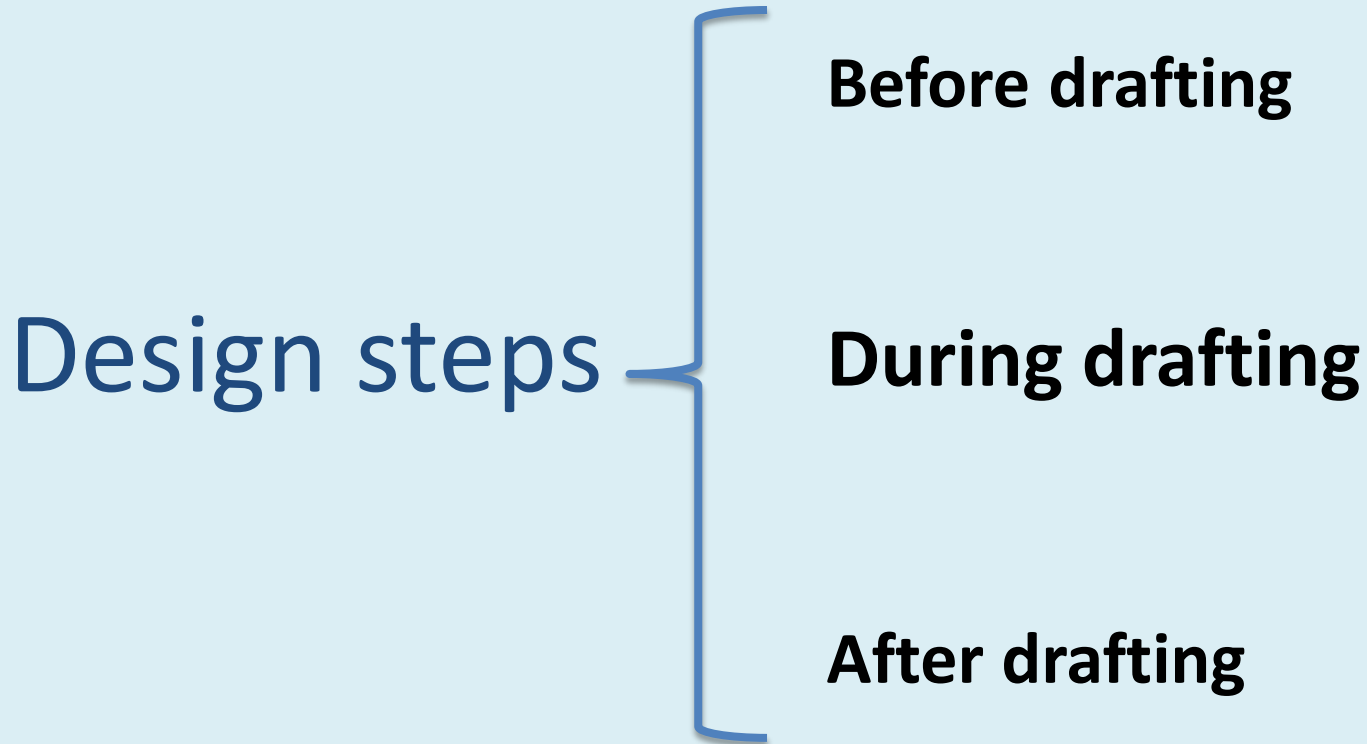
Q1

Q2

...

Qn

# AGENDA



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

1

Define Purpose

2

Identify population and sampling strategy

3

Develop an analysis plan

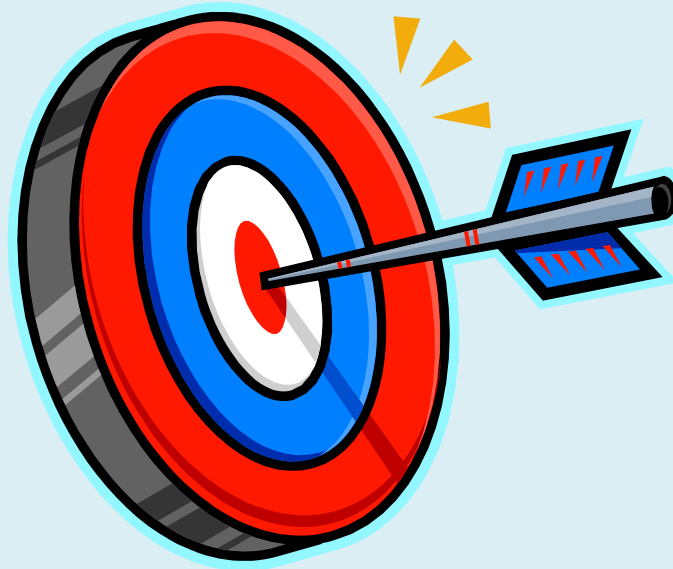
4

Write & format questions

5

Pilot questions

# 1. Define Purpose



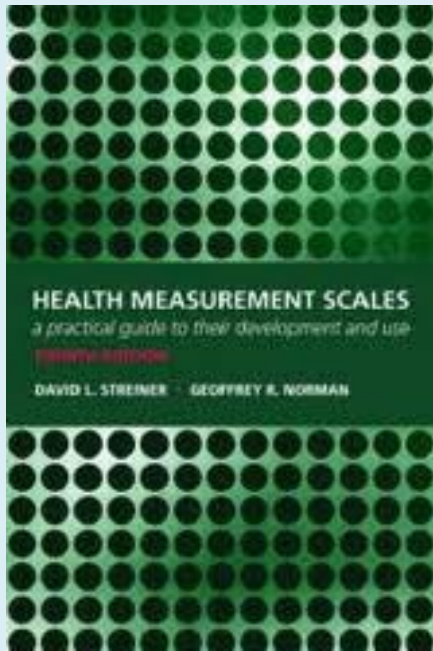
Clarify Concepts



**Literature Review**

**Document Search**

- Health: Medline, PubMed
- Psychological scales: PsycINFO
- Educational: ERIC

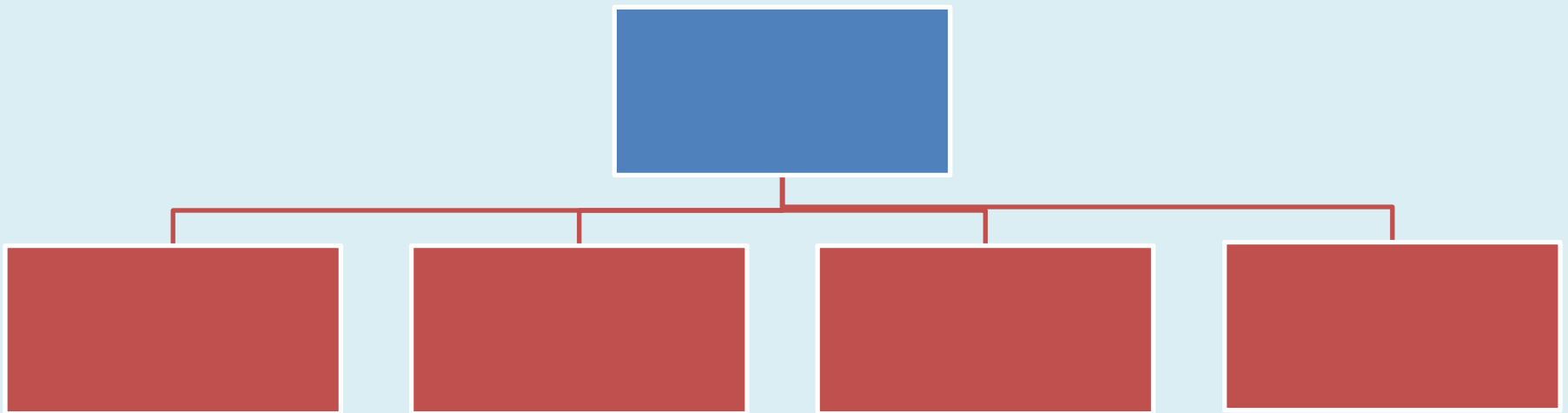


# Appendix B: Where to find tests

16 categories

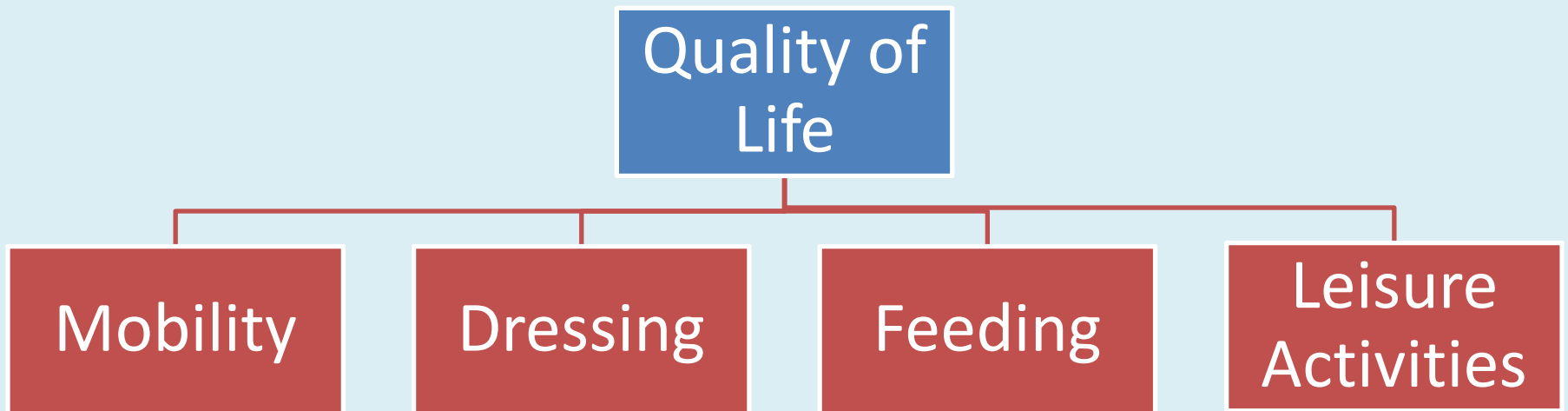
Streiner, D. L., & Norman, G. R. (2008). ***Health measurement scales: a practical guide to their development and use*** (4th ed.). Oxford ; New York: Oxford University Press.

# 1. Define Purpose



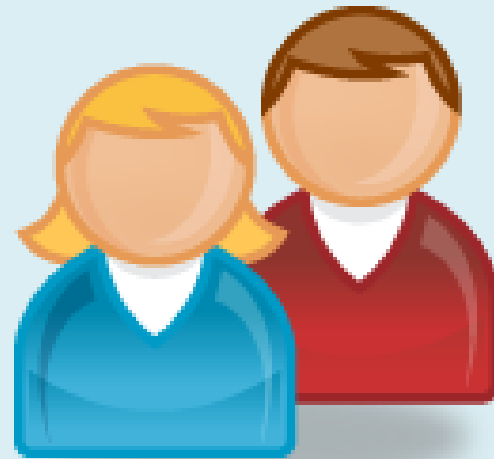
Hierarchical approach

# 1. Define Purpose



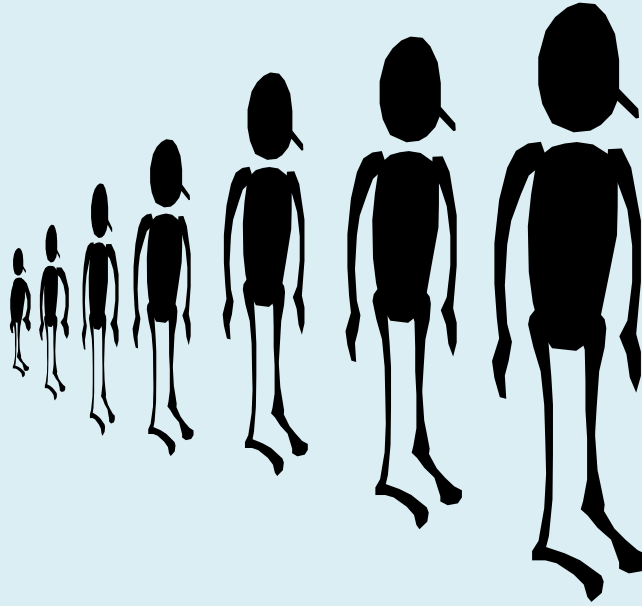
Hierarchical approach

# 1. Define Purpose



Comparisons of interest

## 2. Identify Population & Sampling Strategy



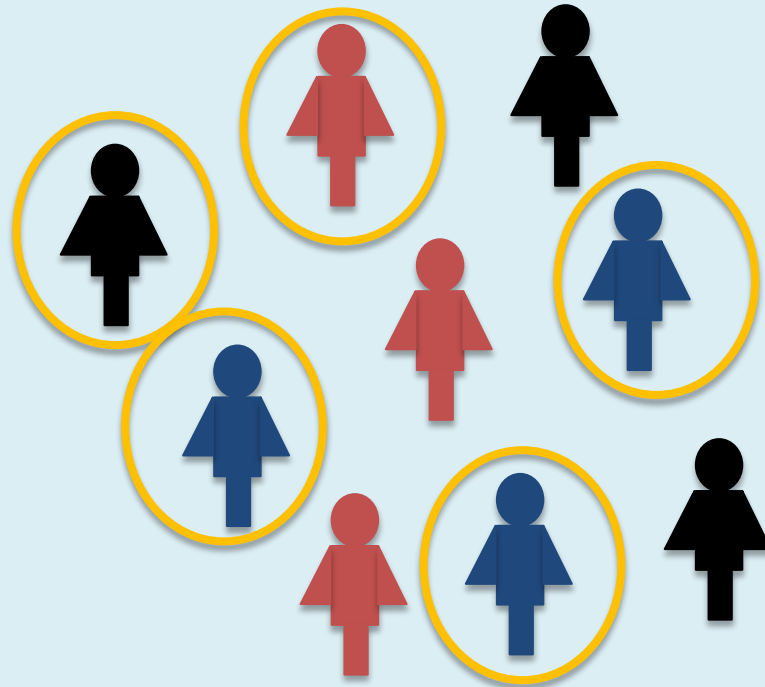
Specify population

## 2. Identify Population & Sampling Strategy



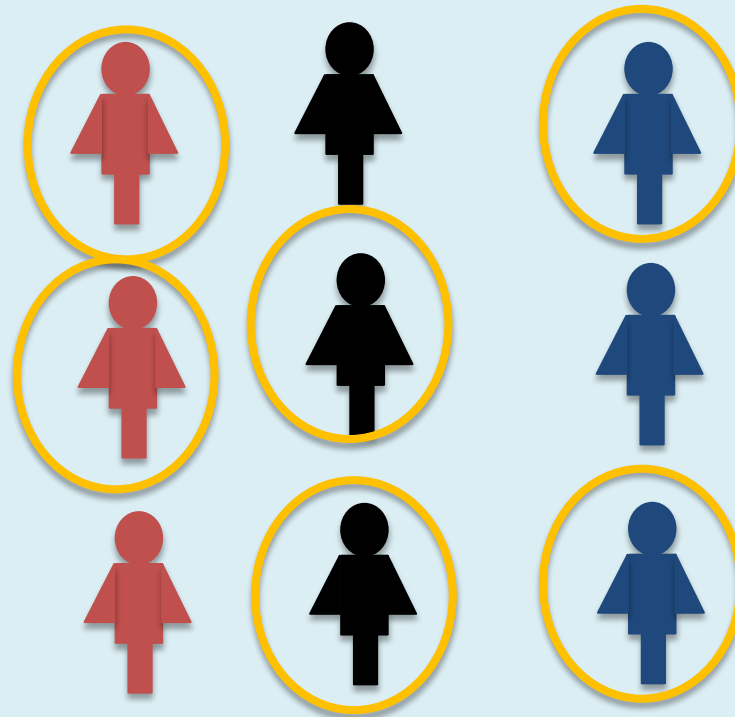
Unit of Analysis

## 2. Sampling Strategy



Random Sample

## 2. Sampling Strategy



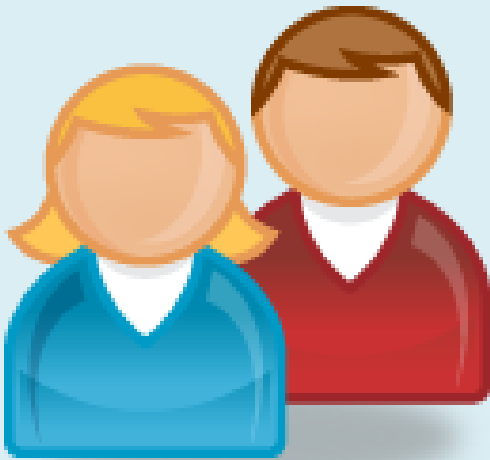
Stratified sample

# 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=sYRUJYOpG0>
- Explanation of cluster random sampling  
<http://www.youtube.com/watch?v=Q0xXy-l6ogs>
- Sample error calculator:  
<https://www.dssresearch.com/KnowledgeCenter/toolkitcalculators/sampleerrorcalculators.aspx>

### 3. Develop an Analysis Plan



- Excellent
- Good
- Fair
- Poor
- Terrible

Which year  
were you born  
in?

Categorical

Ranking

Interval

Scale of Measurement

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# WRITE QUESTIONS

# Cognitive Process in Answering Questions

- Comprehension
- Information Retrieval
- Judgment and estimation
- Formatting the answer
- Editing the answer



# COMPREHENSION

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

# Formatting the Answer

12 times



0

1-2

3-5

6 or more

# Editing the Answer

**Gosh,  
maybe just  
twice!**



- 0
- 1-2
- 3-5
- 6 or more

# 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?

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**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?

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## **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?

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# 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

Wordy expression	Succinct expression
Due to the fact that	Because
At this point in time	Now
A small number of	A few
A considerable number of	Many
Small in size	Small
Has the ability	Can
Ascertain the location of	Locate
Concerning the matter of	About
If conditions are such that	If
In the majority of instances	Usually
Make a decision	Decide
Take into consideration	Consider

# 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

QA. My eyes are red and teary.

True for me

Not true for me

QB.1. My eyes are red.

True for me

Not true for me

QB.2. My eyes are teary.

True for me

Not true for me

# Avoid Double-barreled questions

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

QB. Do you smoke?

Yes. Please go to Question C.

No. ↓

A.1. What are the reasons that you do not smoke?

(a) Concern about cancer     Yes     No

(b) Fear of heart disease     Yes     No

(c) Dislike of the smell     Yes     No

(d) Religious beliefs     Yes     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*



# Use simple and familiar words

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

# 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/quadindex.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](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

- Fink, A. (2003a). *How to design surveys* (2nd ed., Vol. 5). Thousand Oaks, CA: Sage.
- Fink, A. (2003b). *How to ask survey questions* (2nd ed., Vol. 2). Thousand Oaks, CA: Sage.
- Fowler Jr, F. J. (2008). *Survey research methods* (3rd ed.). Thousand Oaks, CA: SAGE.
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- Streiner, D. L., & Norman, G. R. (2008). *Health measurement scales: a practical guide to their development and use* (4th ed.). New York, NY: Oxford University Press.

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# Questions & Comments

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