Introduction
I am usually pretty calm and relaxed.

How accurate is this statement as a description of you?

0 1 2 3 4 5 6 7 8 9 10
not at all accurate extremely accurate don’t know
1. Introduction
2. Open versus Closed Questions
3. Rating versus Ranking
4. Rating Scales: Number of Scale Points
5. Rating Scales: Scale Point Labels
6. Acquiescence
7. Response Order Effects
8. No Opinion Response Options
9. Social Desirability
10. Question Wording
11. Question Order
12. Attitude Recall
Evaluating Questions

Administration Difficulty

Completion time
Completion errors
Rated difficulty
Rated enjoyment

Validity

Correlations with other constructs
Discrimination between constructs
Inter-rater agreement
Effects of manipulations
Interviewer effects
Question order effects

Reliability

Test-retest
Cross-sectional
Questionnaire Construction

- Specify constructs
- Write questions
- Place questions in order
- Set up skip patterns
Objective Phenomena
Those that are directly observable

Subjective Phenomena
Those that can be known only by respondents themselves
Poffenberger (1932)

What price do you usually pay for socks?
Minimal Wording

1. What do your socks cost you?
2. How much do you pay for a pair of socks?
3. How much do you spend for your socks?
1. How much do you usually pay for socks?
2. What price do you usually pay for socks?
3. What price socks do you customarily buy?
4. What price do you make a practice of paying for your socks?
5. What is the price you usually pay for your socks?
6. What is the usual price that you pay for socks?
7. What price do you usually pay a pair for the socks that you wear?
8. What is the approximate price that you usually pay for your socks?
9. How much are you in the habit of paying for a pair of socks?
10. Do you usually pay more than $1 for your socks?
11. Are you used to paying more than $1 for your socks? If so, how much?
1. What is the average price you pay for socks?
2. What is your average expenditure, per pair, for socks?
3. What do you think is the average price you pay per pair of socks?
4. During the last year, what was the average price you paid for a pair of socks?
5. What would you say was the average price you pay for socks during the year?
6. What is the average cost of your socks, as determined upon the basis of purchases for a year?
7. On the average, how much do you usually pay for your socks? What is the most you are willing to pay? What is the least you ever pay?
8. What is the average price which you pay for socks? What percentage over $2? What percentage under $2?
9. Can you say definitely what the average pair of socks costs you? How much?
Price Range

1. Within what price class do your socks purchases lie; that is between what limits do the prices you pay range?

Recent Purchases

2. How much did you pay for the pair of socks you are now wearing?
3. What did you pay for each of the last three pairs of socks that you bought?

Specifying Types of Socks

4. Approximately how much per pair do you pay for socks for ordinary wear?
5. How much do you, as a general thing, pay for plain socks?
6. How much do you find you have paid now for silk socks that wear well?
7. About what price do you usually pay for (a) your everyday socks, and (b) your best wear socks?
Asking About Types of Socks

1. We are trying to get information concerning the average price paid for hosiery. Will you please tell us what you pay for your hosiery, specifying the kind of hose you wear, socks or stockings, and the make?

2. We wish to ascertain how much you usually pay for socks. Please check which you use and how much you usually pay: silk, cotton, wool, mixed.

3. What kinds of socks do you wear, and what is the amount you usually spend when purchasing a pair?

4. What quality of hosiery do you usually buy?
A Fair Price

1. What do you consider a fair price for the kind of socks you usually wear?

2. What are reasonable prices for silk, wool, and cotton stockings of good quality in your budget?

3. What do you consider a fair price for a pair of socks?

4. Irrespective of quality or style, what would you consider a fair price for a pair of socks?

5. There is quite a difference in prices that may be asked for a pair of socks. What in your opinion is a fair, average price to pay?
Can You Purchase

For what price can you purchase a serviceable and good-looking pair of socks?

Should

How much should young men spend for socks?

Hypothetical

If you were buying socks for yourself, what would you pay for a pair?
Answer = Attitude + Other + Method + Random

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Bias</th>
<th>Error</th>
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</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7</td>
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<td>++</td>
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</tbody>
</table>

Attitude = 5
Mood = +1
Method Bias = -1
Random Error = +1

REPORT 6
Cognitive Steps in Question Answering

1) **Understand** intent of question.

2) **Search** memory for information.

3) **Integrate** information into summary judgment.

4) **Translate** judgment onto response alternatives.

“Optimizing”
Satisficing

- **Weak Satisficing**: Incomplete or biased Steps #2 and 3

- **Strong Satisficing**: Skip Steps #2 and 3 altogether

Look to the question and situation for cues pointing to apparently-plausible answers that would be easy to justify without thinking.
Forms of Satisficing

- Selecting the first reasonable response
- Agreeing with assertions
- Non-differentiation in ratings
- Saying “don’t know”
- Mental coin-flipping
Causes of Satisficing

- Task difficulty
- Respondent ability
- Respondent motivation
Respondent Ability

- Cognitive skills
- Experience thinking about the topic
- Pre-consolidated judgment
Respondent Motivation

- Need for cognition
- Accountability
- Personal importance of topic
- Belief about survey’s importance
- Interviewer behavior
- Number of prior questions
Task Difficulty

Interpretation
- Number of words
- Familiarity of words
- Multiple definitions of words

Retrieval
- Current vs. previous state
- Multiple objects vs. single objects
- Multiple dimensions vs. single dimension

Distraction

Judgment
- Absolute vs. comparative
- Decomposability

Response Selection
- Verbal vs. numeric labels
- Familiarity of words
- Multiple definitions of words

Interviewer Pace
\[ p \text{ (optimizing)} = a_1 \text{ (Ability)} \ast a_2 \text{ (Motivation)} \ast a_3 (1 - \text{Task Difficulty}) \]

All variables coded 0 to 1.
Conversational Norms and Conventions

A questionnaire scripts a conversation

- Normally, conversations follow rules:
  - Speakers usually follow rules.
  - Listeners assume the speakers are following those rules.

- Survey respondents don’t realize the rules are different from ordinary conversations.

- Respondents presume the same rules apply as during ordinary conversation.
Conversational Norms and Conventions

- If questions violate rules, respondents will be misled or confused.

- Questionnaires routinely violate rules.

- The more effort the respondent devotes to thinking about the questions, the more misled or confused he/she will be.
Conversational Norms and Conventions

- **Conversational Norms**
  - Rules that speakers follow
  - Rules that listeners assume speakers follow
  - Communicate additional information
  - When violated, misunderstandings occur

- **Conversational Conventions**
  - Arbitrary customs speakers follow
  - Communicate no additional information
  - Violations cause distraction, not misunderstandings
Some Questionnaire Violations

- Don’t ask the same question twice
- All information provided is relevant and necessary
- Offered response options are comprehensive and appropriate
- All assertions are true
Open vs. Closed Questions
Open-ended

Categorical Question

What do you think is the most important problem facing the country today?
Over the course of your life, for how many years would you say you smoked?

1-9
10-20
More than 20
Closed-ended Frequency Question

How frequently do you use the Internet to stay-up-to-date on health issues?

- Several times a day
- Daily
- Several times a week
- Once a week
- Several times a month
- Once a month
- Several times a year
- Once a year or less
- I do not use the Internet to stay up-to-date on health issues
World War II

- The Polling Division
  Commercial market researchers

- The Surveys Division
  Psychologists
Open-Ended Questions

- Standard questions
- Suggest no alternatives
- Verbatim transcription
- Probing
- Well-educated interviewers
- Extensive interviewer training
- Elaborate coding schemes
- Expensive and time-consuming
- Free exchange of ideas without bias
Closed-Ended Questions

- Standardized questions and answers
- Respondent codes own answers
- Simple interviewer training
- Fast and cheap
- Easy to analyze
- Objective: No bias from questioner (in probing) or coder
## Use of Open-Ended Questions

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent of Questions That Were Open-Ended</th>
<th>Year</th>
<th>Percent of Questions That Were Open-Ended</th>
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<tbody>
<tr>
<td>1936</td>
<td>33%</td>
<td>1952</td>
<td>33%</td>
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<td>1948</td>
<td>26%</td>
<td>1960</td>
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<td>1960</td>
<td>31%</td>
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<td>8%</td>
<td>1968</td>
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<td>1984</td>
<td>12%</td>
<td>1972</td>
<td>6%</td>
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</table>

**Sources:** Gallup, Harris, Roper, Television & Newspaper Polls

**Source:** National Election Studies
Evidence: Administration Difficulties

- Administration Time - Open twice as long as closed
- Respondent Preference - Closed
- Completion - More multiple answers to closed than open
Reliability

Validity
Correlational validity
Sensitivity to manipulations
Correspondence of means
Agreement with informants
Accuracy vs. records
True score variance
Interviewer effects
Question order effects
Anonymity effects

Open > Closed
Open- vs. Closed-Ended Questions

Problems with Open Questions?
- Articulation ability: No
- Salience: No
- Frame of reference: Maybe

Problems with Closed Questions?
- Non-Attitudes: Yes
- Response alternatives: Yes
  - suggest normal/expected answers
- Incomplete response alternatives: Yes
An Alternative Perspective

- Closed questions make respondents do more work:
  - Answer an open-ended question in their minds.
  - Code those answers into the offered categories.
- So we try to get respondents to do our coding work for us.
- It is less work and more likely to be accurate if we have respondents answer the relevant open-ended question, and professional coders who can read all answers do the coding.
Conclusions

- Ask open questions whenever you cannot be sure of the universe of possible answers to a categorical question.

- “Other – specify” does NOT work.

- The only way to be sure you know the universe of possible answers is to pretest.

- Ask open questions whenever you are seeking a number.
Number of Scale Points
Theoretical Issues

1) Mapping: More is better
Mapping Attitudes To Response Scales

Person A
- Oppose

Person B
- Favor

Person C

Attitude Dimension

Response Dimension

Oppose a great deal
Oppose somewhat
Neutral
Favor somewhat
Favor a great deal
Theoretical Issues

1) Mapping: More is better

2) Information gain: More is better

3) Clarity of meaning: Too many become ambiguous

4) Satisficing: Middle alternatives on bipolar dimensions may be dangerous

Prediction: Increasing precision up to a certain length, decreasing precision thereafter.
Number of Rating Scale Points

- Completion Errors
  - Longer better than shorter

- Time
  - Longer greater than shorter
Number of Rating Scale Points

- Completion Errors
  - Longer better than shorter
- Time
  - Longer greater than shorter
- Reliability
  - Bipolar: 7 pts.
  - Unipolar: 5 pts.
Number of Rating Scale Points

- Completion Errors: Longer better than shorter
- Time: Longer greater than shorter
- Reliability: Bipolar: 7 pts., Unipolar: 5 pts.
- Correlational Validity
  - Inter-Rater Agreement: Bipolar: 7 pts., Unipolar: 5 pts.
  - Object Differentiation
- Context Effects
- Natural Discrimination: Bipolar: 7 pts.
Include Middle Alternatives on Bipolar Dimensions?
- **Mean Shifts**
  More points = More moderate ratings

- **Magnitude Scaling**
  Infinite number of scale points
  No increase in reliability or validity
"Generally speaking, do you consider yourself to be a Republican, a Democrat, an Independent, or what?"

"Would you call yourself a strong (Democrat/Republican) or a not very strong (Democrat/Republican)?"

"Do you think of yourself as closer to the Democratic Party or the Republican Party?"
Like

Do you like it a lot or a little?
- Like a lot
- Like a little

Neither

Do you lean toward liking it, lean toward disliking it, or don’t you lean either way?
- Lean toward like
- Lean toward dislike
- Don’t lean

Dislike

Do you dislike it a lot or a little?
- Dislike a lot
- Dislike a little
### Percent of People Providing Identical Responses During Both Interviews

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Fully Labeled</th>
<th>Branching</th>
<th>Difference</th>
<th>Significance</th>
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<tbody>
<tr>
<td>Party Identification</td>
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<td>16.5</td>
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<td>Central America</td>
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<tr>
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<td>73.5</td>
<td>23.5</td>
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<td>Combined</td>
<td>57.8</td>
<td>68.4</td>
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<td>&lt; .04</td>
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<td>N</td>
<td>36</td>
<td>35</td>
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</tbody>
</table>
Conclusions

- Unipolar: 5 points
- Bipolar: 7 points branched

- Midpoints do NOT attract satisficers
- Midpoint responses are NOT disguised “don’t knows”
Scale Point Labels
Numbers Plus Words on End Points

How important is this issue to you personally?

| Not at all Important | 1 | 2 | 3 | 4 | 5 | 6 | Extremely Important | 7 |
Words on End Points and Midpoint

On a 1-7 scale where 1 indicates “not at all” and 7 indicates “extremely well”, please indicate how well aspirin stops your headaches:

<table>
<thead>
<tr>
<th>Not at all</th>
<th>moderately well</th>
<th>extremely well</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3 4 5 6 7</td>
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</table>
Verbal Labels on All Points

How do you rate your overall health?

Excellent
Very Good
Good
Fair
Poor
Verbal Labels on All Points

How do you rate your overall health?

- Excellent
- Above average
- Average
- Below average
- Poor
Goals of Scale Points Labels

- Respondents find it easy to interpret the meanings of the scale points.
- Respondents believe the meanings of each scale point to be clear.
- All respondents interpret the meanings of the scale points identically.
- The labels differentiate respondents from one another validly as much as possible.
- The resulting scale include points that correspond to all points on the underlying construct’s continuum.
Advantages and Costs of Labeling

- Numbers alone seem ambiguous;
  - Longer scales = more ambiguous
- Partial labeling: Labels may attract people
- What if labels are vague?
- What if labels are overly-specific?
- Effort: * Unlabeled scale requires interpretation
  * Labeled scale requires reading and interpreting labels
- Administration: Difficult to administer numbered scales over the phone
Dimensions with No Natural Metric

Liking
Importance
Certainty
Friendliness
Ambitiousness
etc.
Dimensions with No Metric (e.g., Liking)

- **Data Quality**

  - Respondent Satisfaction  More > Less
Dimensions with No Metric (e.g., Liking)

- **Data Quality**
  - Respondent Satisfaction: More > Less
  - Reliability: More > Less
Dimensions with No Metric (e.g., Liking)

- **Data Quality**
  - Respondent Satisfaction: More > Less
  - Reliability: More > Less
  - Correlational Validity: More > Less
  - Inter-Rater Agreement: More > Less
  - Discriminant Validity: More > Less
  - Object Differentiation: More > Less
  - Question Order Effects: More > Less
Selecting Labels

More widely-spread end points yields higher reliability.

Respondents presume equal spacing is intended, so it is best to choose labels reinforcing this.

Scaling studies provide bases for selecting labels.
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Interpretation Variation Between People

-Small enough if 5-7 scale points are used.

-Can statistically control for with method factor in LISREL.

Differentiation

-People are drawn to labeled points.

-More differentiation with more labels.
Numeric Labels

- They can reinforce verbal labels or confuse matters.

- -5 to +5 vs. 0 to 10.

- They violate conversational conventions.

- Generally better to omit them.
Measure Unipolar Constructs with Unipolar Scales

and

Bipolar Constructs with Bipolar Scales
Bipolar or Unipolar?

How easy or difficult was it to obtain the product?

- Extremely easy
- Somewhat easy
- Neither easy nor difficult
- Somewhat difficult
- Extremely difficult
Dimensions With Natural Metrics (e.g., frequency, probability)
Dimensions With Natural Metrics
(e.g., frequency, probability)

Drawbacks of Vague Quantifiers

-Frequency and probability ratings are sometimes made relative to expectations.

-Frequency quantifiers sometimes convey researchers’ expectations.

-Frequency quantifiers can influence question stem interpretation.
Frequency Rating Scale

- Very often
- Often
- Sometimes
- Rarely
- Never
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Optimal Unipolar Rating Scales

- Extremely
- Very
- Moderately
- Slightly
- Not at all

- Definitely will
- Probably will
- Might or might not
- Probably won’t
- Definitely won’t

- A great deal
- A lot
- A moderate amount
- A little
- None at all

- Always
- Most of the time
- About half the time
- Sometimes
- Never
Optimal Bipolar Rating Scales

- Extremely good
- Moderately good
- Slightly good
- Neither good nor bad
- Slightly bad
- Moderately bad
- Extremely bad

- Like a great deal
- Like a moderate amount
- Like a little
- Neither like nor dislike
- Dislike a little
- Dislike a moderate amount
- Dislike a great deal
Quality

- Excellent
- Good
- Fair
- Poor
- Very poor
Acquiescence
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<td>How certain are you of your view on abortion?</td>
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<td>Not certain at all</td>
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<td>Very certain</td>
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<td></td>
<td>Somewhat certain</td>
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<tr>
<td>How important is the issue of abortion to you personally?</td>
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<td>Not important at all</td>
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<tr>
<td></td>
<td>Somewhat important</td>
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Abortion should be legal.

Strongly Agree Neither Disagree Strongly agree

I am certain of my views on abortion.

Strongly Agree Neither Disagree Strongly agree

Abortion is an important issue to me personally.

Strongly Agree Neither Disagree Strongly agree
Three Efficient Formats

Abortion should be legal.

Strongly Agree  Neither  Disagree  Strongly disagree

Should abortion be legal?

Yes  No

Abortion should be legal.

True  False
Acquiescence

- Agree/Disagree
- Yes/No
- True/False
Form A

Individuals are more to blame than social conditions for crime and lawlessness in this country.

Agree (I): 59.6%
Disagree (SC): 40.4

100
(473)
Form A

*Individuals are more to blame than social conditions for crime and lawlessness in this country.*

Agree (I): 59.6%

Disagree (SC): 40.4

100

(473)

Form B

*Social conditions are more to blame than individuals for crime and lawlessness in this country.*
Individuals are more to blame than social conditions for crime and lawlessness in this country.

Agree (I): 59.6%
Disagree (SC): 40.4

Social conditions are more to blame than individuals for crime and lawlessness in this country.

Agree (SC): 56.8%
Disagree (I): 43.2
If there is a serious fuel shortage this winter, do you think there should be a law requiring people to lower the heat in their homes?

Yes, should be a law 38.3%
No, not a law 61.7%

If there is a serious fuel shortage this winter, do you think there should be a law requiring people to lower their heat in their homes, or do you oppose such a law?

Should be a law 29.4%
Oppose such a law 70.6%
Reasons for Acquiescence

- **Norms of Conduct**: Be polite and agreeable
- **Status Differential**: Defer to higher status
- **Satisficing**: Hypothesis confirmation bias
Evidence (Agree/Disagree, True/False, Yes/No)

- Contentless questions (10% - 20% Bias)
- Item reversals
  - 10% to 15% agree with both
  - Much less double disagreement
- Comparisons with questions with construct-specific response choices
  - 15% to 20% bias due to acquiescence
Acquiescence Moderators

- Income (Social status)
- Education
- Cognitive skills
- GPA
- Cognitive energy (Task persistence)
- Knowledge about the topic
- Need for cognition (Lower = more acquiescence)
- Language difficulty (More = more acquiescence)
More Acquiescence Moderators

- Ambiguity of meaning (More = more acquiescence)
- Speed (Faster presentation = more acquiescence)
- Question placement (Later = more acquiescence)
- Anonymity (more acquiescence under anonymity)
- Age (Older people acquiesce more)
- Gender (women acquiesce more)
The Damage Acquiescence Causes

Form A

Individuals are more to blame than social conditions for crime and lawlessness in this country.

Agree (I): 59.6%
Disagree (SC): 40.4

Form B

Social conditions are more to blame than individuals for crime and lawlessness in this country.

Agree (SC): 56.8%
Disagree (I): 43.2
The Damage Acquiescence Causes

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<td>Q4</td>
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<td>Makes possible higher levels of consumption</td>
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<td>Q10</td>
<td>More opportunities for the future generations.</td>
<td>1.43*</td>
<td>1.28*</td>
</tr>
<tr>
<td>Q12</td>
<td>Scientific research is necessary.</td>
<td>0.84*</td>
<td>1.04*</td>
</tr>
<tr>
<td>Q14</td>
<td>New inventions counteract harmful consequences.</td>
<td>0.93*</td>
<td>0.35*</td>
</tr>
<tr>
<td>Q16</td>
<td>Our economy become more competitive.</td>
<td>1.02*</td>
<td>1.00*</td>
</tr>
<tr>
<td>Q18</td>
<td>Will help cure illnesses.</td>
<td>0.79*</td>
<td>0.88*</td>
</tr>
<tr>
<td>Q19</td>
<td>Benefits greater than harmful effects.</td>
<td>1.23*</td>
<td>0.99*</td>
</tr>
<tr>
<td>Q2</td>
<td>Depend too much on science.</td>
<td>-0.03</td>
<td>-0.86*</td>
</tr>
<tr>
<td>Q3</td>
<td>Cannot play an important role.</td>
<td>0.14*</td>
<td>-1.36*</td>
</tr>
<tr>
<td>Q6</td>
<td>Power that makes them dangerous.</td>
<td>0.02</td>
<td>-0.49*</td>
</tr>
<tr>
<td>Q9</td>
<td>Makes our way of life change too fast.</td>
<td>-0.11*</td>
<td>-0.59*</td>
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<tr>
<td>Q11</td>
<td>New technology does not depend on basic scientific research.</td>
<td>0.27*</td>
<td>-1.35*</td>
</tr>
<tr>
<td>Q13</td>
<td>Does not play an important role in industrial development</td>
<td>0.26*</td>
<td>-1.39*</td>
</tr>
<tr>
<td>Q15</td>
<td>Does not make industrial products cheaper.</td>
<td>0.07</td>
<td>-0.65*</td>
</tr>
<tr>
<td>Q17</td>
<td>Made bank services more complicated.</td>
<td>0.31*</td>
<td>-1.25*</td>
</tr>
</tbody>
</table>
Correcting for Acquiescence

1) Measuring and controlling for the disposition to acquiesce

2) Fully balancing batteries

3) Partially balancing batteries and statistically controlling for acquiescence

4) Reducing satisficing

5) Offer construct-specific response choices instead
The Cognitive Response Process

“I received good medical care at the hospital.”

Strongly Agree  Agree  Neutral  Disagree  Strongly Disagree

Step 1: How good was the medical care I received?

Excellent  Good  Fair  Poor  Very Poor

Step 2: Map answer onto response choices

Very Poor = Strongly Disagree
Poor = Disagree or strongly disagree
Fair = ? (not neutral)
Good = Agree? Strongly agree? (because I’m certain it was “good”)
Excellent = Strongly agree (but the word “good” doesn’t seem to capture all my enthusiasm)

= Strongly Disagree? (it wasn’t just good; it was excellent!)
1) The mapping process is cognitively difficult for respondents and yields imprecise reflections of the underlying continuum.

2) What you really want is their Step 1 judgment anyway.

**Conclusion:** Ask questions offering construct-specific response choices instead.
The Secret:

Find the Hidden Variable
The nurses treated me with respect.
Response Order Effects
Recency Effect
(Schuman & Presser, 1981)

Some people say that we will still have plenty of oil 25 years from now. Others say that at the rate we are using up our oil, it will all be used up in about 15 years. Which of these ideas would you guess is most nearly right?

<table>
<thead>
<tr>
<th></th>
<th>“Plenty” first</th>
<th>“Plenty” last</th>
<th>$X^2$</th>
<th>$p$</th>
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<td>January 1979</td>
<td>63.5%</td>
<td>77.3%</td>
<td>13.00</td>
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<td>(293)</td>
<td>(273)</td>
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<td>April 1979</td>
<td>60.7%</td>
<td>68.8%</td>
<td>4.17</td>
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<td>(443)</td>
<td>(218)</td>
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<td>Response</td>
<td>Positive to Negative</td>
<td>Negative to Positive</td>
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<tr>
<td>-------------------</td>
<td>-----------------------</td>
<td>-----------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Like greatly</td>
<td>24%</td>
<td>17%</td>
<td></td>
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<tr>
<td>Like</td>
<td>31%</td>
<td>36%</td>
<td></td>
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<tr>
<td>Indifferent</td>
<td>18%</td>
<td>19%</td>
<td></td>
<td></td>
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<tr>
<td>Dislike</td>
<td>20%</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dislike greatly</td>
<td>7%</td>
<td>8%</td>
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Categorical variable

Which of the following is the most important problem?

Rating scale

How important is ...
### Response Order Studies Using Categorical Items

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<thead>
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<th>Primacy</th>
<th>Recency</th>
<th>Non-Significant</th>
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<td>Becker (1954)</td>
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<td>Kalton et al. (1978)</td>
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<td>Schuman &amp; Presser (1981)</td>
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<td>5</td>
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<td>McClendon (1986)</td>
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<td>Bishop (1987)</td>
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A Theory of Response Order Effects

- Visual Presentation – Primacy
  - Hypothesis confirmation bias
  - Fatigue

- Oral Presentation – Recency
  - Hypothesis confirmation bias
  - Fatigue
  - Memory
<table>
<thead>
<tr>
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<th>Recency</th>
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<td>Schwarz et al. (1992)</td>
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<tr>
<td><strong>Oral</strong></td>
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<td>Schwarz et al. (1992)</td>
<td></td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
Moderators of Response Order Effects

Education

Cognitive Skills

GPA

More sentences in the question

More words per sentence in the question

More letters per word in the question

Longer response options

Response options not mutually exclusive

Later question placement

Priming of knowledge on the topic by prior questions (eliminates the effect)

Total questionnaire completion time (faster = stronger effect)

Preconsolidated opinions (Answering a question quickly = weaker effect)
Generalization

Product trials

Knowledge tests

Voting