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 extremely don’t
accurate accurate know
Outline

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. Question Order
10. Attitude Recall
11. Asking Why?
12. Question Wording
Evaluating Questions

- Administration Difficulty
  - Time
  - Completion errors
  - Respondent enjoyment/frustration

- Reliability

- Validity
**Constructs** | **Bias** | **Error**
---|---|---
1 | 2 | 3 | 4 | 5 | 6 | 7
-- | ++

**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.
Causes of Satisficing

- Respondent ability
- Respondent motivation
- Task difficulty
Conversational Norms and Conventions

- A questionnaire scripts a conversation

  - Respondents don’t realize the rules are different.

  - Respondents presume the same rules apply as during ordinary conversation.

  * Speakers usually follow rules.

  * Listeners assume the speakers are following those rules.
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.
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
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 cigarettes?
## Use of Open-Ended Questions

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

## Validity
- **Correlational validity**: Open > Closed
- **Sensitivity to manipulations**: Open > Closed
- **Correspondence of means**: Open > Closed
- **Agreement with informants**: Open > Closed
- **Accuracy vs. records**: Open > Closed
- **True score variance**: Open > Closed
- **Interviewer effects**: Open > Closed
- **Question order effects**: Open > Closed
- **Anonymity effects**: Open > Closed
Open- vs. Closed-Ended Questions

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

- 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.
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.

- 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.
Field of Degree

Biological, agricultural, physical, or related sciences

Health, nursing, or medical fields

Engineering, computer, mathematical, or related sciences

Psychology, economics, or other social sciences, except history

History, arts, or humanities

Business, communication, or education

Some other field
Conclusion

- 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
Do you approve or disapprove of how Barack Obama has been doing his job as President?
As you know, there were many people mentioned this past year as possible candidates for president by political parties. We would like to get your feelings towards some of these people. I have here a card on which there is something that looks like a thermometer. We call it a “feeling thermometer” because it measures your feelings towards these people. Here's how it works. If you don't feel particularly warm or cold toward a person, then you should place them in the middle, at the 50 degree mark. If you have a warm feeling toward a person or feel favorably toward him, you would give him a score somewhere between 50 degrees and 100 degrees depending on how warm your feeling is toward that person. On the other hand, if you don't feel very favorably toward a person -- if you don't care too much for him -- then you would place him somewhere between 0 degrees and 50 degrees. How would you rate ...”
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
- 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.
Response Speed

- Linear trend significant ($F = 31.5, p < .01$)
Reported Task Difficulty

Contrast (odd numbered versus even numbered scales) significant, $t = -4.1$, $p < .01$
Include Middle Alternatives on Bipolar Dimensions
Branching Bipolar Dimensions

"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?"

Strong Republican
   Not very strong Republican
   Republican leaning independent
   Neutral independent
   Democratic leaning independent
   Not very strong Democrat
   Strong Democrat
Two Ways to Branch

- Precise midpoint
  - “Keep it the same”
  - Don’t branch the midpoint
  - Branch the end-points into three categories
    - A little
    - A moderate amount
    - A great deal

- Fuzzy midpoint
  - “Keep it about the same”
  - Branch the midpoint – lean toward more or less?
  - Branch the end-points into two categories
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 Extremely Important
Numbers Plus Words on All Points

How important is this issue to you personally?

- Not at all Important (1)
- Slightly Important (2)
- Moderately Important (3)
- Very Important (4)
- Extremely Important (5)
Words on All Points

How important is this issue to you personally?

- Not at all Important
- Slightly Important
- Moderately Important
- Very Important
- Extremely Important
Goals of Scale Points Labels

- Respondents find it easy to interpret the meanings of the scale points.
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.
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.
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- Respondents find it easy to interpret the meanings of the scale points.
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- All respondents interpret the meanings of the scale points identically.
- The labels differentiate respondents from one another validly as much as possible.
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
  - 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.
Visual Representation of Vague Quantifiers
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- **Numeric Labels**

  They can reinforce verbal labels or confuse matters.
  
  -5 to +5 vs. 0 to 10
  
  Generally better to omit them.

- **Dangers of Lengthy or Overly Specific Labels**

  Labels of a sentence or more are destructive.
Dimensions With Natural Metrics
(e.g., frequency, probability)
Dimensions With Natural Metrics
(e.g., frequency, probability)

Data Quality

- People prefer using vague quantifiers rather than numbers to express judgments.

- Test-retest reliability of judgments is the same for numbers and quantifiers.

- Descriptions of physical stimuli are more accurate with numbers than quantifiers.

- Context effects are weaker when judgments are made with numbers than with quantifiers.
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.
- Social groups (race, gender) differ in meanings assigned to the terms.
So just ask for the number
Question Wording
Conventional Wisdom

- Simple, direct, comprehensible
- No jargon
- Be specific
- Avoid ambiguous words
- Avoid double-barreled questions
- Avoid negations
- Avoid leading questions
- Include filter questions
- Be sure questions read smoothly aloud
- Avoid emotionally-charged words
- Avoid prestige names
- Allow for all possible responses
Aetna Experiment

- Very or somewhat acceptable  75%
- Strongly or somewhat support   45%
- Strongly or somewhat favor  73%
New York Times Op-Ed

“More than 9 in 10 Americans would support special school programs for underclass children beginning at age 8. These classes would be designed to motivate the kids to stay in school and to extricate themselves from poverty.”
Actual Question Wording

Starting special school programs with young underclass children when they are 8 years of age, designed to increase their motivation to stay in school and to arouse hope within them that they can lift themselves out of their miserable life situation.
Goals of Good Question Wording

- Univocality
  - Mention only the construct you want to measure
  - (prestige names, double-barreled)

- Meaning uniformity
  - Each question should mean the same thing to all respondents

- Economy of words
  - Use as many words as are needed to convey the idea clearly to all respondents
The Frequency of Misinterpretation

- Benton (1935): 33% misinterpreted
- Cantril (1944): 30-40% misinterpreted
- Guest and Lee (1984): 25% misinterpreted
The Costs of Ambiguity

- Correlation of proportion of people who saw multiple plausible interpretations w/ DKs = .35
  (Benton, 1935; Eisenberg, 1941)

- More ambiguous words = more DKs
  (Klare, 1950; Eisenberg, 1941; Converse, 1976; Knauper et al., 1997)

- More abstract language = more DKs
  (Andrews, 1984; Molenaar, 1982)

- Correlation of proportion of people who saw multiple plausible interpretations w/ test-retest reliability = -.48

- Statements people said had clearer meaning had higher test-retest reliability
  (Nowalowska, 1973)
Word Selection Guidelines

- Dictionary: Select words with one meaning
- Familiarity ratings (Francis & Kucera, 1982; Thorndike & Lorge, 1944; Breland, Jones, & Jenkins, 1994, etc.): $r = .88$ across datasets
- Simple words (few syllables)
- Simple sentences (few words)
- Readability scores (Fry, 1977; Dale & Chall, 1948; Gunning, 1968)
- Homonyms (fare and fair)
- Heteronyms (lead and lead)
- Think-aloud pretesting
Word Selection Guidelines

- Avoid negations
  - More errors answering factual questions
  - Lower reliabilities
  - Slower response time

- Avoid the passive voice
  - Slower response time
But there is so much that we don’t know ...
During the last month, have you seen a movie?

During the last month, have you seen one or more movies?
% Yes

Direct (N = 646) vs One or more (N = 697)

ns
“How many” vs. “Total number”

During the last month, how many times have you seen a movie?

During the last month, what is the total number of times you have seen a movie?
Mean Number of Movies

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<td>Total</td>
<td>4.22 (N=739)</td>
<td>1.27 (N=689)</td>
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ns ns
Filters

Direct Frequency:

How many times have you ...?

Filter:

Have you...? [If yes:] How many times?
Mean Number of Movies

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How many times have you seen a movie?

Some people see movies often. Other people see movies occasionally. And still other people never see movies. During the last month, how many times have you seen a movie?

During the last month, how many times, if any, have you seen a movie?
How many times have you seen a movie?

Some people see movies often. Other people see movies occasionally. And still other people never see movies. During the last month, how many times have you seen a movie?

During the last month, how many times, if any, have you seen a movie?

No differences
Figure 1: Percentage of Americans who Believed Mr. Obama was Born in the U.S.
Figure 2: Gap Between the Percentages of Republicans and Democrats who Believed Mr. Obama was Born in the U.S.
Wordings

- Do you think Barack Obama was born in the United States, or not?
- Was Barack Obama born in the United States or was he born in another country?
- Do you think Barack Obama was born in the United States, or do you think he was born in another country?
- Do you think Barack Obama was definitely born in the United States, probably born in the United States, probably born in another country, or definitely born in another country?
Wordings

- As you may know, some people have suggested that President Obama was not born in the United States. Do you think that Obama was not born in the U.S., Obama was born in the U.S., or it is not clear whether Obama was born in the U.S. or not?

- According to the Constitution, American presidents must be ‘natural born citizens.’ Some people say Barack Obama was NOT born in the United States, but was born in another country. Do YOU think Barack Obama was born in the United States, or do you think he was born in another country?

- On another subject, where was Barack Obama born, as far as you know?