Using Cognitive Testing to Evaluate Validity

Jack Fowler and Carol Cosenza
Center for Survey Research
UMASS Boston
How we usually cognitively test

• Ask how understood question
• Ask to explain answer
• Target issues, like meaning of specific words or what information they have that we think, in advance, might be problems.
Our resulting reports

• Mainly they are a list of problems found

• Sometimes we state that we didn’t find any problems

• However, those results do not convey evidence that the answers are valid
How do we assess validity?

• Usually with psychometric analyses: correlations between answers to our test questions and other answers to which they should be related if they measure what we think they measure
Could cognitive testing produce evidence of validity?

• We think so—and here is how we propose to change our procedures
For each test question

• Interviewer probes until he/she can answer four questions:
  • 1. Does R understand the question as intended? YES/ NOT SURE/NO
  • 2. Does R have info needed to answer?
  • 3. Did R transform info to form required for answer in accurate way?
  • 4. Was choice of answer accurate?
Test question

• How old was your mother when she died?

• UNDERSTAND? How many years old she was on birthday before she died: YES

• KNOW? I think she was born in about 1920 or 1921, and she died 3 or 4 years ago: NOT SURE

• TRANSFORM appropriately? If she was born in 1920 and died in 2007, she was 87: YES
Testing cont’d

• ANSWER correctly? : She was 87. YES

• Result: YES, NOT SURE, YES, YES
## Analysis Report for 10 Interviews

<table>
<thead>
<tr>
<th></th>
<th>YES</th>
<th>NOT SURE</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNDERSTAND</td>
<td>9</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>KNOWLEDGE</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>TRANSFORMATION</td>
<td>8</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>ANSWER</td>
<td>9</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
The key problem?

- Evaluating whether or not the information that say they can recall is accurate
Another potential problem

- Comprehension

- There often are several elements of a question to be understood, and we will need a coding system that is a good summary when there are multiple issues
We are starting a test in a few weeks

• In a month or two, we can report better how this will work out
Conclusion

• We think a report like that will give us much more information than we have been getting before:
  – About whether or not answers are likely to be valid
  – And what the strengths and problems are with questions
THANK YOU