Cross-Cultural Use of Behavior Coding: An Update

Timothy P. Johnson, Allyson Holbrook, Young Ik Cho, Sharon Shavitt, Noel Chávez, & Saul Weiner

University of Illinois at Chicago
University of Illinois at Urbana-Champaign

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Valued Collaborators

- Allyson Holbrook, UIC-SRL
- Young Ik Cho, UIC-SRL
- Sharon Shavitt, Urbana-Champaign
- Noel Chavez, UIC-Community Health
- Saul Weiner, UIC-College of Medicine
What is behavior coding?

- The systematic coding of interviewer and respondent behaviors
- It provides an objective and replicable technique for measuring what happens in a survey interview.
- Problems in comprehension and ability to provide answers can be identified from behaviors of both respondents and interviewers in consistent and interpretable ways.
Unresolved:

- Does culture mediate the meaning of the social behaviors captured by behavior codes?
  - are behavior codes comparable?
  - are they etic or emic?
One-Factor Model
Two-Factor Model

Comprehension Problems

Mapping Problems
African American

Puerto Rican

Mexican American

White
Comparison of multiple group one- vs. two-factor models

<table>
<thead>
<tr>
<th>Model</th>
<th>$x^2$</th>
<th>df</th>
<th>$p$ -value</th>
<th>RMSEA</th>
<th>CFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-factor model</td>
<td>116.2</td>
<td>104</td>
<td>ns</td>
<td>0.033</td>
<td>0.975</td>
</tr>
<tr>
<td>Two-factor model</td>
<td>106.7</td>
<td>98</td>
<td>ns</td>
<td>0.029</td>
<td>0.982</td>
</tr>
</tbody>
</table>
Comparison of nested two-factor models with equal vs. unequal error variances

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor loadings constrained to be equal</td>
<td>106.7</td>
<td>98</td>
<td>ns</td>
</tr>
<tr>
<td>Factor loadings and error variances constrained to be equal</td>
<td>125.1</td>
<td>109</td>
<td>ns</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test</th>
<th>$\Delta \chi^2$</th>
<th>$\Delta df$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square Test for Models with WLSMV estimation</td>
<td>32.5</td>
<td>24</td>
<td>ns</td>
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</tbody>
</table>
Conclusions

• Culture does not appear to mediate the meaning of behavior codes in that they exhibit a very similar structure across groups

• This was a first exploration…
Next Steps

- New studies recently conducted with NSF and NIH funding
  - Assessment of broader sample of cultural groups
  - Testing multiple questions related to culture, cultural identification and survey response behaviors
  - Validate behavior coding by introducing questions with known problems to observe group differences in responses
### Examples of Audio Respondent Behavior Interaction Codes

<table>
<thead>
<tr>
<th>Codes Used to Identify Comprehension Problems</th>
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<tr>
<td><strong>Clarification (unspecified)</strong>: respondent indicates uncertainty about question, but it is unclear as to whether the problem is related to the construct or the context.</td>
</tr>
<tr>
<td><strong>Clarification (construct)</strong>: respondent asks for repeat or clarification of question or makes a statement indicating uncertainty about question meaning (e.g., “what do you mean by depressed?”).</td>
</tr>
<tr>
<td><strong>Clarification (time frame)</strong>: respondent indicates uncertainty about the question’s time frame.</td>
</tr>
<tr>
<td><strong>Clarification (context)</strong>: respondent indicates s/he understands the meaning of the construct but indicates uncertainty about question meaning within the context of the question as stated (e.g., “what do you want to know about being depressed?”).</td>
</tr>
<tr>
<td><strong>Clarification (rewording)</strong>: respondent rephrases the question before answering.</td>
</tr>
</tbody>
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<tr>
<th>Codes Used to Identify Memory Retrieval Problems</th>
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<td><strong>Memory difficulty</strong>: respondent gives answer but expresses concern about accuracy of memory or difficulty remembering.</td>
</tr>
<tr>
<td><strong>Making inferences</strong>: respondent indicates that they are estimating or guessing an answer to a specific question based on what they “usually do” or “must have done.”</td>
</tr>
<tr>
<td><strong>Qualified answer (general)</strong>: respondent gives answer that meets question objective, but answer is qualified to indicate uncertainty about accuracy (includes “DK” followed by response).</td>
</tr>
</tbody>
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<th>Codes Used to Identify Mapping Problems</th>
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<tbody>
<tr>
<td><strong>Clarification (response format)</strong>: respondent indicates uncertainty about the format for responding.</td>
</tr>
<tr>
<td><strong>Inadequate answer (general)</strong>: respondent gives answer that does not meet question objective.</td>
</tr>
<tr>
<td><strong>Imprecise response (general)</strong>: respondent gives answer that only partially meets question objective (e.g., “well over 10 times,” “at least twice”).</td>
</tr>
<tr>
<td><strong>Imprecise response (different response option)</strong>: respondent gives answer that does not use the response options provided with the question (e.g., “not so good health” instead of excellent, very good, good, fair or poor).</td>
</tr>
<tr>
<td><strong>Imprecise response (range)</strong>: respondent answers question with a range rather than a single number.</td>
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<th>Codes Used to Identify Social Desirability Problems</th>
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<td><strong>Anonymity/confidentiality</strong>: respondent answers question but expresses concern about anonymity or privacy of response.</td>
</tr>
<tr>
<td><strong>Refusal to answer</strong>: respondent refuses to answer question for reasons of privacy or anonymity.</td>
</tr>
<tr>
<td><strong>Refusal to answer</strong>: respondent refuses to answer question for some other reason (please record reason).</td>
</tr>
<tr>
<td><strong>Refusal to answer</strong>: respondent refuses to answer question but does not give reason.</td>
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<th>Other Behavior Codes</th>
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<td><strong>No problems identified</strong>: respondent indicates no problems with the question as it is initially read.</td>
</tr>
<tr>
<td><strong>Interruption with answer</strong>: respondent interrupts initial question reading with answer.</td>
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<td><strong>Prior answer</strong>: respondent or interviewer indicates that the answer was volunteered prior to the question being asked.</td>
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<tr>
<td><strong>Corrected answer</strong>: respondent changes answer.</td>
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<tr>
<td><strong>Don’t know</strong>: respondent gives a “don’t know” or equivalent answer (no other answer given).</td>
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<tr>
<td><strong>Missing data</strong>: question cannot be heard on recording.</td>
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<tr>
<td><strong>Not applicable</strong>: question was skipped appropriately.</td>
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Race/Ethnic Groups Sampled

- African Americans (U.S.-born)
- Mexican Americans
  - Primarily English speaking
  - Primarily Spanish speaking
- Korean Americans
  - Primarily English speaking
  - Primarily Korean speaking
- Non-Hispanic whites (U.S.-born)
Preliminary Findings

Behavior Coding
# Bad Questions

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<td><strong>Nonexistent policies or objects</strong></td>
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<tr>
<td>Q117. <em>In the past 10 years, how frequently have you visited a serrerium?</em></td>
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<td><strong>Mismatch of question and response options</strong></td>
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<td>Q119. <em>How many times in the past 12 months have you walked to work? Much more frequently, somewhat more frequently, about the same amount, somewhat less frequently, or much less frequently?</em></td>
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*NOTE: COM = Comprehension Difficulty; MAP = Mapping Difficulty*
## General Findings

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<td>82.6%</td>
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<td>Q119. <em>How many times in the past 12 months have you walked to work? Much more frequently, somewhat more frequently, about the same amount, somewhat less frequently, or much less frequently?</em></td>
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<tr>
<td>Q122. <em>How often do you eat a hot breakfast? Would you say every day, once a week, or never?</em></td>
<td>17.1%</td>
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<tr>
<td>Q123. <em>Which of the following should the government do in the next year? Would you say revise the federal tax system, create a universal health care system, or improve educational testing scores among U.S. students?</em></td>
<td>21.1%</td>
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<td>8.9%</td>
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<tr>
<td>Q118. <em>Do you support or oppose a law to ban the import of fotams into the U.S.?</em></td>
<td>82.6%</td>
<td>18.4%</td>
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<tr>
<td>Q119. <em>How many times in the past 12 months have you walked to work? Much more frequently, somewhat more frequently, about the same amount, somewhat less frequently, or much less frequently?</em></td>
<td>16.3%</td>
<td>38.9%</td>
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<tr>
<td>Q122. <em>How often do you eat a hot breakfast? Would you say every day, once a week, or never?</em></td>
<td>12.4%</td>
<td>17.1%</td>
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<tr>
<td>Q123. <em>Which of the following should the government do in the next year? Would you say revise the federal tax system, create a universal health care system, or improve educational testing scores among U.S. students?</em></td>
<td>5.5%</td>
<td>21.1%</td>
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*NOTE: COM = Comprehension Difficulty; MAP = Mapping Difficulty*
Nonexistent policies or objects: Q117. “In the past 10 years, how frequently have you visited a serrerium?”

Comprehension (p=.054)  Mapping (n.s.)
Nonexistent policies or objects:
Q118. “Do you support or oppose a law to ban the import of fotams into the U.S.?”

- African American: 76.3% support, 27.8% oppose
- Korean American: 91.1% support, 10.1% oppose
- Mexican American: 79.2% support, 20.8% oppose
- White: 85.4% support, 13.6% oppose

Comprehension (p=.044) and Mapping (p=.006)
Mismatch of question and response options: Q119. “How many times in the past 12 months have you walked to work? Would you say much more frequently, somewhat more frequently, about the same amount, somewhat less frequently, or much less frequently?”
Response options non exhaustive or mutually exclusive:

Q122. “How often do you eat a hot breakfast? Would you say every day, once a week, or never?”

African American: 6.2% Comprehension (p=.046), 22.7% Mapping (n.s.)
Korean American: 20.3% Comprehension, 15.2% Mapping
Mexican American: 11.9% Comprehension, 14.9% Mapping
White: 12.6% Comprehension, 15.5% Mapping
Response options non exhaustive or mutually exclusive:
Q123. Which of the following should the government do in the next year? Would you say revise the federal tax system, create a universal health care system, or improve educational testing scores among U.S. students?
Moving Forward

- Now finalizing the verbal behavior coding
- Still working on non-verbal behavior coding
- 2011 will be spent analyzing these data
Thanks for your questions.

timj@uic.edu