Effective STEM Achievement Assessment for English Language Learners: Measurement Considerations

Guillermo Solano-Flores
University of Colorado at Boulder

High-Quality STEM Education for English Learners: Current Challenges and Effective Practices
Washington, DC, July 11, 2011

Office of English Language Acquisition
United States Department of Education
Language and the Measurement of English Proficiency Among ELLs

• Language is a social phenomenon, rather than simply a skill that resides in the individual
• Functional aspects of language (i.e., student interactions in social contexts) are more difficult to measure than formal aspects of language (e.g., pronunciation, grammatical correctness)
• Being an English language learner in the U.S. is not the same as being a learner of English as a foreign language
• Language is vast due to the multiple contexts in which it occurs
• Language skills are expressed in several language modes: listening, speaking, reading, and writing
• Students vary tremendously as to their proficiency in English across these language modes
Limitations of Measures of English Proficiency

• Measures of English proficiency are not sensitive enough to the social contexts of language and the variations of language use across communities
• Teachers are not always provided with detailed information on the English proficiency of their ELLs
• Inaccurate measures of language proficiency result in student misclassifications:

<table>
<thead>
<tr>
<th>Ideal Measure</th>
<th>Test of English Proficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELL</td>
<td>ELL</td>
</tr>
<tr>
<td>ELL</td>
<td>a</td>
</tr>
<tr>
<td>Non-ELL</td>
<td>c</td>
</tr>
</tbody>
</table>

b=false negative classification
c=false positive classification
Limitations of Academic Assessment of ELLs

- Assuming population homogeneity
- Estimating the quality of measures of academic achievement without disaggregating ELLs and non-ELLs
- Including ELLs in large-scale assessment but excluding them from the process of test development (e.g., during interviews conducted to determine how the wording of test items should be refined)
- Addressing language issues at the end of the process of test development
Limitations of Testing Accommodations

• Testing accommodations are modifications in the ways in which tests are given to ELLs with the purpose of making up for limited English proficiency
• Many testing accommodations are not defensible, are not properly implemented, or have limited effectiveness
• Testing accommodations may alter what tests measure
• Ideally, testing accommodations should be customized to the specific language support needs of each ELL

Examples of commonly used testing accommodations:

- Give the test orally
- Allow use of a dictionary or bilingual dictionary
- Seat at front of class during testing
- Modify the language of items to simplify their language
- Give the test in the student’s native language
Effective ELL Assessment Practice

• Facts that need to be recognized and addressed:
  – ELL populations are tremendously heterogeneous
  – As with any test, English proficiency and academic achievement tests should not be assumed to be exact instruments
  – Fidelity of implementation is an important factor in serving ELL populations

• Test development and testing policy:
  – Include ELLs in all stages in the process of test development (sampling, pilot stages)
  – Use multiple assessment forms (multiple-choice, open-ended, hands-on)
  – Determine number of items in tests based on examining test technical quality for ELLs
  – Estimate language of testing as a source of measurement error

• Needed Research:
  – Innovative forms of testing accommodations and their effectiveness
  – Evaluation of assessment systems
  – Evaluation of fidelity of implementation of assessment practice
  – Development of testing models that reflect what we know about bilingual development
  – Effective professional development on test use and the interpretation of test scores