



Sounds Like Success: A Framework for Equitable Assessment

How to revise written assessments for English language learners

————— **Marcelle A. Siegel, Catherine Wissehr, and Kristy Halverson** —————

Approximately 13 million school-age students in the United States do not speak English as their primary language (Federal Interagency Forum on Child and Family Statistics 2005). Thus, there is a high demand for developing fair, thought-provoking assessments for English language learners (ELL). Unfortunately, such assessments are rare on standardized tests, which take years to develop, let alone classroom assessments. More importantly, many secondary science teachers are not prepared to teach or assess ELLs.

Teachers have many dilemmas when it comes to assessing a classroom of diverse students. Teachers need to find out what students really know while being fair to all students. They also need to learn how to alter assessments without watering down content. These challenges can be addressed by following five principles for equitable assessment. In this article, we describe the “McCes, Sounds Like Success” equity framework. We provide practical examples along with commentary from secondary preservice teachers who participated in a course

FIGURE 1

Principles for equitable assessment.

| | |
|----------|---|
| M | Match the learning goals and the language of instruction |
| c | Be c omprehensible for English learners, both linguistically and culturally |
| C | C hallenge students to think about difficult ideas |
| E | E licit student understanding |
| S | S ccaffold the use of language and support student learning |

FIGURE 2

Example of changing language to increase comprehensibility.

Original language:

The scientists interviewed the patients to find out whether their coughs were as frequent and as serious. They also asked the patients if they had any new health problems while taking the medicine.

Revised language:

At the end of one week, the scientists asked the patients:

- Is your cough better, the same, or worse?
- Do you have any side effects, such as dizziness or upset stomach?

FIGURE 3

Challenging learners with equitable assessments.

| Recommended | NOT recommended |
|--|--|
| Assess rich, well-structured, contextualized, meaningful knowledge. | Assess discrete, decontextualized knowledge. |
| Assess to learn what students DO understand. | Assess to learn what students do NOT understand. |
| Hold high expectations and compare students to these standards. | Hold low expectations and compare students to these or to each other. |
| Keep the content, reduce the language challenge. For example: | Simplify content, reduce intellectual challenge. For example: |
| <ul style="list-style-type: none"> • Simplify vocabulary and grammar • Use scaffolding • Provide extra time and breaks • Provide customized dictionary • Offer word bank for responses • Use interpreter • Read questions aloud | <ul style="list-style-type: none"> • Less options on multiple choice questions • Not testing conceptual understanding • Assess terminology, rather than critical thinking |

through which they learned about and applied the framework.

The McCes framework

The McCes, Sounds Like Success equity framework, for written classroom assessments, is comprised of the five research-based principles listed in Figure 1 (Siegel 2007). The framework states that classroom assessments for ELLs should be comprehensible, challenging, and supportive.

As shown in Figure 1, the first principle pertains to matching learning and instructional goals. In particular, when revising an assessment for ELLs, the new version should match the conceptual or scientific goals, as well as the language demands of the original assessment. For instance, if students are asked to develop an argument in the original assessment, they should also be asked to develop an argument on the revised version. Additionally, the language of the assessment should be consistent with instruction (CRESST 2001): if a particular term is used in class, such as *trial*, that term should also be used on the assessment, rather than a synonym such as *experiment*.

The second principle (Figure 1) is to ensure that classroom assessment is both linguistically and culturally comprehensible. This means that in terms of language, written assessments should be readable, not produce extra reading time for ELLs compared to native English speakers, and fit within the norms associated with the native culture (Abedi et al. 2000; CRESST 2001). To further improve student comprehension, sentences can be shortened, ideas can be bulleted to reduce reading time, and pictures can be added in place of words. Figure 2 shows modifications of one assessment that are appropriate for advanced, seventh-grade ELL students (Siegel 2007).

After learning about equitable assessment and how to use the McCES framework, preservice teachers had

ideas about how to design assessments that are more equitable for ELLs as illustrated in the following quotes:

- ◆ “Now I understand that including pictures (e.g., pictorial representations of instructions) could actually assist my ELL students within a classroom.”
- ◆ “I can make the explanations shorter or bulleted and can also use graphic organizers to help [ELL students] with the test. I also have to make sure, however, that none of the content of the assessment is being lost and that I am still assessing them fairly.”

In terms of culture, research has shown that a student’s personal background and experience is important in how he or she interprets science assessments (Solano-Flores and Nelson-Barber 2001). For example, an economically underprivileged student who has never left New York City may not have seen a golf course and may therefore be at a disadvantage when completing a question that uses a golf course as the context for a physics problem. A student taught with conventional sky maps may likewise be at a disadvantage when engaging in an assessment drawn by a Yup’ik (native of western Alaska or Siberia) elder. Conventional sky maps show the perspective of a viewer situated above the land, whereas Yup’ik maps position the viewer as part of the environment (Solano-Flores and Nelson-Barber 2001).

Teachers and researchers must take the sociocultural influences that shape student thinking into account when trying to reduce bias in assessment items (Siegel, Markey, and Swann 2005; Fong and Siegel 2005; Solano-Flores and Nelson-Barber 2001). Such biases might stem from assumptions about race, culture, economics, gender, language, geography, and so on. The goal is not to remove all bias—an impossible mission—but to recognize and reduce bias through a long-term process of getting to know students and communities. One preservice teacher said the following about bias:

- ◆ “As is clearly evident, there is a lot to consider when creating assessments that are culturally valid. It is not an easy task to take on, but one that is nec-

FIGURE 4

Example of changing an assessment to elicit thinking.

A. Original prompt:

Should Rita stop taking the antibiotics or finish the treatment? Explain the advantages and disadvantages of stopping and of continuing the antibiotics.

B. Revised prompt:

1. What are some good and bad things about stopping the full course of antibiotics? What are some good and bad things about continuing to take the full course of antibiotics? Write your answers in the table:

| Good things | | Bad things | |
|-------------------------|-----------------------------|-------------------------|-----------------------------|
| Stop taking antibiotics | Continue taking antibiotics | Stop taking antibiotics | Continue taking antibiotics |
| | | | |
| | | | |
| | | | |

2. If Rita stops taking the antibiotics, what effect could it have on the bacteria causing Rita’s infection? Be sure to discuss the scientific principles that explain this effect.
3. Should Rita stop taking the antibiotics? Decide yes or no, and explain your decision. Be sure to include any trade-offs involved.

FIGURE 5

Scaffolds for ELLs.

| Type | Examples |
|---------------------------|---|
| Sentence starters | <ul style="list-style-type: none"> • These groups are similar/different because... • One has..., but the other does not. • When..., it causes... |
| Graphic organizers | <ul style="list-style-type: none"> • Concept maps/Semantic webs • K-W-L charts (What I Know—What I Want to Know—What I Learned) • T-charts • Venn diagrams |

(GOTTLIEB 2006, P. 137)

FIGURE 6

Example of graphic organizer (T-chart) and prompt.

Used as part of an assessment in which students write a letter about genetic testing.

| Reasons to be tested | Reasons not to be tested |
|----------------------|--------------------------|
| | |

Should Joe be tested? _____

(SIEGEL, MARKEY, AND SWANN 2005)

essary to ensure the success of all students. I need to work to remove my biases from questions and to consider all of the biases that my students may have and work to make the questions clear concerning these. I know that it will not be an easy task.”

The third principle (Figure 1, p. 44) of the McCes framework encourages teachers to challenge students to think about difficult ideas on assessments. Even as educators attempt to reduce language complexity, assessment must still remain academically challenging in order to stimulate intellectual growth and readiness for more advanced subjects. Too often, ELL instruction and assessment is simplified and “watered down,” thereby denying students the opportunity to learn. Recommendations for appropriate strategies to keep expectations high are provided in Figure 3 (p. 44). One preservice teacher reflected on her experience in the classroom:

- ◆ “All of the ELL students were very bright, they just did not always understand what was being asked of them. When I worked with these students, I used wait time a lot. Most of the time students knew the answer, they just needed time to think about it and translate it.”

The fourth principle (Figure 1) of the McCES framework states that assessments should elicit student understanding. If students tend to skip a prompt or respond off the intended topic or with identical responses, the question may need to be changed to better elicit student thinking. For example, the prompt in Figure 4A (p. 45) is too general. When this prompt was tested in the classroom, students gave their opinion without weighing the tradeoffs of their answer and without explaining the scientific principle they had learned. Effective assessments, on the other hand, probe student understanding and support students so they can express themselves (White and Gunstone 1992). Figure 4B illustrates how the assessment question can be changed to better address student learning goals. In the classroom, the revised assessment was more effective both for English speakers and ELLs (Siegel 2007).

The fifth principle (Figure 1) in the framework states that assessments should scaffold the use of language and support student learning. The word *scaffolding* means a temporary support that is later removed. Scaffolding in the classroom is a major learning tool for ELLs that might include better contextualization, metacognitive support, and re-presenting text (Walqui 2003). Thus, a sequence of instruction and classroom assessment may begin with scaffolds that are later removed as a student progresses. Scaffolds might help the student comprehend the question, think about the topic, or respond to the prompt. Providing scaffolds for ELLs, such as sentence starters, graphic organizers, and additional prompts, is widely used in quality instruction and should also be present in assessment (Siegel 2007). Figures 5 and 6 (p. 45) provide examples.

Meeting students’ learning needs

Considering the high numbers of language minority students in our science classrooms, the need for equitable assessment is especially great. By explicitly addressing the five McCes principles outlined in this article, teachers can meet the learning needs of their students through assessment opportunities. The principles help teachers develop equitable assessments that are fair and supportive of learning for all students. ■

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References

- Abedi, J., C. Lord, C.H. Hofstetter, and E. Baker. 2000. Impact of accommodation strategies on English language learners’ test performance. *Educational Measurement: Issues and Practice* 19(3): 16–26.
- CRESST. 2001. *Policy brief no. 4*. Los Angeles, CA: Center for Research on Evaluation, Standards, and Student Testing (CRESST).
- Federal Interagency Forum on Child and Family Statistics. 2005. *America’s children: Key national indicators of well-being 2005*. Washington, DC: U.S. Government Printing Office.
- Fong, S.R., and M.A. Siegel. 2005. Teaching well: Science teachers’ investigation and use of student sociocultural background. In *Research on sociocultural influences on motivation and learning, Vol. 5, Focus on teaching*, eds. D.M. McInerney and S. van Etten, 101–128. Greenwich, CT: Information Age Publishing.
- Gottlieb, M. 2006. *Assessing English language learners: Bridges from language proficiency to academic achievement*. Thousand Oaks, CA: Corwin Press.
- Siegel, M.A. 2007. Striving for equitable classroom assessments for linguistic minorities: Strategies for and effects of revising life science items. *Journal of Research in Science Teaching* 44(6): 864–881.
- Siegel, M.A., D. Markey, and S. Swann. 2005. *Life science assessments for English learners: A teacher’s resource*. Berkeley, CA: University of California.
- Solano-Flores, G., and S. Nelson-Barber. 2001. On the cultural validity of science assessments. *Journal of Research in Science Teaching* 38: 553–573.
- Walqui, A. 2003. *Conceptual framework: Scaffolding instruction for English learners*. San Francisco, CA: WestEd.
- White, R.T., and R. Gunstone. 1992. *Probing understanding*. London: Routledge.