

Culture and Assessment

Discovering What Students Really Know

How can we know what students know?

At first glance, the answer seems simple. After teaching students new information and giving them time to practice the concepts or skills, we assess their understanding with a quiz or test. To find out how one student or a group of students compares to peers, we standardize the tests so that all students answer equally challenging questions.

But what if the way we ask the questions unintentionally causes some students to fail? What if our assessments miss uncovering the depth and complexity of knowledge because they contain assumptions about language, culture, values, and experiences that these students don't share?

These concerns have inspired decades of work by Sharon Nelson-Barber, former Director of WestEd's Center for the Study of Culture and Language in Education for the past 12 years. The center's research focused primarily on how culture, language, and socioeconomic status influence the ways people think and solve problems. More recently, Nelson-Barber has been exploring how cultural background, particularly of indigenous students, may affect performance on large-scale standardized achievement tests and what can be done to make the assessments more accessible and equitable.


"What is it about a test question that continually appears not to map onto some students' experiences?" she asks.

In one study, Nelson-Barber and colleagues looked at how students interpreted science and math items on the National Assessment of Educational Progress. An 8th grade science assessment item asked students to present one "advantage" and one "disadvantage" to using laboratory animals such as mice, guinea pigs, and monkeys as "models" to help find cures for human diseases. An indigenous Hawaiian student described a disadvantage as follows: "There is no such thing as laboratory animals. All animals are our brothers and sisters and our spiritual teachers. We don't have the right to use or kill them unless it is for food."

The questions raised by the cultural mismatch between this student's view of the world and the test question aren't principally about what's a correct or incorrect answer. The bigger issue is that the question elicits very little of the student's understanding of laboratory science. On the other hand, it does provide useful information on how to be effective in teaching him.

Noting that some indigenous communities have developed culturally acceptable ways for their children to engage in classroom activities, Nelson-Barber says, "Getting to that point involves

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communication with community elders and others in the community based on mutual respect. In some situations elders may conduct an appropriate ceremony before students participate in an activity such as animal dissection, which would otherwise be taboo."

Assessing Culturally Rooted Ways of Knowing

Assessments that accurately reflect traditional ways of knowing for a specific cultural group can produce richer and more valid results, Nelson-Barber and her colleagues discovered. Consider schools where the curricula and assessments are based on the culture and experiences of the Yup'ik, an indigenous group from Alaska. Subject content is routinely taught through everyday activities in the Yup'ik culture, such as basket making, fishing, and navigating vast expanses of tundra using landmarks and, after dark, constellations of stars. Validity of the assessments is further refined, Nelson-Barber adds, when educators consult with tribal elders. These cultural authorities can determine if, for example, test questions correctly represent the perceptions and experiences of people whose traditional orienteering practices make use of sophisticated math and science reasoning.

Testing that is authentic in this way gives students the opportunity to draw on their cultural heritage to express deeper understanding of concepts and to use their experiences to interpret new information.


"Only a fraction of actual student knowledge is assessed by many test questions. With more culturally relevant assessment, we seek to increase that percentage considerably," Nelson-Barber explains.

Nelson-Barber cautions that her research does not suggest that each culturally cohesive group of students will need a culturally specific assessment. Nor does it mean that students needn't ever learn to take standardized assessments. But without investigating the varied perceptions that students bring to testing, she says, educators and policymakers may never be able to discover what students actually know, or to design tests that fully measure their understanding.

For years, educators and researchers have been aware that the format of a test and its language and vocabulary can sometimes unfairly penalize students who lack common context. Test developers have tried to correct for cultural bias, says Nelson-Barber. Schools also have made accommodations for certain groups of students, such as allowing extra time on tests for those who are learning English as a second language. But often the adjustments are ineffective because they are based on limited experience with particular cultural groups.

In some cases, Nelson-Barber adds, test developers might start with the faulty belief that students who share the same racial or ethnic heritage or language also share the same culture, when in reality there may be vast differences among the students' personal experiences because of family income or geography. Other times, the test questions or testing process might not account for the fact that some children are taught to publicly camouflage their knowledge so that others don't feel inferior. Additionally, before marketing a test, developers may not take the step of verifying that students with diverse cultural backgrounds actually understand what the assessment is asking.

Nelson-Barber recalls study team discussions about one math test question that focused on apportioning the ingredients used to make tacos, a food that test developers believed to be more familiar to Mexican immigrants and, thus, more relevant to Mexican students taking the assess-



ment. But, in response to a test question about how many tacos could be assembled and distributed based on the identified ingredients, some students gave the wrong answer not because they didn't understand division but because their experience with portion sizes differed from those assumed by test developers.

Cultivating Cross-Cultural Awareness to Improve Learning

Nelson-Barber's interest in refining testing goes beyond her belief that culturally sensitive assessments are more valid and fair. She advocates for cross-cultural awareness and competence in assessment and teaching because such understanding sets a more solid foundation for improving student success.

"This is much broader than assessment. We must better prepare teachers to understand cultural diversity," Nelson-Barber says. "They're not ever going to know everything about every possible child in their classrooms. But they will be more effective if they ask some basic questions about their students' cultural backgrounds: What are some of the general principles that I need to carry around with me? What individuals or institutions do I need to know about or what activities do I need to participate in so that I can get a sense of how people are thinking, how people are communicating, what they want for their children?"

How teachers assimilate that information into their instruction "can really make all the difference in moving a child's learning experience forward." In observations of teachers who are most effective with students from diverse cultural backgrounds, Nelson-Barber and her colleagues have found that they respect and actively nurture the children's prior knowledge. By momentarily setting aside their own cultural assumptions to really listen to how students view the world, such teachers make it safe for everyone to ask questions, clear up misconceptions, and fully express their knowledge. "Understandably, students can be more fully engaged in learning when they don't feel they have to leave parts of their identity outside the classroom," she says.

At a policy level, Nelson-Barber comments, test developers and education leaders can do more to investigate why some assessments produce poor results. Ideally, she says, deep cultural awareness would inform test creation, test dissemination, and test evaluation. Such a comprehensive approach might move closer to eliminating cultural bias in testing and the need for accommodations for some groups of students.

At the school level, teachers and administrators can forge alliances with parents and leaders of different cultural groups represented in the school population. These partnerships can be especially vital to school communities where demographic shifts have changed the student populations of many classrooms.

Sharon Nelson-Barber is currently President and Chief Executive Officer of Pacific Resources for Education and Learning in Hawaii.

For more information about culture and language in education research, contact Ursula Sexton at 650.381.6442 or usexton@WestEd.org.