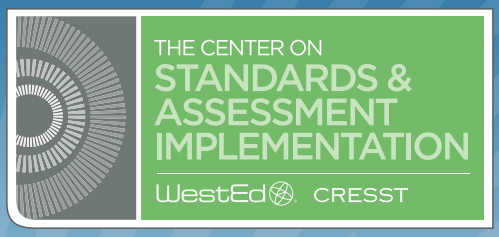

The Common Core Initiative, Education Outcomes, and American Indian/Alaska Native Students

Observations and Recommendations

December 2015

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American Indian/Alaska Native Schooling at a Crossroads

How U.S. Education Policy Can Be Responsive to Indigenous Context

The past several decades have yielded extensive and rich insights about what education practices and policies best support the learning of American Indian and Alaska Native (AI/AN) students. In short, when local resources, knowledge, and approaches to teaching and learning are capitalized on, AI/AN students flourish. When dominant culture values and practices serve as the only basis for decision-making about schooling for all students, AI/AN students frequently become disengaged — dropping out of school in alarming numbers.

This monograph explores the ways in which large-scale school reform efforts play out in AI/AN communities and schools that serve significant numbers of AI/AN students. We situate our investigation of the topic within a historical and cultural perspective and investigated with reference to an extensive body of research. Drawing on the research, we make a strong effort to point to specific, productive steps that can be undertaken to select and implement Education Reforms in ways that ensure AI/AN student academic success and personal well-being.

The original peoples of the continental United States, Alaska, and Hawai'i are resilient groups, who have always viewed understanding of their own cultures and their particular environments as indispensable to learning (McCarty, 2009; Patrick, 2008; Szasz, 1974). With colonization of these peoples came formal schooling, driven by policies of forced assimilation that systematized efforts to eradicate heritage languages and ultimately affected the cultural, spiritual, and emotional health of Indigenous communities for generations. Still, despite the residual effects of European contact, elders and other community members have continued to teach new generations the skills, traditions, and knowledge of their peoples, employing the requisite cognitive tools to suit their local purposes. Among these are mathematical and writing systems, computational devices, and maps. According to Resnick (1991), such "[c]ognitive tools embody a culture's intellectual history; they have theories built into them, and users accept these theories." (p.7). An effective and culturally-responsive approach to schooling utilizes students' culture-based experiences and ways of learning as resources for designing daily instruction, offering familiar avenues for students to address needs and solve problems of their own environments (Trumbull, Nelson-Barber, & Mitchell, 2002, p. 2; see also Aikenhead, 1997; Haidar, 1997).

Today elders and others persevere in preparing younger generations for success

in their own communities, instilling in them culture-focused "funds of knowledge" (Moll, Amanti, Neff & Gonzalez, 1992) that have community and place (culture and identity) at the core (Miller & Hahn, 1997; Rural Trust, 2000; Smith, 2002). This approach to education does not repudiate western paradigms; rather it accentuates the strength, persistence, and validity of Indigenous knowledge systems. As independent sovereign nations (and sanctioned by legislation — note the Esther Martinez Native American Languages Preservation Act in the US and the UN Declaration on the Rights of Indigenous Peoples), Indigenous communities around the nation (and the world) have declared that teaching concepts through place-based content, drawing on culturally familiar interaction and communication patterns in instruction, and conducting assessment in culturally harmonious ways are all essential to children's learning success.

Indigenous communities, who over time have survived in varied unforgiving circumstances, passing on essential knowledge for survival and growth, recognize that they have a great deal to offer the education community. Ironically, when it comes to discourse about Indigenous education in the mainstream education community, much of the talk centers on under-performance and disadvantage rather than the strengths and competencies developed in contexts that serve as bridges to learning. The many school-based programs that are based on local knowledge and strengths tend to be ignored.

We derive inspiration from our colleagues — Indigenous educators, who regularly draw on their rich histories, knowledges, languages, and traditions as natural ways to align local context with schooling practices. We also look inward to our combined decades of experience working side by side with knowledgeable Indigenous practitioners, administrators, community members, and elders, who have generously shared their collective wisdom about the aspects of culture-focused education and Indigenous knowledge development that are clearly working to further academic achievement among American Indian and Alaska Native students.

The Common Core Initiative, Education Outcomes, and American Indian/Alaska Native Students

Observations and Recommendations

The history of education reform in American Indian and Alaska Native (AI/AN) communities is troubled and complex. Researchers have long documented the ways in which reform after reform has promised to improve education outcomes for AI/AN students and has almost invariably failed to do so.[1] In this brief, we examine outcomes associated with the most recent sweeping reform, the No Child Left Behind Act (2002) and explore what has been learned from its implementation. Our goal is to shed light on the question of how the Common Core State Standards (CCSS) may be expected to affect AI/AN students and point to possible ways that the reform can be implemented so as to increase the likelihood of success with those students.

There is well warranted concern among educators and policymakers in AI/AN communities that the Common Core State Standards Initiative (Council of Chief State School Officers, 2012) will fall short of its goal to ensure the preparation of students for college and careers when it comes to AI/AN students. Not least among sources of concern is the fact that these standards do not fully reflect what AI/AN parents and educators believe to be important for AI/AN students (Balter & Grossman, 2009).

Education policies are routinely presented as though they are culturally neutral. However, "[p]olicies are cultural constructs (Stein, 2004), in that they promote particular ways of viewing the world and provide rationales for the best way to address problems and the people they aim to regulate" (Castro, 2015, p. 6). The policies associated with the education reforms of the 21st century have two dominant cultural values: *standardization* and *progress*, neither of which aligns well with the interests and values of AI/AN communities (Winstead, Lawrence, Brantmeier, & Frey, 2008). Standardization works against respect for and use of languages other than English; recognition of different ways of knowing, teaching, and learning; and culturally-responsive forms of assessment. The notion of progress, with its Western sense of continuous improvement moving forward inevitably, carries with it the assumption that schools (and people) need to change — not in ways AI/AN communities may aspire to, but in ways defined by the dominant culture and judged against dominant culture criteria (Winstead, et al., 2008).

1 The schooling of Native Hawaiian students, whose histories bear some similarities to those of AI/AN students, is also plagued with many of the same issues discussed in this brief.

The dominant cultural perspective also entails timetables for student achievement, both in terms of the individual (for advancing from grade to grade) and the group (in the case of No Child Left Behind, annual targets of improvement for subgroups of students). Such timetables are antithetical to a Native value of affording people the time and support needed to succeed (in terms of the local culture) with learning any complex skill or body of knowledge. Demmert (2001, p. 9) says:

> *Traditional systems of Native American education — used to transfer skills and knowledge from one generation to the next — developed over thousands of years. In these systems, students were not allowed to fail. The family, clan tribe, and responsible mentors worked with the youth until the information or task was clearly learned. The lessons were an integrated part of daily life and ceremonies, not a separate or isolated activity.*

Current education policies, which do not take into account cultural, historical, and social differences among students in more than a cursory way, often cause AI/AN students to feel as though they have to choose between personal cultural identity and success in U.S. schools. Their parents, as well, may be ambivalent about endorsing school practices that are not culturally responsive because they perceive the dilemma their children face (McCarty, 2002, p. 91). In truth, to understand how any innovation is received in AI/AN communities requires acknowledging the profound failure of public education to meet the needs of AI/AN students and the ways the education system continues to force these students to make almost irreconcilable choices (Barnhardt, 2004; Fox, 2014; McCarty, 2002).[2] Preparing AI/AN students for post-secondary life choices (as the CCSS aims to do) requires more than an attentiveness to the processes that best support them through the K–12 education system. This effort demands an essential understanding of the complexities of AI/AN community histories as well as the wide-ranging circumstances that define contemporary AI/AN education.

At present, high dropout rates of up to 50 percent among AI/AN youth (Faircloth & Tippeconnic, 2010) and inadequate support to persevere at the college level (Guillory & Wolverton, 2008) threaten successful outcomes for AI/AN students. Although more AI/AN students are going to college than in the past (Lopez, Heilig, & Schram, 2013), their rates of matriculation and retention in college are still very low compared to their White peers (Bosse, Duncan, Gapp, & Newland, 2011; Nelson-Barber, 2013). Maximizing the positive impact of the CCSS Initiative among AI/AN students will require an understanding of the complex realities behind these kinds of statistics.

Who Are American Indian and Alaska Native Students?

Today AI/AN populations live in a variety of circumstances across the United States —

2 The state of Alaska has chosen not to adopt the Common Core State Standards; however, there are many Alaska Native students living in other states where the standards have been adopted.

on reservations, rancherias, small villages in Alaska, and in many urban areas. According to the 2010 U.S. Census, 1.7 percent of the United States population identifies as AI/AN, the greatest numbers residing in New Mexico, South Dakota, Oklahoma, Montana, North Dakota, Arizona, and Wyoming. Though the actual numbers are smaller in Alaska, a substantial 14.8 percent of Alaskans cite Indigenous ancestry.

Seventy-eight percent of the AI/AN population resides outside reservation lands. Government relocation of AI/AN peoples to urban centers in past years has coupled with more recent urban migration, with the result that about 71 percent of the AI/AN population now lives in urban areas (Urban Indian Health Institute, 2013). Some may assume that migration out of Native communities means assimilation to dominant culture ways, but many of those living in urban settings maintain deep connections to their heritage languages, cultures, and knowledge systems. What is missing is easy access to the range of supports (such as extended family and community networks) that are readily available to those who remain on tribal homelands (Wexler & Gone, 2012). The point is that teachers cannot assume that these students are "just like everybody else." Nor are all AI/AN students alike. Despite commonalities in their histories and cultures, AI/AN groups have distinct experiences and culture-based repertoires of practice evolving over time that shape the ways students and their families interact with the U.S. education enterprise (McCarty, 2012).

The History of Schooling of American Indians and Alaska Natives

Wariness of Education Reforms in AI/AN communities cannot be thoroughly understood without reference to the long history of devastation of such communities at the hands of the U.S. government and its representatives. In short, federal policy with regard to American Indians and Alaska Natives was, until well into the 20th century, one of forced assimilation and cultural genocide (see, e.g., McCarty, 2009; Patrick, 2008). In the realm of education, the U.S. government began in the 19th century to forcibly place AI/AN students in boarding schools, where systematic efforts were made to eradicate any trace of their languages and cultures. These boarding schools were notorious — enforcing an English-only rule and punishing learners when they spoke the only languages they knew. Such complex and palpable experiences have impacted the cultural and spiritual well-being of Indigenous communities for generations. "The experience left a residue of linguistic ambivalence and mistrust of Anglo-American education that continues today" (McCarty, 2009, p. 25).

Add to this the long-term disconnection of young people from their families and communities due to an education system flush with policies that deliberately split families apart and quashed children's opportunities to be socialized within their own communities. Families were devastated and communities were empty, with no children there to grow, learn, and take their rightful places as members. When

the children did return, they didn't speak the language, they didn't know how to participate in ceremonies — they didn't fit in. When many of these students became parents they perpetuated the abuse they had experienced through their inability to nurture and provide adequate cultural and linguistic models for their own children. These elements remain underpinnings of dysfunction, with education failure a major contributor (Kirkness, 1995).

Current social ills, such as the high rate of suicide, alcoholism, and unemployment are directly traceable to what AI/AN peoples have endured (Adams, 1995; Bombay, Matheson & Anisman 2014; Brave Heart, 2003; Brave Heart & DeBruyn, 1998; Kirkness, 1995; McPherson, 1994). Brave Heart (1998) uses the term "historical unresolved grief" (p.60) to characterize the result of the almost unimaginable trauma Native peoples have experienced.

However, in the focus on past devastation and continuing needs in AI/AN schools and communities, one risks building a deficit perspective that does not reflect the strengths and resources within AI/AN communities and can lead to blaming students and their families for the failures of the education system (Gorski, 2014; Valencia, 2010). The education community must recognize that AI/AN students' circumstances and school outcomes are often seen as inseparable from ethnicity, poverty, or "disadvantage." Indigenous peoples are not impaired, are not without resources of many kinds. According to Tuck (2009), such a "damage-centered" perspective that focuses on deficits and scarcity (Pewewardy, 2005) does not resonate with the AI/AN communities' notions of abundance (with or without material wealth) that are associated with Native beliefs and lifeways (Enos, 2001; Smith, 1999). And, when these communities have had the opportunity to design their own place-, culture-, and language-based education programs, students' school engagement and learning have flourished (McCarty, 2002; Reyhner & Hurtado, 2008). By virtue of ignoring what works for AI/AN students and pushing universal standards and methods on their teachers, today's education reforms can be viewed as another form of forced assimilation. It is a delicate balance to recognize both strengths and needs and a challenge for outside agents (departments of education, national reform efforts) to work with communities in constructive ways that are respectful of local assets and autonomy.

It is also important to note that AI/AN communities have not rejected mainstream reforms outright. Like other underserved communities, they desire access to high-quality education that will prepare learners for the same life choices that majority-culture students have (Fox, 2014). Indigenous people also recognize that education needs to be designed and carried out with serious regard for their particular contexts. But benefits of reforms are likely to accrue only when districts are able to adapt reforms to their own cultural contexts and are awarded adequate resources to do so.

Why Reforms Don't Fulfill Their Promise

As suggested above, one central problem with implementing reforms in schools serving AI/AN students is that best practices for majority-culture schools do not readily translate to AI/AN cultural environments (Reyhner & Hurtado, 2008; Romero-Little, McCarty, Warhol, & Zepeda, 2007; Nelson-Barber & Trumbull, 2007). Whereas the broad outlines of a reform may be deemed appropriate, the specifics of its design and implementation must be adapted to local context. And, as in the case of a strict focus on academic standards to the exclusion of others, AI/AN communities are likely to find them lacking (Fox, 2000). Unaddressed by the CCSS is a key component of college and career readiness: social and emotional well-being, something that is — to this day — threatened for American Indian and Alaska Native students, in no small part because of the aggressively assimilative education policies of the past.

An equally important impediment to the implementation and success of any reform is the ongoing presence of structural inequities. Among these are lack of access to experienced and well prepared teachers and material resources. The opportunity gap associated with differences between high-socio-economic status (SES) and low-SES schools' access to qualified teachers has long been documented (e.g., Darling-Hammond, 2006); the gap in the U.S. was one of the largest among 47 countries studied (Akiba, LeTendre, & Scribner, 2007). This is a serious threat to equitable education, given that teacher quality is one of the most powerful predictors of student success (Darling-Hammond, 2006). Like many other schools serving vulnerable students, those serving AI/AN students also tend to have lower percentages of teachers well-educated in the subjects they teach. According to a recent study, the percentage of AI/AN students taught mathematics by teachers with a degree in mathematics (27 percent) was significantly lower than that of any comparison group (White, African-American, Latino) (Akiba, Chiu, & Zhuang, 2008).

A study, using eighth-grade National Assessment of Educational Progress mathematics test data and teacher and student surveys revealed that "AI/AN students had among the lowest exposure to teachers who reported that they were knowledgeable about standards, who participated in standards-based professional development, and who practiced standards-based instruction" (Akiba, Chiu, & Zhuang, 2008, p. 2). However, it is not simply a matter of hiring teachers "well-prepared" according to the usual metrics. That same study and other research suggest that professional development without attention to deep elements of students' cultures, such as their learning and communication preferences, is not likely to prepare teachers adequately to implement standards-based instruction with AI/AN students (Huang, Nelson-Barber, Trumbull, Johnson, & Sexton, 2010; Trumbull, Nelson-Barber, & Mitchell, 2002; Trumbull, Sexton, Nelson-Barber, Johnson, & Huang, 2015).

School "turnaround" in AI/AN communities, as in many other under-resourced communities, cannot succeed with attention to school factors alone (Renée & Trujillo, 2014). School reforms have consistently failed to narrow the achievement gap "because they neglect the specific conditions in the lives of low-income students that contribute heavily to inadequate school performance" (Rothstein, Wilder, & Allgood, 2011, p. 1). What is needed, according to this analysis, is to combine school-based improvements with wrap-around services: high-quality early childhood care and education, good health care, and after-school and summer programs (Rothstein et al., 2011, p. 1). Some large donors to education reform have begun to recognize this need. Facebook's Mark Zuckerberg and wife Priscilla Chan (a pediatrician), for instance, have donated $120 million to high-poverty schools in the San Francisco Bay Area (Kotlowitz, 2015). In addition to specifying that teachers, students, parents, and communities all contribute to decisions about how to use the money, they have made medical and mental health care a required component of their reform effort. Perhaps most difficult for urban AI/AN communities to access are reservation-related protective elements, such as the extended family and community networks mentioned above (LaFromboise & Dizon, 2003; LaFromboise, Hoyt, Oliver, & Whitbeck, 2006; McPherson, 1994 ; Wexler & Gone, 2012) that reinforce heritage knowledge and traditions (Goodluck, 2002) and promote resilience in challenging circumstances.

The social and education services that we speak of cannot be externally determined and controlled. Maintenance of healthy and nurturing environments must be organized within the community in line with perceived community needs and preferred ways of providing support (Gone, 2007; LaFromboise, Coleman, & Gerton, 1993; LaFromboise, & Medoff, 2004; O'Connell, Boat, & Warner, 2009). For example, in one school with which we are familiar, outside program evaluators suggested specific education interventions, but teachers and administrators argued that what the school needed most was a dentist who could care for children and families — to address a serious health need that they had identified (Personal communication, Study evaluator, 2015).

The Latest Reform: The Common Core State Standards Initiative

The most recent national reform effort in education is the Common Core State Standards Initiative (Council of Chief State School Officers, 2012), which is, at present, addressing standards in English language arts and mathematics. A response to concerns that American students have not been adequately prepared for college and career, these standards, which are fewer and broader than the typical set of standards used by states in the past, are internationally benchmarked and ranked at a higher level than most standards of recent years. They allow teachers to focus less on covering many chunks of content and more on going at students' pace to learn at a deeper level (WestEd, 2012, p. 4).

Like its precursor, the 2001 No Child Left Behind (NCLB) legislation (see page 10), the CCSS Initiative aims to promote the closing of the achievement gap between traditionally underserved and vulnerable students and their better-served peers. However, whereas NCLB emphasizes large-scale standardized testing as a primary mechanism of action, the CCSS proposes to close the gap through a combination of improved standards and curriculum; research-based instructional approaches; appropriate teacher preparation and professional development; and a range of assessments linked to different purposes. Given the level of these standards and the resources doubtless necessary to prepare teachers to implement them, particularly with the very students who have been least well served in the past, one might fairly speculate that the gap is more likely to widen than narrow.

Conditions for Meeting the Needs of AI/AN Students

If the CCSS reform is to help close the achievement gap between AI/AN students and their White counterparts, it must be implemented with attention to the broader social contexts in which schooling takes place. This means allocation of resources for not only school services but also community services addressing social needs, most especially students' physical and mental health. Such an inclusive approach has been described as "expansive," in contrast to an "equal" approach in which resources are divided equally across school districts or an "equalizing" one that recognizes the need to make some accommodations for extra resources for certain groups (English learners, disabled students) (Kornhaber et al., 2012). It must also allow for adaptation of CCSS-based curriculum, instruction, and assessment to AI/AN cultural contexts. Integrating CCSS and local culture-based standards, teaching concepts through place-based content, drawing on culturally familiar interaction and communication patterns in instruction, and conducting assessment in culturally harmonious ways are all essential to the success of CCSS with AI/AN students (Balter & Grossman, 2009; Barnhardt, 2014; Basso, 1996; Cajete, 1994, 2001, 2008; Haig-Brown & Dannenmann, 2008; Kana'iaupuni, Ledward, & Jensen, 2010; Kawagley, 2006; Nelson-Barber & Dull, 1998; Reyhner & Hurtado, 2008; Semken, 2005; Smith, 2002; Styres & Zinga, 2013).

Expanded resources and localization of reform. The need for expanded resources and localization of reform are intertwined: For example, the corpus of knowledge and skills that defines a well prepared Taos Pueblo teacher in New Mexico is at least in part localized to that cultural environment. Many school districts are not in a position to hire only teachers who share culture and language with their students; however, without special preparation, a dominant culture teacher who has earned a credential at a well-regarded state university in, say, Florida, may not be a good fit for a district in Montana with predominantly AI/AN students. Gaps in teachers' cultural, social, and historical knowledge of AI/AN communities clearly stand in the way of teachers' ability to teach AI/AN students in culturally-responsive ways, and those gaps may also result in teachers' drawing the ill-founded conclusion that

families' values and behaviors are the cause of education failure in these communities (see, e.g., Patrick, 2008). Thus, a well-prepared teacher workforce is arguably the most important resource a district can have.

One expectation of proponents of the CCSS is that common standards ought to mean that economies of scale will apply to the development of common curricular materials (Kornhaber et al., 2012). However, the materials being developed by publishers at this moment in response to the CCSS are not likely to be appropriate for AI/AN students — or many others, for that matter. Appropriate resources tailored to local curricula and contexts need to be identified and/or developed by professional communities of teachers within districts, when at all possible.

Specialized professional development. As noted, many teachers of AI/AN students do not have access to the preparation or ongoing professional development needed for learning about complex reforms and how to adapt and implement them appropriately within AI/AN communities (Akiba, Chiu, & Zhuang, 2008; Nelson-Barber, Huang, Trumbull, & Sexton, 2015). These teachers need access to high-quality, extended professional development that includes opportunities to learn not only about the latest reform but also about AI/AN cultures, languages, and interactional styles. For professional development on the CCSS to be effective, it cannot simply be a set of generic modules designed for teachers of mainstream students and implemented by experts with little knowledge of AI/AN students and their contexts. One topic for teachers of AI/AN students could surely be lessons learned from the implementation of NCLB (see page 10).

The scope of change called for by the shift to broader and higher standards should not be underestimated. Research has shown that at least 50 hours of professional development is required for any education innovation (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009). Holding teachers to effective implementation of the CCSS reforms, and in ways that make sense for local contexts, is fair only when they are given adequate professional development as well as the resources to carry them out. Research on other recent reforms suggests that administrators, too, need substantial professional development, if they are to understand and appropriately support the CCSS implementation (Trumbull & Gerzon, 2013; Trumbull, Sexton, Nelson-Barber, Johnson, & Huang, 2015; Wylie & Heritage, 2010).

Learning from Past Reforms: The Impact of No Child Left Behind

NCLB is the eighth iteration of the Elementary and Secondary Schools Act of 1965 (ESEA). It was launched with the stated goals of ensuring that all students have access to a high-quality education and attain high academic standards. The legislation aimed to close the achievement gap between majority and minority culture students (NCLB, 2002, Sec. 1001), primarily through a test-based accountability system that held districts responsible for ensuring that all subgroups of students (disaggregated

by gender, ethnicity, and race) were making adequate yearly progress (AYP). Many American Indian educators were optimistic about NCLB at first, believing that increased attention to the needs of vulnerable students, including AI/AN students, would result in improvements to education (Balter & Grossman, 2009; Fox, 2000).

Unfortunately, the impact on education in districts serving AI/AN students has been far from positive. By all accounts, NCLB has had a calamitous effect on AI/AN education — eroding programs that were based in students' cultures (Reyhner & Hurtado, 2008) and "rolling back tribal sovereignty in AI/AN education . . . [through] greater intrusion of state and federal control" (Trujillo & Alston, 2005, p. 18). The accountability testing program, intended to identify schools where subgroups of students were not achieving at levels deemed proficient, has been less than successful because of "shortcomings" in the tests (Penfield & Lee, 2009, p. 6). That seems to be a massive understatement, in that serious questions remain about the actual validity of the tests used. These tests, designed with little attention to linguistic and cultural differences between AI/AN students and dominant culture students, are not likely to yield accurate information about AI/AN students — jeopardizing fairness in high-stakes decisions about students, schools, or teachers (Koretz, 2015; Solano-Flores & Trumbull, 2003). There is a bitter irony in the use of standardized test scores to plot the achievement of AI/AN students, when the cultural validity of such tests has so long been open to question (Bordeaux, 1995; Chavers & Locke, 1989; Estrin & Nelson-Barber, 1995; Solano-Flores & Nelson-Barber, 2001). Yet, the scores on these tests are often the sole index of education progress for AI/AN students, and they have been tied to rewards and sanctions for districts serving these students.

Increase in a Skills Emphasis and Test-Preparation Focus

NCLB is not the first reform to push AI/AN schools in the direction of a skills emphasis and away from instruction that would draw on students' experiences and promote higher-level thinking (see, e.g., Savard & Cotton, 1983; Westcott, 1974). But NCLB has been particularly effective at promoting a skills-based approach to instruction through its focus on accountability testing in mathematics and literacy skills (McCarty, 2009; Reyhner & Hurtado, 2008). The unfortunate result of this shift to a skills focus for AI/AN students is that many of the culturally-responsive curricular activities that engaged them and, in prominent cases, used heritage languages in instruction, have been shuffled off to the sidelines in favor of boring lessons that are highly scripted and use English only (Reyhner & Hurtado, 2008). This result is particularly regrettable, given that strong bilingual-bicultural programs have, in fact, been shown to "overcom[e] negative attitudes produced by assimilationist, English-only schooling" (Reyhner & Hurtado, 2008, p. 86) — a condition necessary to mitigating the problem of student dropout. Parallel negative effects have prevailed well beyond Native contexts (Nichols & Berliner, 2007), bringing pressure to submerge English learners in English to the exclusion of native

language use, based on the belief that they will do better on the tests.

One source of this instructional shift to skills is the Reading First initiative of NCLB, which has as its goal to ensure that all U.S. children can read by the end of grade three. The applicability of the initiative to AI/AN students is questionable, given that none of the research studies used by the National Reading Panel (2000), on which NCLB's literacy mandates are based, included attention to AI/AN students or others who speak non-standard dialects of English (Reyhner & Hurtado, 2008). (See further discussion of language issues from page 12.)

Reading First ostensibly supports "balanced instruction," i.e., attention to both skills and high-level processes. However, in its implementation, districts have tended to focus on lower-level skills such as phonemic awareness, perhaps because, according to the U.S. Department of Education's website, the only education strategy said to have been validated by acceptable research is "instruction in phonemic awareness." It is not as though AI/AN students do not need to learn basic skills, but instruction that addresses these skills to the exclusion of a rich culturally-responsive curriculum is certainly not a desired end. Moreover, with regard to literacy skills such as phonemic awareness, they are better taught to AI/AN students in meaningful contexts and not as isolated drills (August, Goldenberg, & Rueda, 2006).

A skills emphasis in language arts instruction may, indeed, build skills but to the exclusion of comprehension ability (Reyhner & Hurtado, 2008). An in-depth study of literacy assessment involving fourth-grade American Indian students attending a public school on a reservation in the state of Washington showed that the majority of students were average and above in skills of phonemic awareness, word recognition, orally tested vocabulary, and reading rate but low in comprehension — specifically the ability to use textual information to answer questions about what they had read (Buly, 2005). On a reservation in Arizona, students in classrooms using a Comprehensive School Reform program, which maximizes use of prepackaged materials that coordinate with workbooks and textbooks, tended to perform well on tests that immediately followed the associated scripted and repetitious activities, but fell short on tests requiring long-term memory of the same material (Nelson-Barber & Johnson, forthcoming).

Reduction in the Use of Heritage Languages and Culturally-Responsive Pedagogy

Many AI/AN educators believe that the goal of bicultural competence for students should be embraced by all teachers — that students' well-being depends upon their being able to achieve in both worlds — dominant culture and Native (Balter & Grossman, 2009; LaFromboise, Albright, & Harris, 2010). The language of NCLB would lead one to believe that this goal is realistic because linguistic and cultural priorities of AI/AN communities are supported by the law. President George Bush appeared to strengthen the commitment to bicultural education through Executive Order 13336 (Bush, 2004), which asserted that tribes

should be allowed to fulfill the Title VII requirements of NCLB in keeping with the cultural practices of AI/AN communities. But the effect of the law has been completely the opposite (Balter & Grossman, 2009; Beaulieu, 2008; McCarty, 2009; Reyhner & Hurtado, 2008). In speaking of the supposed culturally-responsive activities endorsed by NCLB through Title VII, McCarty, who has worked for decades with Navajo educators and schools, (2008) observes,

> *In practice, these activities are highly constrained by a rigid and punitive accountability system that fails to consider improvements over previous performance, is blind to racial discrimination and attendant school funding inequities, and uses English standardized tests as the sole measure of proficiency* (p. 2).

In fact, NCLB is rife with an anti-bilingual, English-only emphasis, with the result that Native languages have not been supported through Title VII funds as they once were. One provision of the law states that materials for staff development or instruction in AI/AN native languages may be used "as long as they increase the English proficiency" of AI/AN students (Winstead et al., 2008, p. 54). Some schools may succeed in keeping Native languages alive as part of the schooling process, but pressure toward English-only instruction focused on improving test scores makes that less feasible, and much evidence points to the likelihood that policies associated with NCLB have contributed to language shift — meaning lower use and maintenance of heritage languages than ever (Balter & Grossman, 2009; House, 2005; McCarty, 2009; Patrick, 2008). This reported dwindling of Native language use is all the more lamentable because, in some cases, school was the main venue for heritage language learning by young learners.

[Teachers] said they had been forced to reorganize their instruction to do test preparation, with the result that their use of pedagogical expertise and community-based curricula was restricted.

A study of approximately 25 teachers attending the Navajo Language Academy in Flagstaff, Arizona during the summer of 2005 revealed that teachers widely denounced the effects of NCLB on their teaching. In narratives collected through the study, teachers spoke of the importance of culturally-responsive pedagogy[3] and "described in detail how NCLB is having a 'narrowing' effect on their ability to teach Navajo language and culture" (Balter & Grossman, 2009, p. 32). They said they had been forced to reorganize their instruction to do test preparation, with the result that their use of pedagogical expertise and community-based curricula was restricted. Administrators and community members were also influenced by NCLB to think

3 The terms culturally responsive, culturally relevant, culturally appropriate, culturally congruent, culturally adaptive, and culture based are used almost interchangeably to refer to education that integrates cultural content and students' ways of knowing and communicating in everyday instruction (see, e.g., Alaska Native Knowledge Network, 1998; Beaulieu, 2006; Castagno & Brayboy, 2008; Demmert, 2001; Ladson-Billings, 1995).

that teachers should focus less on culture and language and more on skills, with parents believing that teaching Navajo was "subtractive from English learning and preparation for the tests, which their children must pass in order to be 'successful'" (Balter & Grossman, 2009, p. 39). One teacher spoke of "another broken promise" (p. 33), evoking the history of promises (e.g., treaties) broken by the U.S. government — a history not forgotten by current-day American Indians and Alaska Natives.

A related effect of the shift away from culturally-responsive schooling may be that, rather than continue to prepare for college and career, students drop out to join the military, or they sign up directly after high school. One under-researched issue is the relationship between AI/AN students' disaffection from secondary schooling and their vulnerability to military recruiters, who are in some cases allowed to pull students out of class to make their pitch for enlisting (Castro, 2015).

Failure to Recognize and Respond to the Complexity of the Language Issue

Language is arguably the most important medium through which teachers instruct and students learn (Vygotsky, 1962); for students exposed to more than one language or language variety (dialect), their linguistic knowledge — all of it — becomes the basis for learning, both academic and social. AI/AN students exhibit a wide variety of language abilities upon entering school, with some predominantly speaking English, others predominantly a heritage language, and still others bilingual to varying degrees (McCarty, 2009). For those AI/AN students who speak or understand a heritage language other than English, these heritage languages are a key component of students' identities. As cultural creations and vehicles for transmitting culture, heritage languages are the means through which many students formulate an understanding of the world and interact with others.

For AI/AN students whose primary/home language is English, the variety of English that they speak is often influenced by a heritage language. Their English — a recognizably "non-standard" variety of English — is spoken effectively communitywide and is the medium through which they learn and communicate (Leap, 1993; Reyhner & Hurtado, 2008). Because their language is different from "school language," large percentages of AI/AN students (more than 50 percent in some schools) have been classified as having limited English proficiency and consigned to remedial programs (McCarty, 2009). Teachers need to understand this complex linguistic landscape and recognize it as the foundation on which both academic and additional language learning will be based. Native teachers likely do understand this, but they need a policy climate that supports them to act on that understanding and actively encourage inclusion of the full range of students' linguistic repertoires.

Respect for and understanding of the role of a primary language or language variety is extremely important, for both English learners and speakers of so-called "non-standard"

dialects. Throughout the entire history of AI/AN public-school education, federal and state policies have had the effect of not only overlooking AI/AN languages but often actively suppressing their maintenance and use in schooling. Excluding students' home languages not only alienates students from schools as social and learning institutions but also deprives them of a major learning resource. In this regard, AI/AN students and English language learners have often suffered comparable fates. Whether these policies are overt (e.g., forbidding the use of AI/AN languages in schools) or implicit (as when the emphasis in assessment is on students' proficient use of English), they have an equivalent effect. As Bailey and Carroll (2015) observe,

> *Absent any official language planning policy in the United States, currently assessment decisions affecting ELL students operate a de facto language policy in the way that they predominantly privilege English proficiency over the maintenance of minority [heritage] languages for content learning.* (p. 253)

As discussed earlier, the Reading First provisions of NCLB, based on the National Reading Panel report of 2000, have been judged inappropriate for AI/AN students (Reyhner & Hurtado, 2008). Strategies for improving their English come from programs developed for English learning immigrant students, whose linguistic histories and language learning processes are not the same as for English dialect speaking American Indian students, who are also often in different stages of acquiring their heritage languages. We reinforce this point with the words of an American Indian witness who offered the following testimony regarding NCLB at a National Indian Education Association–sponsored legislative summit in Washington, DC:

> *[There is an] … incredible mismatch between the programs NCLB supports and what we know works with Native American children. A major challenge grows out of what No Child Left Behind defines as scientific research. Unfortunately, the programs that are used most frequently on reservations and funded with NCLB monies are those programs that have almost no Native American population included in their research.* (Beaulieu, Sparks, & Alonzo, 2005, p. 10)

Promotion of Lower, Not Higher, Achievement

Instead of improving outcomes for AI/AN students and others on the wrong side of the achievement gap, NCLB has made them worse. McCarty and colleagues found that standardized test scores of Navajo students taught through highly scripted English programs declined as much as 50 percent over the three-year period they studied (McCarty & Romero-Little, 2005; Romero-Little, McCarty, Warhol, & Zepeda, 2007). The dropout rate for American Indian students has long been high (Faircloth & Tippeconnic, 2010), but it has increased, apparently in part because students find the rigid skills focus of NCLB teaching boring and unmotivating (Beaulieu, Sparks, & Alonzo,

2005; McCarty, 2008; Reyhner & Hurtado, 2008). Teachers in a related large-scale study in the Southwest also reported that students were bored and not engaged when such instruction was used (Romero-Little, McCarty, Warhol, & Zepeda, 2007).

The failure of NCLB testing policies to promote higher achievement has not been limited to AI/AN students. A study of data from 25 states found largely neutral or negative effects of high-stakes testing on achievement (Nichols, Glass, & Berliner, 2006). Another study, in Texas, showed that improvements in scores on such tests were likely due not to improvements in instruction but to such practices as retention of students in grade, placing more students in special education, focusing on test-taking skills, and decreasing time spent on subjects other than reading and mathematics (Heilig & Darling-Hammond, 2008).

Applying the CCSS with AI/AN Students

A review of the CCSS with an eye to their potential impact on AI/AN students highlights the prominent role of academic language in those standards. At the heart of the CCSS English language arts standards is an emphasis on high-level use of language, whether to engage with complex texts, write logically and cogently, or use oral language to listen and communicate strategically and effectively. Teachers in all disciplines are expected to teach literacy, in the forms relevant to their subject matter. Language is a focus in the mathematics standards as well, which call for students to be able not only to follow procedures and solve problems but also to communicate their reasoning. Far from being characterized as language-free, mathematics learning is known to be highly dependent on sophisticated language skills that must be nurtured (Moschkovich, 2012).

Language Use in the Classroom

The CCSS, which emphasizes deep understanding and application of content as students learn more complex material, encourages high levels of student participation in the classroom. Given the broad cultural diversity of the nation's classrooms, which includes a variety of belief systems and varied use of language, can we be confident that teachers will be able to make use of local discourse practices or interactive styles to engage students effectively in such levels of participation? Will teachers who come from outside AI/AN communities have opportunities to learn and understand local protocols for speaking and using language effectively to communicate ideas, make sense of new information, and solve problems? In mixed classrooms with small numbers of AI/AN students, will they be aware of appropriate ways to engage these students in classroom communication?

Typical activities, such as classroom discussions, can unfold very differently, depending on the community discourse patterns students have been socialized to use and their teachers' awareness of them (Leap, 1993; Nelson-Barber & Dull, 1998; Philips, 1983; Trumbull, Greenfield, & Quiroz, 2004). Accepted instructional strategies may not translate well to all classroom contexts. The

common wisdom is that teachers should use a combination of individual, small group, and whole-class discussions to promote language-learning and academic learning (see, e.g., Bunch et al., 2012). However, numerous studies have shown that American Indian and Alaska Native students often do not willingly participate in the question-answer activity that constitutes most discussions (Leap, 1993; Philips, 1983; McCarty, 2002; Swisher & Deyhle, 1992; Trumbull, Sexton, Nelson-Barber, Johnson, & Huang, 2015). It is not that students are shy or lack confidence, as teachers outside their cultures may think (Trumbull et al., 2015). Direct questioning of students in front of peers is not normally done in AI/AN communities because it contradicts a norm of allowing people to demonstrate their knowledge when they decide to do so, and also because it implicitly places students in competition with their peers (Philips, 1983; Swisher & Deyhle, 1992).

In a recent study, teachers from the Southwest and Alaska were asked about their questioning strategies. Several mentioned using slates or white boards and choral response (students speaking at once) when they wanted to get group participation but avoiding direct questioning of individual students in front of others (Trumbull et al., 2015). In AI/AN contexts, collaborative rather than competitive response patterns tend to be more culturally appropriate — hence the teachers' use of simultaneous answering via white boards or students' speaking at once. Still, one cannot assume that all AI/AN students prefer not to participate in group discussions. Students in any group exhibit considerable variation in their repertoires of language practice and their preferences for instructional formats (McCarty, 2012).

In AI/AN contexts, collaborative rather than competitive response patterns tend to be more culturally appropriate.

Culturally Different Discourse Forms

Criteria for what counts as a good argument, recounting of an experience, or story are culturally variable. For example, research going back many decades has shown how the structure of AI/AN oral narratives differs greatly from that of European culture-based narratives (Bartlett, 1932). Oral narratives form the basis for grasping the organization of written narratives, and AI/AN students exposed to narratives traditional to their own communities are likely influenced by such narratives as they read European culture-based narratives or write their own. Teachers may wrongly perceive written narratives that replicate AI/AN story structures as disorganized, in the way that many cultural researchers did in the past (see Dundes, 1963). AI/AN students' interpretation of themes in literature may not be the same as that of their European-American peers, and teachers may negatively evaluate their reading comprehension on that basis (Bock, 2006).

Specific expectations outlined in the standards that seem straightforward on the surface may have embedded culture-based assumptions that raise interpretive challenges for teachers of AI/AN students. For instance,

one goal expressed in a CCSS standard is that students will be able to "present claims and findings by sequencing ideas logically and using pertinent descriptions, facts and details to accentuate main ideas or themes" (CCSS, p. 49, cited in Bunch, Kibler, & Pimentel, 2012, p.7). Cross-cultural studies of students' oral and written language show that there are multiple "logical" ways to make and support a claim (Johnstone, 1989). For example, it is equally logical to (a) offer a series of observations and then draw a conclusion or (b) state a claim and support it with a series of supporting observations. There are also cultural variations in what can count as an argument and evidence for a position, which do not adhere to Western notions of "logic" or even "common sense." Native oral traditions cannot be expected to "conform to Western constructions of common sense" (p. 56) because they are not Western! What is cited as "common sense" is usually an unquestioned representation of dominant culture thinking, "plain for all to see" if one is a participant in dominant culture discourse (Bourdieu, 1990, p. 52, cited in Miller, 1992). So, even "common sense" is not common across all cultures.

Discourse, Culture, and Identity

Cultural values and assumptions are packed into language teaching, a socialization process in which:

> *language is learned through interaction with others who are more proficient in the language and its cultural practices and who provide novices explicit and (or) implicit mentoring or evidence about normative, appropriate uses of the language, and of the worldviews, ideologies, values, and identities of community members.* (Duff, 2010, p. 172)

AI/AN students are likely to be faced with not simply the task of learning forms of academic discourse (as are all students) but also with the task of sorting out how their sense of self, their very identity, is supported or denied by adopting these new forms of discourse. The distance between the discourses of home and school is likely to be greater than for dominant culture students, and willingness to learn and use the discourses of school may be complicated by the perceived need to resist a loss of self (Lee & Majors, 2003). Instructional practices that are not inclusive risk alienating AI/AN students, who early in their education careers must learn school discourse in order to succeed academically (Duff, 2010). The increasing lack of the use of students' heritage languages in schools compounds the disconnection between the culture of community and school and underlines the power differential between the two.

Depending in part on the stance of the teacher, students may decide to opt in or out of this discourse-learning process. If only certain ways of using language are considered valid, students may again risk the forced choice between assimilation to the dominant culture or marginalization (Deyhle & Swisher, 1997; Fordham & Ogbu, 1986; Sleeter & Stillman, 2005). If the goal of the CCSS to promote acquisition of academic discourse modes is to be achieved by AI/AN students, teachers will need to take a stance that does not magnify the power differential

between home and school language. Instead, they need to acknowledge the validity of students' heritage languages, varieties of English, and ways of using language. The issue for teachers is not supplanting some discourse forms with others but adding new ones (Adger, Wolfram, & Christian, 2014; Andrei, 2014; Bahr, 2003; Burns, 2003). The fact is that many human beings learn more than one language (Okal, 2014), and virtually all learn more than one variety (dialect) of at least one language, as well as many ways of using language appropriate to a range of social purposes and settings (Adger, Wolfram, & Christian, 2014).

Learning Progressions

Another issue of concern has to do with the CCSS's encouragement of teachers' use of "learning progressions." A learning progression is a model or map of the likely developmental path of learning of a particular concept or set of concepts within a subject matter domain (Harris, Bauer, & Redman, 2008). It is intended to be used by the teacher to guide curriculum and instruction. Learning progressions are sometimes empirically constructed by observing students over time, but many are developed "logically" by experts, based on what they see as the necessary sequence of learning (Leahy & Wiliam, 2011). However, research shows that learning in a domain does not necessarily follow a linear path (Harris et al., 2008; Shavelson & Kurpius, 2012; Steedle & Shavelson, 2009). Moreover, "[p]rogressions are not developmentally inevitable but dependent on instruction interacting with students' prior knowledge and new-knowledge construction" (Shavelson & Kurpius, 2012, p.15). These findings point to likely variability on the basis of cultural differences. For that reason, teachers of AI/AN students should use existing learning progressions cautiously and trust their own observations about the "logical" path of teaching and learning of their students. Making explicit the expected learning progressions within a domain is a worthwhile task for groups of teachers at a grade level or small span of grade levels because, in the absence of explicit models of learning, teachers are surely using implicit ones as they plan instruction.

Assessment within the CCSS

The testing policy initiated by NCLB continues with CCSS — that is, annual academic standardized testing of every student from grade three through eight and then at selected intervals in high school. The standards-based reform movement has long made motions in the direction of embracing multiple measures and sources of data on student learning (e.g., performance tasks, formative assessment, locally designed tests), and American Indian and Alaska Native educators held out hope that this aspect of the movement would have a positive impact on AI/AN students (see, e.g., Fox, 2000). But it is really only large-scale accountability measures that have held sway, serving as the basis for conclusions about student learning and consequent decision-making.

Before going further, it must be said that on-demand testing is not "the Indian way" (Grant, 2000, cited in Fox, 2000, p. 7).

Historically, AI/AN adults have avoided putting young people at risk of failure by demanding they perform a task before they indicate that they are ready to do so. Children and youth in Indigenous societies have, in general, had autonomy over the assessment of their developing skills and knowledge — indicating when they are ready for such assessment. Decontextualized, arbitrary testing that labels answers "right" or "wrong" is widely seen as culturally incongruent (see review in Estrin & Nelson-Barber, 1995).

Decontextualized, arbitrary testing that labels answers "right" or "wrong" is widely seen as culturally incongruent.

Two consortia, the Smarter Balanced Assessment Consortium (SBAC) and the Partnership for Assessment of Readiness for College and Careers (PARCC), funded by the federal Department of Education's Race to the Top program, are creating assessments associated with the standards. These are designed for "computer delivery" (Latham, 2015, p. 20). That is, students complete test items using a computer, and most answers are computer-scored. Both systems (Smarter Balanced and PARCC) use small numbers of performance tasks in English language arts and mathematics — one per content area for each grade level in the case of SBAC and two or three per grade level for PARCC. The test items created by these two consortia do look different from the multiple choice items of previous tests for accountability. They pose greater cognitive demand — that is, they do appear to call upon higher-level thinking than the items of the past. In that regard, perhaps these tests will not drive the skills emphasis in instruction in the way that NCLB did. Not all are taking such a sanguine view, however. Cody (2014) argues that there is a real risk that these tests will drive practices in undesirable ways, much as testing with NCLB has.

At this point, the two consortia have focused mainly on accountability measures and not yet interim and formative assessments, which potentially yield data immediately useful to teachers. Measuring student success by group performance on standardized accountability tests alone overlooks other purposes for assessment and methods for gathering information about student learning. Culturally appropriate methods of documentation of student progress toward goals endorsed locally should at least supplement the large-scale accountability process imposed on AI/AN students (Fox, 2000; Johnston & Claypool, 2010.) Districts also need to be able to use internal measures such as school climate, the quality of culturally-responsive curricula, and parental involvement and judgments about the school to evaluate their success (cf., Berkeley, 2012, cited in Renée & Trujillo, p. 159).

Test item accessibility: the language and culture represented in tests. There is widespread awareness that something needs to be done to make assessments — particularly large-scale tests used for accountability — more appropriate for students whose linguistic and cultural backgrounds are different from those of the majority. Efforts have been made to improve the assessment of English language learners

(see, e.g., Linquanti & Cook, 2013), with whom AI/AN students have something in common; but the linguistic and social contexts of the latter are often quite different from those of English language learners (ELLs), who tend to be immigrant students or the children of immigrants in various stages of learning English. Students who speak English but use a variety at home that is different from that of the school are routinely ignored.

Past research has shown that ELLs and poor readers are penalized by undue linguistic complexity in test items (Abedi, Hofstetter, Baker, & Lord, 2001). Recent research on 8th-grade science items released by the National Assessment of Educational Progress has raised questions about whether many items are clear and accessible to students from ethnolinguistic minority communities (Huang, Nelson-Barber, Trumbull, Johnson, & Sexton, 2010) — both in terms of their language and the cultural assumptions underlying the contexts in which questions are situated. As language specialists involved in numerous research projects on assessment over the past 20 years, it is our observation that too many test questions and their answer choices on standardized tests are unnecessarily lengthy and complex in terms of the syntactic structure used. We have seen sentences with 40 or 50 words, containing as many as six prepositional phrases and three embedded sentences — all factors known to add to the comprehension difficulty of a sentence. Careful drafting and editing of test questions to ensure maximum clarity (without over-simplifying either cognitive demand or language) is needed. When students do not comprehend any part of a test item accurately, they may well not construe precisely what the test question is asking (Durán, 1985). At that point, the inferences made about students' learning on the basis of their test performance are not valid.

Careful drafting and editing of test questions to ensure maximum clarity (without over-simplifying either cognitive demand or language) is needed.

A survey of the sample test items available to the public from PARCC and SBAC suggests that the language demands of some items are certainly no lower than those of past large-scale tests. But we have not performed the kinds of analyses that we carried out on past standardized test items and can only caution users of the new tests to pay attention to the kinds of language demands that might penalize AI/AN students, particularly young learners still new to school English. Of course, the broader language demands of CCSS assessments — the expectation for students to use language in complex ways, at high levels — are a reflection of the expectations expressed in the standards. Experts on the instruction of ELLs are concerned that a narrow interpretation of the standards in instruction and assessment may result in evaluating students' language in terms of mastery or accuracy and not their communicative competence (van Lier & Walqui, 2012). This approach would surely be unfortunate for AI/AN students.

Performance assessments can present special problems in cultural validity, beyond the language demands they pose. For written test items, usually a task is situated within a real-world context intended to make the task engaging and meaningful. Determining what contexts are accessible and meaningful to all the students who are taking a test is a huge challenge (Nelson-Barber, Huang, Trumbull, Sexton, & Johnson, 2008; Solano-Flores & Nelson-Barber, 2001). For instance, knowing who Babe Ruth was counts as key information in making sense of the reading passage for a fourth-grade sample SBAC English language arts item. Babe Ruth may not be a known hero in the worlds of many AI/AN students. When students' experience base is different in important ways from that of the majority, questions about validity arise (i.e., the extent to which score-based inferences are warranted, Koretz, 2015, p. 1).

In our own research, we have talked with teachers about mathematics tasks using many different contexts, among them, designing an aquarium, building a birdhouse, or organizing the purchase and preparation of food for a class party. In the case of the aquarium task, a group of American Indian teachers from the Southwest thought their American Indian students could do the mathematics but would find it odd to keep fish as pets and might approach the decision-making in the task (e.g., what fish to buy) quite differently from students who had seen aquariums in homes (Estrin & Nelson-Barber, 1995). Teachers of immigrant/migrant Latino students in the state of Washington judged the birdhouse task to be potentially odd for their students and suggested that students could more easily design something from a more familiar context, such as the school's tether ball game (Trumbull & Solano-Flores, 2011). These same teachers experimented with another task requiring students to plan a taco party for the classroom and found that judging students' ability to measure the amount of each ingredient necessary required the cultural knowledge that students would expect to provide extra tacos, not just one per student (Trumbull & Solano-Flores, 2011)! The examples cited here offer a glimpse of the kinds of challenges faced by test developers (and teachers) in the process of trying to create assessment activities that will be clear and meaningful to all students potentially responding to them.

Computerized assessment. The CCSS assessments are designed to be completed by students on a computer. AI/AN students often do not have the kind of computer access that many other students do, particularly at home (Aguilar, Keating, Schadl, & Van Reenen, 2011; Gentry & Fugate, 2012). A recent review of extensive data collected by the National Telecommunication and Information Administration showed that of all ethnic groups, American Indians had the lowest access to a home computer — 41.5 percent compared to 67.0 percent for Whites and 75.5 percent for Asians (Warschauer & Matuchniak, 2010). Access to and levels of connectivity in remote areas are additional concerns. As would be expected, income was highly associated with computer access; those with the highest family incomes tended to have the greatest access (92 percent or more). Differences in access to computers and extensive experience with

them gives advantages to more affluent students over those who use them only in school and, even then, often for limited time periods (Linquanti, cited in Heitin, 2014). It is not only selecting an answer by moving a cursor and making a keystroke that students are required to do on these tests. A student may have to use several procedures to construct a figure on the screen, as in a sample performance assessment task from SBAC in which students are asked to design a garden. To complete shorter items, they may have to scroll around to locate and click on segments of text in a reading passage, run an on-screen video (as in one PARCC sample item), or use the keyboard to type responses to questions.

Concerns about unfair and unwanted consequences of tests. Negative consequences of tests are prone to be magnified in settings where standardized tests are likely culturally invalid.[4] The potential negative consequences of standardized tests have been an ongoing concern within AI/AN communities for countless decades (Chavers & Locke, 1989; Cress, 1974; Estrin & Nelson-Barber, 1995; Fox, 2014). On the basis of inadequate tests, students may be unfairly retained in grade; they may be denied graduation; they may be referred for special education; or they may be overlooked for gifted education (Artiles, Harry, Reschly, & Chinn, 2002; Montgomery, 2001). Of course, another unwanted consequence of high-stakes testing — discussed earlier — is that it tends to drive teaching to the test, jeopardizing test validity and narrowing the curriculum (Koretz, 2015). In reaction to NCLB, some districts have focused on mathematics and language arts (tested subjects) to the neglect of art, physical education, and other subjects (McCarty, 2009). And, as discussed at length above, in AI/AN settings, culturally-responsive curriculum is often a casualty of high-stakes testing.

Interpretation of student performance may be inaccurate without additional knowledge beyond test scores. For example, with regard to reading comprehension, Buly (2005) found that the low comprehension scores of 4th-grade American Indian students living on a reservation were strongly influenced by their reliance on personal knowledge to the exclusion of text-based information to answer comprehension questions. This means that these students did not construe the task as expected — that is that they were to use text-based information to answer the questions. Their understanding of the task at hand may have been influenced by an epistemological difference between Native and Western ways of thinking, with the former emphasizing first-hand knowledge and the latter emphasizing objective data (Cajete, 2001; Kawagley, 2006).

How to Proceed? Recommendations to the Field

The range of concerns about the implementation of a new, comprehensive

4 "Cultural validity" is achieved in assessment when the sociocultural factors influencing student learning and performance (including values, language, ways of thinking, and communication patterns) are taken into account in designing, administering, and interpreting the responses to an assessment (Solano-Flores & Nelson-Barber, 2001).

education reform affecting AI/AN students is extensive and well justified. But the opportunity to maximize the potentially positive effects of the CCSS is also real. High expectations are good, and the potentially greater flexibility of much broader standards should work in favor of maintenance of rich curricula and benefit AI/AN students. Some instructional emphases, such as on student collaboration in the English language arts standards, are harmonious with approaches that teachers say work well with AI/AN students (Trumbull, Sexton, Nelson-Barber, Johnson, & Huang, 2015; Phillips, 1983; Swisher & Deyhle, 1992).

Below, we discuss important components of an approach to addressing concerns and promoting desirable outcomes of the CCSS. Some apply to local education agencies, some to both state and local education agencies, and some to the broad arena of researchers and policymakers.

Understand and Respect the Sociocultural Context

States that have committed to efforts to ensure that their students meet the CCSS standards will be successful with AI/AN students only to the degree that they understand and respect the sociocultural contexts in which AI/AN students learn. In Native cultures, "[T]he creation of lifelong learning environments and meaningful education experiences for both the youth and adults of a tribal community requires a language and cultural context that supports the traditions, knowledge, and language(s) of the community…" (Lopez, Heilig, & Schram, 2013, p. 517). Demmert and Towner (2003) spell out the elements necessary to achieve such a vision (summarized from p. 10):

1. Recognition and use of Native American languages
2. Pedagogy based on interactional styles of the community
3. Pedagogy that is culturally congruent (including opportunities to observe, practice, and demonstrate skills)
4. Curriculum based on culture and that recognizes the importance of spirituality
5. Strong community participation
6. Recognition of the social and political mores of the community

Above all, it must be remembered that American Indians and Alaska Natives experience a "distinct legal-political, socio-cultural, and social-linguistic context" with "tribal sovereignty at the core" (McCarty, 2008, p. 8). This special status guarantees communities not only the right to make decisions about what counts as appropriate education for their youth but also about the conditions that support it. But the relationship between AI/AN sovereign entities and the U.S. government is a complicated one. On the one hand, these entities have particular rights on the basis of treaties and laws; on the other hand, they are also bound by federal (and state) laws regarding education. Some provisions of these laws may directly conflict with other provisions relating to AI/AN entities — as with NCLB and Native languages, discussed earlier. As evidenced by the effects of NCLB, it can be an almost

insurmountable challenge for Native entities to persevere with policies that benefit students, when national policies push in the opposite direction (McCarty, 2009).

The fundamental differences between a dominant culture worldview and the worldviews prevalent in AI/AN communities are hard to overstate, and they have deep implications for the ways education policies designed elsewhere are received. The very values that underlie Native people's goals for education are often at odds with those implicit in large-scale Education Reforms in the U.S. Hampton (1988, p. 19) offered a short list of key values underlying what he called an "Indian theory of education":

Spirituality » An appreciation for spiritual relationships is inherent in all education endeavors.

Service » The purpose of education is to contribute to the well-being of the people.

Diversity » Indian education must meet the standards of diverse tribes and communities.

Culture » Indian education must recognize the importance of and be guided by culturally determined ways of thinking, communicating and living.

Promote Policies that Support Culturally-Responsive Implementation of the CCSS

Given the massive discontinuities between Indigenous cultural touchstones and Western-conceptualized education systems (e.g., Knudtson & Suzuki, 1992), many mentioned here, there is much to be done to bring dominant culture reforms in line with AI/AN values and needs. Key to any reconciliation is greater mutual respect and involvement between AI/AN leaders and communities and outside policymakers or change agents. Reflecting this perspective, Kirkness and Barnhardt (2001) have capsulized four principles of education reform: *Respect* of Cultural Integrity (valuing diverse community knowledge that forms the foundation on which resilient communities are based); *Relevance* to Perspectives and Experience (working with local ways of knowing, being, and communicating to co-create meaningful programs rooted in community assets while addressing their needs); *Reciprocal Relationships* (outsiders working with AI/AN leaders in the design of education, so that any education effort is shaped in partnership with community experts); and *Responsibility* Through Participation (working collaboratively in partnership with communities, who share responsibility for initiatives, and in so doing, empowering students, educators, and community members to continue the work independently (Kirkness & Barnhardt, 1991, p. 1).

At this point in the CCSS reform, there is still room for local autonomy to maintain the kind of curriculum, instruction, and assessment that will support AI/AN students' attainment of the standards. Here are some recommendations for schools and districts:

- Provide contextualized and extensive professional development to teachers and administrators.
- Resist the push to standardize curriculum, instruction, and assessment.

- Explicitly encourage maintenance of existing culturally-responsive programs.
- Build on existing curriculum and instruction that has shown promise in engaging students and developing academic learning to address the standards.
- Discourage efforts to focus on basic skills to the neglect of higher-level cognition.
- Ensure that students' heritage languages are not displaced by English and that home varieties of English — not just "standard" English — have status in the classroom.
- Avoid policies or actions that encourage teachers to teach to the tests.
- Support teachers in using multiple methods of assessment to ascertain student progress and gather information helpful to improving instruction.
- Refocus assessment away from "measuring learning deficits as opposed to factors that contribute to learning success" (Johnston & Claypool, 2010, p. 126).
- At the school and district level, use non-assessment indicators to enhance the validity of judgments about program quality and education effectiveness (e.g., attendance, school climate, dropout rate).
- Conduct culturally-responsive program evaluation, inclusive of all stakeholders (Nelson-Barber, LaFrance, Trumbull, & Aburto, 2007).

Support Appropriate Research in Small Communities

There is a desperate need for additional education research in AI/AN communities — research that is grounded in cultural theory, unlike much of the experimental and quasi-experimental research of the past involving AI/AN students (Demmert & Towner, 2003). Research based in cultural theory is generally designed to be both acceptable and useful to those communities. Hence, it is more likely to be ethnographic, observational, and inclusive rather than experimental. The Department of Education calls for scientific research, defined as randomized controlled trials. But, in many cases, it is not feasible to conduct randomized controlled trials — first, because of small populations and, second, because community members would likely not accept their conditions, believing it unethical to leave some students out of a program that has potential benefits (Demmert & Towner, 2003).

Some of the most informative education research findings have come from ethnographic studies and mixed-methods studies, in which the contexts behind quantitative data are thoroughly explored (Begay, Dick, Estell, Estell, & McCarty, 1995; Lipka, Hogan, Webster, Yanez, Adams, Clark, & Lacy 2005; Lipka & McCarty, 1994; Nelson-Barber & Lipka, 2008). Math in a Cultural Context (Lipka et al., 2005), a supplementary elementary mathematics curriculum developed in rural Alaska, is an example of a culturally-responsive resource that can and did grow out of such research. We describe this research and its ultimate impact on students at some length here in

Math in a Cultural Context: An Approach That Works

In 2004, Lipka and Adams found that Alaska Native students in rural areas of the state who participated in instruction based on culture-focused mathematics treatment modules out-performed comparable groups of control students who participated in instruction based on the regular mathematics curriculum. The treatment curriculum resulted from long-term collaborative work among Yup'ik (Eskimo) elders, teachers, university researchers, and Alaskan schools that explored and incorporated cultural and community-based knowledge on topics requiring extensive mathematical skill, such as fishing, building a kayak, and constructing a parka. This collaboration yielded elementary-level mathematics modules that explicitly connect pedagogy to Yup'ik elder knowledge and local Yup'ik culture. During development sessions, elders discussed and demonstrated the mathematics they had come to understand while going about their daily subsistence activities. For example, elders rely on geometric and spatial reasoning when designing and building fish racks in preparation for the annual salmon run.

However, beyond their focus on everyday knowledge related to mathematical thinking, these modules also make direct linkages to local cultural experiences, further clarifying local values and traditions, thus illuminating the research team's understanding of elder cultural preferences for thinking and interacting. Therefore, as the elders collaborated with curriculum developers and educators to transform their understandings into schooling practices, they helped devise unique instructional approaches rooted in Yup'ik learning and systems of problem solving. The team also documented the alignment of these strategies with National Council of Teachers of Mathematics standards (the benchmark standards before the Common Core) that called for more focus on geometry and spatial reasoning (NCTM, 2000). Math in a Cultural Context intentionally capitalizes on modes of instruction that utilize tenets identified by the Indigenous teachers, including cooperative learning, local knowledge and discourse structures, and classroom organization that supports Yup'ik values of group harmony.

order to illustrate its value and suggest why other collaborative, ethnographic research must be supported.

Despite the challenges of longitudinal research (Demmert & Towner, 2003), studies that follow students in culturally-responsive programs are needed, particularly to shed more light on what works for developing high-level literacy (Reyhner & Hurtado, 2008), the cornerstone of successful academic development. Equally important at this time is research documenting districts' implementation of the CCSS — to identify ways districts with AI/AN students reduce or maintain culturally-responsive pedagogy.

Conclusion

Major nationwide Education Reforms of the 21st century have had the goal of improving education outcomes for U.S. students, and for under-achieving students in particular. The CCSS Initiative aims to ensure the education success of all students, regardless of "zip code" (Kornhaber et al., 2014, p. 1) through a combination of internationally benchmarked standards and improved pedagogical practices. In light of the negative impact of past reforms, such as NCLB, advocates for high-quality education for American Indian and Alaska Native students are asking policymakers and education agencies to consider seriously how to ensure that these students will benefit from and not be further disenfranchised by the CCSS.

AI/AN parents and communities deserve education policies that allow for "choice rooted in the linked domains of individual and communal self-determination" (Lomawaima & McCarty, 2006, p. 9, cited in McCarty, 2009, p. 27). Universal standards, common instructional practices, context-free curriculum, and standardized assessments stand in the way of that self-determination and on capitalizing on diverse ways of thinking, learning, and communicating to ensure that AI/AN students succeed.

The state of Alaska judged that it would be better off using its own academic standards, including Alaska Standards for Culturally Responsive Schools (Alaska Native Knowledge Network, 1998) that were developed over a period of years and adopted by the Assembly of Alaska Native Educators. But most other states — some with significant numbers of AI/AN students — must consider the needs of AI/AN students in their CCSS implementation. In that process, cultural and social differences, the legal standing of tribal entities, flagrant structural inequalities, and the very history of AI/AN education must all be recognized and addressed.

In this brief, we have tended to refer to AI/AN "communities," when, in fact, many AI/AN students live in urban areas where they are a minority in any given classroom. Of course, it is easier to design and carry out education programs that integrate AI/AN language and culture in an intact community, such as those on the Navajo Nation, the Pueblos of New Mexico, or villages of Alaska. However, as mentioned, a great many of those urban students are still connected to their

heritage languages and cultures. Their approach to learning in school is shaped by their languages and cultures, and they need supportive education environments that recognize differences in values and practices associated with their AI/AN heritage. Without such environments, they are at greater risk of performing below their potential or dropping out.

Once again, the education community — in reality, the nation — is faced with the question of whether it is capable of doing right by American Indian and Alaska Native students, or at least making a genuine effort to do so. Allowing a large percentage of these students to continue to fall through the cracks, to continue to be less prepared for college or careers than their dominant culture peers, when much is known about the kind of schooling that works for them, represents a lapse of ethics and perpetuates a divide not healthy for the country both socially and economically.

References

Abedi, J., Hofstetter, C., Baker, E., & Lord, C. (2001). *NAEP math performance and test accommodations: Interactions with student language background* (CSE Technical Report 536). Los Angeles: University of California, Center for the Study of Evaluation/National Center for Research on Evaluation, Standards, and Student Testing.

Adams, D. W. (1995). *Education for Extinction: American Indians and the Boarding School Experience, 1875–1928*. Lawrence, KS: University Press of Kansas.

Adger, C. T., Wolfram, W., & Christian, D. (2014). *Dialects in schools and communities*. New York: Routledge.

Aguilar, P., Keating, K., Schadl, S., & Van Reenen, J. (2011). Reference as outreach: Meeting users where they are. *Journal of Library Administration*, *51*(4), 343–358.

Aikenhead, G. S. (1997, March). Canada's indigenous peoples and western science education. In *Effects of traditional cosmology on science education* (pp. 15–21). Mito, Japan: Ministry of Education, Culture and Sports, Ibaraki University.

Akiba, M., Chiu Y-F., & Zhuang, Y-L. (2008). Standards-based mathematics reforms and mathematics achievement of American Indian/Alaska Native eighth graders. *Education Policy Analysis Archives*, 16(20), 1–31.

Akiba, M., LeTendre, G. K., & Scribner J. P. (2007). Teacher quality, opportunity gap, and achievement gap in 47 countries. *Educational Researcher*, *36*(7), 369–387.

Alaska Native Knowledge Network (1998). Alaska Standards for Culturally Responsive Schools Retrieved 8/22/15 from http://ankn.uaf.edu/Publications/CulturalStandards.pdf.

Andrei, A. L. (2014). Development and Evaluation of Tagalog Linguistic Inquiry and Word Count (LIWC) Dictionaries for Negative and Positive Emotion.

Artiles, A. J., Harry, B., Reschly, D. J., & Chinn, P. C. (2002). Over-identification of students of color in special education: A critical overview. *Multicultural Perspectives*, *4*(1), 3–10.

August, D., Goldenberg, C., & Rueda, R. (2006). Native American children and youth: Culture, language, and literacy. *Journal of American Indian Education*, *45*(3), 24–37.

Bahr, R. H. (2003). Assessment of variation between and within speakers. *The Journal of the Acoustical Society of America*, *114*(4), 2366–2366.

Bailey, A. L., & Carroll, P. E. (2015). Assessment of English language learners in the era of new academic content standards. *Review of Research in Education*, *39*, 253–294.

Balter, A., & Grossman, F. D. (2009). The effects of the No Child Left Behind Act on language and culture education in Navajo public schools. *Journal of American Indian Education*, *48*(3), 19–46.

Barnhardt, R. (2004). Domestication of the ivory tower: Institutional adaptation to cultural distance. *Anthropology and Education Quarterly*, *33*(2), 238–249.

Barnhardt, R. (2014). Creating a place for indigenous knowledge in education. Place-based education in the global age: Local diversity, 113.

Bartlett, F. (1932). *Remembering*. Cambridge, England: Cambridge University Press.

Basso, K. H. (1996). *Wisdom sits in places: Landscape and language among the Western Apache*. Albuquerque, NM: University of New Mexico Press.

Beaulieu, D. (2006). A survey and assessment of culturally based education programs for Native American students in the United States. *Journal of American Indian Education*, *45*(2), 50–61.

Beaulieu, D. (2008). Native American education research and policy development in an era of No Child Left Behind: Native language and culture during the administrations of Presidents Clinton and Bush. *Journal of American Indian Education*, *47*(1), 10–45.

Beaulieu, D., Sparks, L., & Alonzo, M. (2005). *Preliminary report on No Child Left Behind in Indian country*. Washington, D.C.: National Indian Educational Association.

Begay, S., Dick, G. S., Estell, D. W., Estell, J., & McCarty, T. L. (1995). Change from the inside out: A story of transformation in a Navajo community school. T*he Bilingual Research Journal*, *19*(1), 121–139.

Bock, T. (2006). A consideration of culture in moral theme comprehension: comparing Native and European American students. *Journal of Moral Education*, *35*(1), 71–87.

Bombay, A., Matheson, K., & Anisman, H. (2014). The impact of stressors on second generation Indian residential school survivors. *Transcultural Psychiatry*, *48*(4), 367–391.

Bordeaux, R. (1995). *Assessment for American Indian and Alaska Native students*. Charleston, W. VA: Clearinghouse on Rural Education and Small Schools.

Bosse, S. A., Duncan, K., Gapp, S. C., & Newland, L. A. (2011). Supporting American Indian students in the transition to postsecondary education. *Journal of the First-Year Experience & Students in Transition*, *23*(2), 33–51.

Bourdieu, P. (1990). *In other words: Essays towards a reflexive sociology*. Stanford: Stanford University Press.

Brave Heart, M. (1998). The return to the sacred path: Healing the historical trauma and historical unresolved grief response among the Lakota. *Smith College Studies in Social Work*, *68*(3), 287–305.

Brave Heart, M. (2003). The historical trauma response among natives and its relationship with substance abuse: A Lakota illustration. *Journal of Psychoactive Drugs*, *35*(1), 7–13.

Brave Heart, M., & DeBruyn, L. (1998). The American Indian holocaust: Healing historical unresolved grief. *American Indian and Alaska Native Mental Health Research*, *8*(2), 56–78.

Bush, G. W. (2004). Executive order 13336: American Indian and Alaska Native education. Retrieved 8/9/15 from http://www.gpo.gov/fdsys/pkg/FR-2004-05-05/pdf/04-10377.pdf.

Buly, M. R. (2005). Leaving no American Indian/Alaska Native behind: Identifying reading strengths and needs. *Journal of American Indian Education*, *44*(1), 29–53.

Bunch, G. C., Kibler, A., & Pimentel, S. (2012). Realizing opportunities for English learners in the Common Core English language arts and disciplinary literacy standards. In *Understanding Language*. Commissioned papers on language and literacy issues in the Common Core State Standards and Next Generation Science Standards (pp.1–16). Co-Chairs K. Hakuta & M. Santos. April 5, 2012, Stanford University.

Burns, A. (2003). Opportunities or threats? The case of English as a global language. *Publishing Research Quarterly*, *18*(4), 18–25.

Cajete, G. A. (1994). *Look to the mountain: An ecology of indigenous education*. Durango, CO: Kivaki Press.

Cajete, G. A. (2001). Indigenous education and ecology. In J. Grim (Ed.), *Indigenous traditions and ecology: The interbeing of cosmology and community* (pp. 619–638). Cambridge, MA: Harvard University Press.

Cajete, C. (2008). Seven orientations for the development of indigenous science education. In N. Denzin, Y. Lincoln, & L. Tuhiwai Smith (Eds.), *Handbook of critical indigenous methodologies* (pp. 487–497). Thousand Oaks, CA: Sage.

Castro, E. L. (2015). Not ready for college, but ready for the military: A policy challenge for the college- and career-readiness agenda. *Education Policy Analysis Archives*, *23*(75), 1–24. Retrieved 8/10/15 from http://epaa.asu.edu/ojs.

Chavers, D., & Locke, P. (1989). The Effects of Testing on Native Americans. Paper commissioned by the National Commission on Testing and public Policy, April 4.

Cody, A. (2014). The Common Core: Engine of inequity. In P. C. Gorski & K. Zenkov (Eds.), *The big lies of school reform* (pp. 31–41). New York: Routledge.

Castagno, A. E., & Brayboy, B. M. J. (2008). Culturally responsive schooling for Indigenous youth: A review of the literature. *Review of Educational Research*, *78*(4), 941–993.

Council of Chief State School Officers (2012). Common Core State Standards: Implementation tools and resources. Retrieved July 12, 2015 from http://www.ccsso.org/documents/2012/common__core_resources.pdf.

Cress, J. N. (1974). Cognitive and personality testing use and abuse. *Journal of American Indian Education*, *13*(3), 16–19.

Darling-Hammond, L. (2006). Securing the right to learn: Policy and practice for powerful teaching and learning. *Educational Researcher*, *35*(7), 13–24.

Darling-Hammond, L., Wei, R. C., Andree, A., Richardson, A., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher development in the United States and abroad*. Oxford, OH: National Staff Development Council.

Denmert, W. J. (2001). Improving academic performance among Native American students: A review of the research literature. Charleston, WV: ERIC Clearinghouse on Rural Education.

Denmert, W. J., & Towner, J. C. (2003). A review of the research literature on the influences of culturally based education on the academic performance of Native American students. Portland: Northwest Regional Educational Laboratory, http://educationnorthwest.org/sites/default/files/resources/cbe.pdf.

Deyhle, D. & Swisher, K. G. (1997). Research in American Indian and Alaska Native education: From assimilation to self-determination. *Review of Research in Education*, *22*, 113–194.

Duff, P. A. (2010). Language socialization into academic discourse communities. *Annual Review of Applied Linguistics*, *30*, 169–192.

Dundes, A. (1963). Structural typology in North American Indian folktales. *Southwestern Journal of Anthropology*, *19*(1), 121–130.

Durán, R. P. (1985). Influences of language skills on bilinguals' problem solving. In S. F. Chipman, J. W. Segal, & R. Glaser (Eds.), *Thinking and learning skills* (pp. 187–207). Hillsdale, NJ: Erlbaum.

Enos, A. D. (2001). A landscape with multiple views: Research in Pueblo communities. *Multiple and intersecting identities in qualitative research*, 83–101.

Estrin, E. T., & Nelson-Barber, S. (1995). *Issues in cross-cultural assessment: American Indian and Alaska Native students* (Knowledge Brief No. 12). San Francisco: Far West Laboratory for Educational Research and Development.

Faircloth, S. C., & Tippeconnic, J. W. III. (2010). The dropout/graduation crisis among American Indian and Alaska Native students. Los Angeles, CA: University of California Los Angeles. The Civil Rights Project/Proyecto Derechos Civiles. Retrieved 7/26/15 from http://civilrightsproject.ucla.edu/research/k-12-education/school-dropouts/the-dropout-graduation-crisis-among-american-indian-and-alaska-native-students-failure-to-respond-places-the-future-of-native-peoples-at-risk.

Fordham, S., & Ogbu, J. U. (1986). Black students' school success: Coping with the burden of acting White. *Urban Review*, *18*(3), 176–206.

Fox, S. J. (2000). Standards-based reform and American Indian/Alaska Native education. Paper prepared for the American Indian/Alaska Native Research Agenda Conference, Albuquerque, NM, May 31.

Fox, S. (2014, July). Keynote address: In a culturally appropriate way. Fifth American Indian/Indigenous Teacher Education Conference, Northern Arizona University. Flagstaff, AZ.

Freeman, C., & Fox, M. (2005). Status and trends in the education of American Indians and Alaska Natives (NCES22005-108). Washington, DC: U.S. Department of Education, National Center for Education Statistics.

Gentry, M., & Fugate, C. M. (2012). Gifted Native American students: Underperforming, under-identified, and overlooked. *Psychology in the Schools*, *49*(7), 631–646.

Gone, J. P. (2007). "We never was happy living like a Whiteman": Mental health disparities and the postcolonial predicament in American Indian communities. *American Journal of Community Psychology*, *40*, 290–300.

Goodluck, C. (2002). *Native American children and youth well-being indicators: A strengths perspective*. Seattle, WA: Casey Family Programs.

Gorski, P. C. (2014). Poverty, economic inequality, and the impossible promise of school reform. In P. C. Gorski & K. Zenkov (Eds.), *The big lies of school reform* (pp. 129–141). New York: Routledge.

Guillory, R. M., & Wolverton, M. (2008). It's about family: Native American student persistence in higher education. *The Journal of Higher Education*, *79*(1), 58–87.

Haidar, A. H. (1997, March). Western science and technology education and the Arab world. In *Effects of traditional cosmology on science education* (pp. 6–14). Mito, Japan: Ministry of Education, Culture and Sports, Ibaraki University.

Haig-Brown, C. and Dannenmann, K. (2008). The land is the first teacher: The Indigenous knowledge instructors' program. In Zvi Bekerman & Ezra Kopelowitz (Eds.) *Cultural education-cultural sustainability: Minority, diaspora, Indigenous, and ethno-religious groups in multicultural societies*. (pp. 245–266). New York, NY: Routledge.

Hampton, E. (1995). Towards a redefinition of Indian education. In M. A. Battiste & J. Barman (Eds.), *First nations education in Canada: the circle unfolds* (pp. 5–46). Vancouver: UBC Press.

Harris, K., Bauer, M., & Redman, M. (2008). *Cognitive based developmental models used as a link between formative and summative assessment*. Princeton, NJ: Educational Testing Service. http://www.iaea2008.cambridgeassessment.org.uk/ca/digitalAssets/164898_Harris.pdf.

Heilig, J. V., & Darling-Hammond, L. (2008). Accountability Texas-style: The progress and learning of urban minority students in a high-stakes testing context. *Educational Evaluation and Policy Analysis*, *30*(2), 75–110.

Heitin, L. (2014). Common Core assessment groups differ over accommodations. *Education Week*, April 21. Retrieved 5/27/15 from http://www.edweek.org.

House, D. (2005). *Language shift among the Navajos: Identity politics and cultural continuity*. Tucson, AZ: University of Arizona Press.

Huang, C-W., Nelson-Barber, S., Trumbull, E., Johnson, Z., & Sexton, U. (2010). Examining NAEP science assessment items that exhibit DIF between American Indian and White students and between American Indian and Hispanic students: Is there a common denominator? Paper presented at the Annual Meeting of the American Educational Research Association, Denver CO (April).

Huang, C-W., Nelson-Barber, S., Trumbull, E., & Sexton, U. (2011, April). Student, teacher, and school factors associated with NAEP mathematics test performance by American Indian and Alaska Native students. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans.

Johnston, A., & Claypool, T. (2010). Incorporating a multi-method assessment model in schools that serve First Nations, Inuit, and Métis learners. *Native Studies Review*, *19*(2), 121–138.

Johnstone, R. (1989). *Communicative Interaction: A Guide for Language Teachers*. London: Centre for Information on Language Teaching and Research.

Kana'iaupuni, S. M., Ledward, B. & Jensen, U. (2010). *Culture-Based Education and its relationship to student outcomes*. Honolulu, HI: Kamehameha Schools, Research & Evaluation Division.

Kawagley, A. (2006). *A Yupiaq worldview: A pathway to ecology and spirit (2nd ed)*. Longrove, IL: Waveland Press, Inc.

Kaplan, R. B. (2000). Contrastive rhetoric and discourse analysis: Who writes what to whom? When? In what circumstances. *Discourse and Social Life*, *82*–102.

Kirkness, V. (1995). Aboriginal peoples and tertiary education in Canada: Institutional responses. *The London Journal of Canadian Studies*, *11*, 28–40.

Kirkness, Verna J. & Barnhardt, Ray (1991) First Nations and Higher Education: The Four R's — Respect, Relevance, Reciprocity, Responsibility. *Journal of American Indian Education*, *30*(3), 1–15.

Kotlowitz, A. (2015, August 23). Getting schooled. *New York Times Book Review*, 9.

Koretz, D. (2015). Adapting educational measurement to the demands of test-based accountability. A working paper of the Educational Accountability Project at the Harvard Graduate School of Education. Retrieved 7/8/15 from http://projects.iq.harvard.edu/files/eap/files/adapting_measurement_revision_wp_1.9.2015.pdf.

Kornhaber, M. L., Griffith, K., & Tyler, A. (2014). It's not education by zip code anymore — but what is it? Conceptions of equity under Common Core. *Education Policy Analysis*, *22*(4). Retrieved 7/15/15 from http://epaa.asu.edu/ojs.

Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American educational research journal*, *32*(3), 465–491.

LaFromboise, T. D., Albright, K., & Harris, A. (2010). Patterns of hopelessness among American Indian adolescents: Relationships by levels of acculturation and residence. *Cultural Diversity and Ethnic Minority Psychology*, *16*(1), 68. Retrieved 4/8/15 from http://www.researchgate.net.

LaFromboise, T., Coleman, H. L., & Gerton, J. (1993). Psychological impact of biculturalism: Evidence and theory. *Psychological Bulletin*, *114*, 395–412.

LaFromboise, T., & Dizon, M. (2003). American Indian children and adolescents. In J. T. Gibbs & L. N. Huang (eds.), *Children of color: Psychological interventions with culturally diverse youth* (pp. 45–90). San Francisco, CA: Jossey-Bass.

LaFromboise, T. D., Hoyt, D. R., Oliver, L., & Whitbeck, L. B. (2006). Family, community, and school influences on resilience among American Indian adolescents in the upper Midwest. *Journal of Community Psychology*, *34*(2), 193–209.

LaFromboise, T., & Medoff, L. (2004). Sacred spaces: The role of context in American Indian youth development. In M. Weist (Ed.), *Community planning to foster resilience in children*. New York: Kluwer Academic/Plenum Press.

Latham, A. (2015). Bursting bubbles: Assessing the new tests. *School Administrator*. June, 19–23.

Leahy, S., & Wiliam, D. (2011, April). Devising learning progressions. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans: LA.

Leap, W. L. (1993). *American Indian English*. Salt Lake City: University of Utah Press.

Lee, C. D., & Majors, Y. J. (2003). 'Heading up the street:' Localized opportunities for shared constructions of knowledge. *Pedagogy, Culture & Society*, *11*(1), 49–68. Retrieved 8/10/15 from http://www.tandfonline.com/doi/pdf/10.1080/14681360300200160.

Linquanti, R., & Cook, H. G. (2013). Toward a "common definition of English learner." Issue Brief. Washington, D.C.: Council of State School Officers.

Lipka, J. & Adams, B. (2004). Culturally based math education as a way to improve Alaska Native students' math performance. The Appalachian Collaborative Center for Learning, Assessment and Instruction in Mathematics Series. http://acclaim.coe.ohiou.edu/rc/rc_sub/pub/3_wp/list.asp.

Lipka, J., Hogan, M., Webster, J, Yanez, E., Adams, B., Clark, S., & Lacy, D. (2005). Math in a cultural context: Two case studies of a successful culturally based math project, *Anthropology & Education Quarterly*, *36*(4), 367–385.

Lipka, J., & McCarty, T. L. (1994). Changing the culture of schooling: Navajo and Yup'ik cases, *Anthropology & Education Quarterly*, *25*(3), 266–284.

Lomawaima, K. T., & McCarty, T. L. (2006). "To remain an Indian": Lessons in democracy from a century of Native American education. New York: Teachers College Press.

Lopez, F. A., Heilig, J. V., & Schram, J. (2013). A story within a story: Culturally responsive schooling and American Indian and Alaska Native achievement in the National Indian Education Study. *American Journal of Education*, *119*, 513–538.

McCarty, T. L. (2002). A place to be Navajo — Rough Rock and the struggle for self-determination in Indigenous schooling. New York: Routledge.

McCarty, T. L. (2008). American Indian, Alaska Native, and Native Hawaiian education in the era of standardization and NCLB — An Introduction. *Journal of American Indian Education*, *47*(1), 1–9.

McCarty, T. L. (2009). The impact of high-stakes accountability policies on Native American learners: evidence from research. Teaching Education, 20(1), 7–29.

McCarty, T. L. (2012). Indigenous languages and cultures in Native American student achievement: Promising practices and cautionary findings. In B. Klug (Ed.), *Standing together: American Indian education as culturally-responsive pedagogy* (pp. 97–119). Lanham, MD: Rowman & Littlefield Education.

McCarty, T. L., & Romero-Little, M. E. (2005, April 12). Accountable to whom? NCLB, English-only, and Native American learners. Paper presented at the Annual Meeting of the American Educational Research Association. Montreal, Quebéc.

McPherson, R. S. (1994). From Dezba to "John": The Changing Role of Navajo Women in Southeastern Utah. *American Indian Culture and Research Journal*, *18*(3), 187–209.

Miller, B., & Hahn, K. (1997). *Finding their own place*. Charleston, WV: Clearinghouse on Rural Education and Small Schools.

Miller, B. G. (1992). Common sense and plain language. BC Studies: *The British Columbian Quarterly*, *95*, 55–65.

Moll, L., Amanti, C., Neff, D., and Gonzalez, N. (1992). Funds of Knowledge for Teaching: Using a Qualitative Approach to Connect Homes and Classrooms. *Theory Into Practice*, *31*(2), 132.

Montgomery, D. (2001). Increasing Native American Indian involvement in gifted programs in rural schools. *Psychology in the Schools*, *38*(5), 467–475.

Moschkovich, J. (2012). Mathematics, the Common Core, and language: Recommendations for mathematics instruction for ELs aligned with the Common Core. In *Understanding Language*. Commissioned papers on language and literacy issues in the Common Core State Standards and Next Generation Science Standards (pp. 17–31). Co-Chairs K. Hakuta & M. Santos. April 5, 2012, Stanford University.

National Council of Teachers of Mathematics. (Ed.). (2000). *Principles and standards for school mathematics*. (Vol. 1). Reston, VA: Author.

Nelson-Barber, S. (2013). US Indigenous STEM. Contributing paper to Marginson, Tytler, R., Freeman, B. & Roberts, K. *STEM Country Comparisons*. Melbourne, Australia: Australian Council of Learned Academies, http://www.acola.org.au/PDF/SAF02Consultants/Consultant Report - US Indigenous.pdf.

Nelson-Barber, S., & Dull, V. (1998). Don't act like a teacher! Images of effective instruction in a Yup'ik Eskimo classroom. In Lipka, J. (*with G. Mohatt & the Ciulistet Group*). (Eds.), *Transforming the Culture of Schools: Yup'ik Eskimo Examples* (pp. 91–105). Hillsdale, NJ: Lawrence Erlbaum.

Nelson-Barber, S., Huang, K., Trumbull, E., & Sexton, U. (2015, April). Student, teacher, and school factors associated with NAEP mathematics test performance by American Indian and Alaska Native students: Phase II. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.

Nelson-Barber, S. & Johnson, Z. (forthcoming). Recognizing the perils of "best practices" in an Indigenous community, *Contemporary Educational Psychology, Special Issue on Indigenous Issues in Education and Research: Looking forward*.

Nelson-Barber, S., Huang, C., Trumbull, E., Sexton, U., & Johnson, Z. (2008, March). A new model for understanding the relationship between test item features and student performance on large-scale assessments with American Indian students. Paper presented at the annual meeting of the American Educational Research Association, New York, New York.

Nelson-Barber, S., LaFrance, J., Trumbull, E., & Aburto, S. (2005). Culturally-responsive program evaluation. In S. Hood, R. Hopson, & H. Frierson (Eds.). *The role of culture and cultural context: A mandate for inclusion, the discovery of truth, and understanding in evaluative theory and practice* (pp. 61–85). Greenwich, CT: Information Age Publishers.

Nelson-Barber, S. & Lipka, J. (2008). Rethinking the case for culture-based curriculum: Conditions that support improved mathematics performance in diverse classrooms. In Brisk, M. (Ed.) *Language, Curriculum & Community in Teacher Preparation* (pp. 99–123). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Nelson-Barber, S., & Trumbull, E. (2007). Making assessment practices valid for Indigenous American students. *Journal of American Indian Education*, *46*(3), 132–147.

Nichols, S. L., & Berliner, D. C. (2007). *Collateral damage: How high-stakes testing corrupts America's schools*. Cambridge, MA: Harvard Education Press.

Nichols, S. L., Glass, G. V., & Berliner, D. C. (2006). High-stakes testing and student achievement: Does accountability pressure increase student learning? *Education Policy Analysis Archives, 14*(1). Retrieved 8/20/15 from http://epaa.asu.edu.

No Child Left Behind Act. (2002). Public Law 107–110. 20 USC 6301. Retrieved 7/6/15 from http://www2.ed.gov/nclb/landing.jhtml.

O'Connell, M. E., Boat, T., & Warner, K. E. (Eds.). (2009). *Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities*. Washington, D.C.: National Academies Press.

Okal, B. O. (2014). The benefits of multilingualism in education. *Universal Journal of Educational Research*, *2*(3), 223–229.

Patrick, R. (2008). Perspectives on change: A continued struggle for academic success and cultural relevancy at an American Indian school in the midst of No Child Left Behind. *Journal of American Indian Education*, *47*(1), 65–81.

Pearson, P. D., & Hiebert, E. (2012). Understanding the Common Core State Standards. Santa Cruz, CA: TextProject & University of California, Santa Cruz. TextProject Article Series.

Penfield, R. D., & Lee, O. (2009). Test-based accountability: Potential benefits and pitfalls of science assessments with student diversity. *Journal of Research in Science Teaching*, *47*(1), 6–24.

Pewewardy, C. (2005). Ideology, power, and the miseducation of indigenous peoples in the United States. *For indigenous eyes only: A decolonization handbook*, 139–158.

Philips, S. U. (1983). *The invisible culture: Communication in classroom and community on the Warm Springs Reservation*. New York: Longman.

Quay, L. (2010). Higher standards for all: Implications of the Common Core for equity in education. Research Brief, The Chief Justice Earl Warren Institute on Race, Ethnicity, and Diversity. Berkeley, CA: University of California, Berkeley Law School.

Renée, M., & Trujillo, T. (2014). The trouble with federal turnaround policies and their impact on low-scoring schools. In P.C. Gorski & K. Zenkov (Eds.), *The big lies of school reform*, New York: Routledge, pp. 152–168.

Resnick, L. (1991). Shared cognition: Thinking as social practice. In Resnick, L., Levine, J., & Teasley, S. (Eds.). *Perspectives on socially shared cognition*. Washington, D.C.: American Psychological Association.

Reyhner, J. & Hurtado, D. S. (2008). Reading First, literacy, and American Indian/Alaska Native students. *Journal of American Indian Education*, *47*(1), 82–95.

Romero-Little, M. E., McCarty, T. L., Warhol, I., & Zepeda, O. (2007). Language policies in practice: Preliminary findings from a large-scale study of Native language shift. *TESOL Quarterly*, *41*(3), 607–618.

Rothstein, R., Wilder, T., & Allgood, W. (2011). Providing comprehensive educational opportunity to low income students: How much does it cost? New York, NY: Campaign for Educational Equity, Teachers College, Columbia University.

Rural School and Community Trust (2000). *Learning in Place*. Report of the Annenberg Rural Challenge Research and Evaluation Program. Washington, DC: Rural School and Community Trust.

Savard, W. G., & Cotton, K. (1983). What effective schooling research says to migrant education program planners. Paper presented at the Annual National Migrant Education Conference, Portland, OR, May.

Semken, S. (2005). Sense of place and place-based introductory geoscience teaching for American Indian and Alaska Native undergraduates. *Journal of Geoscience Education*, *53*(2), 149–157.

Shavelson, R. J., & Kurpius, A. (2012). Reflections on learning progressions. In A. C. Alonzo, & A. W. Gotwals (Eds.), *Learning progressions in science* (pp. 13–26). Rotterdam, The Netherlands: Sense Publishers.

Sleeter, C., & Stillman, J. (2005). Standardizing knowledge in a multicultural society. *Curriculum Inquiry*, *35*(1), 27–46.

Smarter Balanced (N.D.) Site for "Grandma Ruth:" Retrieved 8/2/15 from http://sampleitems.smarterbalanced.org/itempreview/sbac/ELA.htm

Smith, L. T. (1999). Decolonizing methodologies: Research and indigenous peoples. London: Zed Books Ltd.

Smith, G. A. (2002). Place-Based Education: Learning To Be Where We Are. *Phi Delta Kappan*, *83*(8), 584.

Solano-Flores, G., & Nelson-Barber (2001). On the cultural validity of science assessments. *Journal of Research in Science Teaching*, *38*, 553–573.

Solano-Flores, G. & Trumbull, E. (2003). Examining language in context: The need for new research and practice paradigms in the testing of English language learners. *Educational Researcher*, *32*(2), 3–13.

Steedle, J. T., & Shavelson, R. J. (2009). Supporting valid interpretations of learning progression level diagnoses. *Journal of Research in Science Teaching*, *46*, 699–715.

Stein, S. J. (2004). *The culture of educational policy*. New York, NY: Teachers College Press.

Strand, J. A., & Peacock, T. D. (2002). Nurturing resilience and school success in American Indian and Alaska Native students. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools.

Styres, S. D., & Zinga, D. (2013). The community-first land-centred theoretical framework: Bringing a 'Good Mind' to Indigenous education research. *Canadian Journal of Education/Revue canadienne de l'éducation*, *36*(2), 284–313.

Swisher, K., & Deyhle, D. (1992). Adapting instruction to culture. In J. A. Reyhner (Ed.), *Teaching American Indian students* (pp. 81–95). Norman, OK: University of Oklahoma Press.

Szasz, M. (1974). *Education and the American Indian*. Albuquerque: New Mexico Press.

Trujillo, O., & Alston, D. A. (2005). A report on the status of American Indians and Alaska Natives in education: Historical legacy to cultural empowerment. Washington, DC: National Education Association. Human and Civil Rights.

Trumbull, E., Greenfield, P. M., & Quiroz, B. (2004). Cultural values in learning and education. In. B. Williams (Ed.), *Closing the achievement gap*, 2nd Edition, (pp. 67–98). Alexandria, VA: ASCD.

Trumbull, E., & Gerzon, N. (2013). *Professional development for formative assessment: Insights from research and practice*. White paper. San Francisco: WestEd.

Trumbull, E., Nelson-Barber, S., & Mitchell, J. (2002). Enhancing mathematics instruction for Indigenous American Students. In J. Hankes (Ed.), *Changing the faces of mathematics: Perspectives on Indigenous people of North America* (pp. 1–18). Reston, VA: National Council of Teachers of Mathematics.

Trumbull, E., Sexton, U., Nelson-Barber, S., Johnson, Z. & Huang, K. (forthcoming, December 2015). Assessment practices in schools serving American Indian and Alaska Native students, *Journal of American Indian Education*, *54*, (3).

Trumbull, E., & Solano-Flores, G. (2011). Addressing the language demands of mathematics assessments. In M. del R. Basterra, E. Trumbull, & G. Solano-Flores (Eds.), *Cultural validity in assessment: Addressing linguistic and cultural diversity* (pp.22–45). New York: Routledge.

Tuck, E. (2009). Suspending damage: A letter to communities. *Harvard Educational Review*, *79*(3), 409–428.

Urban Indian Health Institute. (2013, February 28). U.S. census marks increase in urban American Indians and Alaska Natives. Seattle, WA: Seattle Indian Health Board.

Valencia, R. (2010). *Dismantling contemporary deficit thinking: Educational thought and practice*. New York: Taylor & Francis.

van Lier, L., & Walqui, A. (2012). Language and the Common Core State Standards. Understanding language. Commissioned papers on language and literacy issues in the Common Core State Standards and the Next Generation Science Standards. K. Hakuta & M. Santos, Co-Chairs. Stanford University, April 5.

Vygotsky, L. S. (1962). *Thought and language*. Cambridge, MA: MIT Press.

Warschauer, M., & Matuchniak, T. (2010). New technology and digital worlds: Analyzing evidence of equity in access, use, and outcomes. *Review of Research in Education*, *34*(1), 179–225.

Westcott, J. R. (1974). The effect of the Distar [sic] reading program on selected disadvantaged children in South Dakota. Retrieved 7/2/15 from http://eric.ed.gov/?id=ED109613.

WestEd. (2012, Spring). Common Core: An uncommon opportunity for low-performing students. *R&D Alert*, 13(2), 3–5.

Wexler, L. M., & Gone, J. P. (2012). Culturally responsive suicide prevention in Indigenous communities: Unexamined assumptions and new possibilities. *American Journal of Public Health, 102*(5), 800–806.

Winstead, T., Lawrence, A., Brantmeier, E. J., & Frey, C. J. (2008). Language, sovereignty, cultural contestation, and American Indian schools: No Child Left Behind and a Navajo test case. *Journal of American Indian Education*, *47*(1), 46–64.

Wylie, E. C., & Heritage, M. (2010). Developing and deepening formative assessment practice. In M. Heritage, *Formative assessment: Making it happen in the classroom* (pp. 117–132). Thousand Oaks, CA: Corwin Press.


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