

The “Perfect Storm” in Indigenous Education Stories about Context, Culture and Community Knowledge¹

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An Urgent, Unmet Need

Despite on-going federal efforts to address the educational needs of Indigenous students in the United States, irrepensible calls for change in public Indian education have echoed across Indian country for some time (Indian Nations at Risk Task Force, 1991; Meriam, 1928; Nelson-Barber & Johnson, 2016; Reyhner & Eder, 2006; Special Subcommittee, 1969). Recent reports assert that the educational reforms of the 1990s and beyond, including those mandated by the federal No Child Left Behind Act of 2001, have resulted in no measurable improvements in the educational achievement of American Indian and Alaska Native (AI/AN) students (Education Trust, 2013; Musu-Gillette, Robinson, McFarland, KewalRamani, Zhang & Wilkinson-Flicker, 2016; NCES, 2012; Office of Civil Rights, 2016). Citing National Assessment of Educational Progress (NAEP) statistics at a recent conference, renowned Indian educator, Dr. Sandra Fox, noted that fewer than 20% of American Indian students in the fourth grade perform at “proficient” or “advanced” levels (Fox, 2014, 2015). When we revisit the many reforms carried out over past generations we note that they have been not only ineffective, but also detrimental to the educational performance of Native youth as well as to their well-being. These observations are confirmed by recent reports such as President Obama’s 2014 Native Youth Report (The White House, 2014) and the US Department of Education’s Office of Civil Rights data on equity and opportunity in our nation’s public schools (USDOE, 2016).

These effects point to the high level of vulnerability that Indigenous students experience in the US educational systems, when at the same time entire Indigenous knowledge systems are being lost due to the fast decline in Indigenous communities’ use of heritage languages and cultural practices (House, 2014; Nelson-Barber & Johnson, 2016). In many ways, the difficulties faced by Indigenous learners and their communities can be characterized as a “perfect storm” that threatens to destroy our timeless and treasured Indigenous knowledge systems.

Table 1 on the following page lists some of the elements of the “perfect storm” that young Indigenous learners must overcome in order to attain educational success. To address this perfect storm, factors such as these must be well understood, and strategies available to enhance instructional responsiveness to local conditions. In fact, the “treasured” local indigenous knowledge systems mentioned above are not only invaluable in their own right but are the very foundation of prior knowledge on which to build new learning.

Capitalizing on Indigenous Success

Problem-based perspectives and deficit thinking have figured into the public discourse on American Indian and Alaska Native education for too long—to the point that there can be certain assumptions about who can succeed and who can-

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not. We are all too familiar with the dismal portraiture associated with American Indian and Alaska Native student academic performance: frequent tracking into low ability groups, disproportionate representation in special education, high

Table 1: Elements that Converge to Create the “Perfect Storm” in Indigenous Education

<i>Community-related Factors</i>	<i>School-related Factors</i>
• Generations of cultural trauma (genocide, punishment for use of heritage language, abuse in boarding schools, etc.)	• Disconnection between what is considered to be important knowledge for daily life and what is taught in school
• Loss of community self-determination; loss of personal and collective self-efficacy	• Discontinuity between ways of communicating and interacting at home and in school
• Separation from ancestral homelands and land-based practices, leading to loss of cultural identity	• Lack of effort to forge common goals for children/students by parents and teachers
• Harmful effects of human intervention on the land (such as dams, mining, toxic waste sites, etc.)	• Barriers for Indigenous children in demonstrating knowledge in schools due to mismatch between values and approaches of Indigenous knowledge systems and the assumptions of Western knowledge systems (amplified by current testing methods)
• Disruptive impacts of weather and climate on subsistence activity and heritage practices vernacular, English dialect, or non-standard English	• Students’ difficulty in demonstrating knowledge on formal testing owing to unrecognized community use of
• Compromised mental and physical health owing to stress and unhealthy diet	• Ongoing rapid loss of heritage languages and practices owing to lack of value in dominant culture and education
• Breakdown of the fundamental Indigenous cultural link between life activity and learning by colonial-era and modern-era formal educational systems	

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drop out and retention rates (OCR, 2016). What is most frightening about this depiction is the extent to which the differential performance of Indigenous students has come to be a taken-for-granted “fact of life” in some classrooms—an expectation of low performance that is reflected, in off-hand remarks like, “This assignment worked really well; even the Indian students did a good job!” or “We need to know more about Indian students and other problems.” These kinds of stereotypes, coupled with many teachers’ lack of experiential knowledge about the home and community lives of their students, fuel the notion that there is nothing they can do about the challenges children face outside of the classroom and that these challenges prevent them from learning. The challenges are seen not as circumstantial, mutable, and open to discussion and intervention, but as fixed conditions of life over which teachers see themselves as powerless.

Now, in no way am I saying that the only successful teachers are those who share culture with students. However, the discourse within Indigenous communities does not center on under performance and disadvantage. Instead, the focus is on the strengths and competencies children have developed in their own contexts as bridges to learning. Listen in on just about any conversation among American Indian and Alaska Native educators and the discussion entails capturing ways of capitalizing on local ways of understanding the world alongside formal school learning, so that our children can make the best life choices that will prepare them as future leaders. And the literature backs this up. Research makes the strong case that students’ culture-based experiences and ways of learning can be essential resources for designing daily instruction (Bang & Medin, 2010; Demmert & Towner, 2003; Hammer, & Elby, 2003, Kawagley, Norris-Tull, & Norris-Tull, 1998; Lave & Wenger, 1991; Lee, 2008; Moschkovich & Nelson-Barber, 2009; Lipka, 1998; McCarty & Lee, 2014; Nelson-Barber & Estrin, 1995, among others) .

The newest thinking in sociocultural theory and the learning sciences argues for an ecological approach that locates accountability in “the real world” of students’ knowledge and experience (Lee, 2008; Sherin, 2006). This ecological approach finds central importance in aspects of learning that have gone unrecognized, such as relationships, contexts, languages, tools and practices based on community knowledge. Lee (2008) would say that these elements, occurring in the complex ecologies of people’s lives, demand innovative approaches and offer great potential for creating more equitable, empowering, and sustainable change for communities and individuals.

Now that more and more Indigenous teachers are joining the work force, like those prepared by Northern Arizona University’s College of Education, there will be more teachers providing strong models as they root their instructional approaches in Indigenous learning and systems of problem solving that are directly linked to their students’ cultural experiences. As the research cited above demonstrates, when content areas are taught or learned in defined cultural contexts, students have increased opportunity to relate to them and find them meaningful. This is engaging and empowered education for any student.

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Drawing on Local Context

So we know from learning science that knowing is a product of context, interactions, relationships (with people and others), and the tools and artifacts in a learning ecology, which includes language. Teachers determined to infuse important cultural concepts into lessons find many different ways to advance student achievement by building from within—honoring local worldviews, value systems and languages, and enabling the kind of family engagement in learning that is so essential to children’s success in school. The mere presence of a cultural artifact of deep meaning to the local community can serve as a constant reminder to students of the cultural principles it embodies. For example, one Diné teacher from a farming community prominently displayed a corn stalk in her classroom. As part of her routine she regularly referred to it as a symbol of strength, sustainability and resilience, like their people. She not only uses it as a keystone to identity development, but also emphasizes how storytelling is essential to meaning making and draws connections to important moral lessons embedded in heritage stories about corn, linking important knowledge for daily life with school learning. This paves the way for bridging with other important knowledge, such as discerning a traditional home or hogan as a healing system, not just shelter—and that these cultural understandings are as important as standard content, all connected through language.

These informal strategies work well in conjunction with more formal context-adaptive, culture-focused programming to enhance learning for Indigenous students. However, in Alaska it turns out that elementary students from all cultural backgrounds, both urban and rural, who experienced the *Math in a Cultural Context* curriculum, showed significant improvement on pre- and post-tests when compared to diverse students who followed the regular mathematics curriculum (Lipka, et al., 2005; Nelson-Barber & Lipka, 2008). The *Math in a Cultural Context* program is composed of modules (Grades 2 and 6) that focus on everyday Yup’ik knowledge related to mathematical thinking directly linked to students’ subsistence lifeways and cultural experiences. Teachers’ instructional approaches are rooted in Yup’ik learning and systems of problem solving, but they also align with national and state mathematics standards like number and operations, patterns, functions and algebra, geometry and spatial sense, measurement, data analysis, statistics, probability, reasoning and proof, representation, and so on.

Since just about everyone in Alaska knows something about the subsistence lifestyle—at least about hunting or fishing, the activities are familiar and engaging to most students because they can relate to the material as associated with their own lives. The fact that the activities are tied to local culture makes them more unique and interesting for all students.

Of course teachers must also be masterful in the ways they draw on local knowledge and thinking as they tailor content, make use of local vernacular and build relationships with students, all of which are critical to teaching success in their settings.

Though there are certainly idiosyncrasies in pedagogy across these classrooms, teachers use common strategies that are grounded in their community

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values and lifeways. They teach concepts in the contexts in which they will be needed. Adults (teachers, parents, elders, aides) and older peers serve as models, guides, or facilitators rather than always being direct instructors. Typically, children have considerable responsibility over their own learning, often working together in small groups to solve real-world problems or to accomplish tasks. It is often viewed as inappropriate to compare children to one another directly, as is done in norm-referenced testing. Children have latitude to choose when they will demonstrate their mastery of a particular task or competence, a feature that supports autonomy, self-evaluation and perseverance until mastery is achieved (Nelson-Barber, Trumbull & Mitchell, 2002). It is interesting to note that traditions of education in Indigenous communities that emphasize lived-experience, cooperation and reflection in meaningful contexts exemplify some of the best elements of the research-based instruction called for by current school improvement efforts (see Table 2 below). These elements are more fully described in Nelson-Barber, Trumbull and Mitchel (2002).

Table 2: Selected Features of Indigenous and Reformed Pedagogies

Indigenous Pedagogy	Reformed Pedagogy
• concepts are taught in meaningful contexts and serve authentic purposes	• concepts are taught in meaningful contexts, in more authentic ways
• adults serve as models and facilitators, guiding children to learn by observing and doing	• adults serve as models and facilitators; teachers are encouraged to get beyond strictly verbal methods of instruction
• children are encouraged to take responsibility for their own learning	• students are encouraged to take responsibility for their learning
• children are encouraged to evaluate their own learning	• students are encouraged to reflect on their own learning and self-evaluate
• children are allowed choices about when and how to display learning (i.e., choices about being tested)	• new forms of assessment, such as portfolios, allow more student choice

The overlaps here are clear. It seems Indigenous pedagogy could serve as a model for reformed pedagogy, and one might guess then that today’s Indigenous students have a decided advantage over other students. As we know, that does not seem to be the case.

Ultimately we can do an exemplary job of infusing culture in the curriculum and making use of instructional strategies that capitalize on students’ cultural and linguistic strengths. However, if our assessment systems are not set up to recognize excellence when students demonstrate it we will not be doing enough to support students to achieve advanced levels of excellence. We must remember that many Indigenous students, even those who are not fluent speakers of their languages, but are raised in tribal communities, may fundamentally experience the

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world differently than non-Indian students. How one is socialized to understand the world, to identify and solve problems, and to make decisions, for example, influences that person's ways of thinking and interacting. Conflicts can arise for students whose home culture may not align directly with the conventional culture of schools. If culture influences the way in which people construct knowledge and make sense of the world, then culture may influence the way in which students interpret test items and respond to them. Testing must take into account sociocultural influences such as values, beliefs, experiences, communication patterns, teaching and learning styles, and epistemologies that are expressions of students' cultural backgrounds, and include their socioeconomic conditions (Solano-Flores & Nelson-Barber, 2001). New research is now considering ways for assessments to capture students' comprehension more precisely and accurately given their varying worldviews. In my own work, I look to reconstruct test items in ways that elicit student responses that reveal a more representative sample of their knowledge and providing the "evidence" we need in our evidence-focused system of education.

The sessions that I experienced at the 2016 American Indian / Indigenous Teacher Education Conference (AIITEC) in Flagstaff, Arizona, demand that schools create classroom communities that grant voice and legitimacy to the perspectives and experiences of local cultures—communities that will not require students to surrender personal and cultural identity in exchange for high academic achievement.

To optimize the benefits of strategies and innovations and truly enhance learning for Indigenous communities, a higher standard of context-adaptive, iterative and empirical testing must be applied. Locally-driven research that is responsive to multiple contexts and uniquely-situated communities requires this very different "standard" of evidence for best practices.

Note

¹This chapter is an abbreviated version of the keynote address delivered at the 7th American Indian/ Indigenous Teacher Education Conference, June 18, 2016, at Northern Arizona University in Flagstaff, Arizona. These ideas also contributed to the 2016 American Educational Research Association Knowledge Forum as part of its Centennial year programming.

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