

STATE OF THE FIELD

The Role of Native Languages and Cultures in American Indian, Alaska Native, and Native Hawaiian Student Achievement

By

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INTRODUCTION

Executive Order 13336 of April 30, 2004 calls for research to assess “the impact and role of native language and culture on the development of educational strategies to improve [Native American students’] academic achievement” (Sec. 3, [a][iii]). It is a telling statement about the field of American Indian/Alaska Native/Native Hawaiian education that research on the role and impact of Native languages and cultures in children’s academic achievement remains in question. There is ample documentation of the failure of education policies and practices that systematically *exclude* Native languages and cultural content, from the 1928 Meriam Report (Meriam et al., 1928), to the Kennedy Report of 1969 (Senate Special Subcommittee on Indian Education, 1969), to the 1976 American Indian Policy Review Commission Report (American Indian Policy Review Commission, 1976), to the 1991 Indian Nations at Risk Task Force Report (Indian Nations at Risk Task Force, 1991). More recently, the 2007 and 2009 National Indian Education Study (NIES) documented persistent disparities in NAEP reading and mathematics performance for Native American students, and, simultaneously, limited use (1 to 4 percent of teachers sampled) of Native language and culture content standards. Of 5,100 Native students surveyed in Part II of the 2007 NIES, only 4 percent were learning how to speak and read their heritage language in school (Grigg, Moran, & Kuang, 2010; Moran et al., 2008; Stancavage et al., 2006).

In contrast to the documented failure of exclusionary curricular approaches, a large and growing body of research from diverse cultural-linguistic settings documents the academic benefits of approaches that systematically *include* home and community language and cultural practices as integral to the school curriculum – pedagogies which, it is important to point out, go unquestioned for mainstream English-speaking children. In the most comprehensive review to date of the research on improving Native American students’ academic performance, William Demmert, the first deputy commissioner for the U.S. Office of Indian education, notes the importance of Native language and cultural programs “in motivating students, promoting a positive sense of identity and self, stimulating positive attitudes about school and others...and supporting improved academic performance” (Demmert, 2001, p. 42; see also Beaulieu, 2003; Brayboy & Castagno, 2009; Deyhle & Swisher, 1997; Ernst, Statzner, & Trueba, 1994; Jacob & Jordan, 1993; May, 1999; Luke, 2009; McCarty, Lipka, & Dick, 1994; Nee-Benham, 2008; Nee-Benham & Cooper, 2000; Pewewardy & Hammer, 2003; Reyhner, Gilbert, & Lockard, 2011; Swisher & Tippeconnic, 1999; Yazzie-Mintz, 2007). In more recent analyses, Demmert and his associates, while acknowledging the need for more experimental research in this area (cf. Yap, 2004, 2005), found that the preponderance of research evidence demonstrates positive correlations between comprehensive culturally based education programs, including a strong Native language component, and improved student academic, social, and cultural development (Demmert, Grissmer, & Towner, 2006; Demmert & Towner, 2003).² The issue, then, is not whether schooling based on Native students’ tribal language and culture is beneficial, but rather which approaches are most effective and under what conditions.

This policy brief and its accompanying review of the literature take up these latter questions, examining evidence from empirical research on the role and impact of Native languages and cultural content in the schooling of American Indian (AI), Alaska Native (AN), and Native Hawaiian (NH)

² Two special issues of the *Journal of American Indian Education* also contain reports on recent research and practice in American Indian/Alaska Native culturally based education (McCardle & Demmert, 2006a, 2006b).

students. The brief grows out of research undertaken in response to the 2004 Executive Order (EO) and my work as part of the Program Evaluation Group (PEG) commissioned under that EO and tasked with examining “promising practices and partnerships” in American Indian and Alaska Native education.³ The brief begins with definitions of key terms, highlighting the variability of Native American languages and cultures and the implications of this variability for education practice. The next section explores research on “promising practices” for AI/AN/NH students from a variety of linguistic and cultural backgrounds. This includes research on: (1) programs for students who enter school with a primary language other than English, (2) programs designed to revitalize Native languages and cultures simultaneously with promoting students’ English proficiency and academic success, and (3) culturally based education (also called culturally compatible, culturally congruent, and culturally responsive education), which includes elements of both (1) and (2) above. Throughout this discussion, concrete examples of promising practices are provided as well as cautionary findings on their implementation. The third section offers a summary of key findings and the state of the field, including a typology of “strong” Indigenous language and culture programs.

Definition of Key Terms

Native American Languages and Cultures. Language and culture are commonplace terms in the literature on minority schooling, with abundant research showing home/school “mismatches” to be a leading cause of educational disparities. As helpful as these understandings are for countering fallacious notions of inherited, racialized “intelligence,” too often language and culture are conceived as static and monolithic. This reduces culture to a superficial list of traits or artifacts, and learners to one-dimensional proportions, as in the widespread myth that Native American students are “silent,” “non-analytical,” or “right-brained” learners (for critiques of the “silent Indian learner” myth, see Foley, 1996; McCarty et al., 1991). Similarly, when language is conceived as a bounded, homogeneous, and uniformly distributed system, it is easy to lose sight of the variability in students’ communicative repertoires, even when they share the same primary language. The risk in both cases is that instructional practices lack relevance and perpetuate damaging stereotypes.

In contrast, a significant body of research demonstrates the complexity and diversity of Native American linguistic, cultural, and educational systems. As one example, Lomawaima and McCarty cite the differences in culturally patterned communication styles described by Omaha scholar Francis La Flesche, who notes the penchant of Omaha youngsters for companionship and incessant talking, and those detailed by Dakota author and physician Charles Eastman, who recalls that as a child, “it was instilled into me to be silent and reticent” (cited in Lomawaima & McCarty, 2006, p. 23).

There are two important points here. First, there is no single “Native American culture,” and variety exists *within* cultural groups as well. Second, Native children possess highly varied communicative repertoires (Martin-Jones & Jones, 2000). One hundred-seventy-five Indigenous languages are spoken in the U.S., with varying degrees of linguistic vitality and expertise within and across tribal groups (Krauss, 1998). While some children come to school speaking the Native language and

³ The PEG was led by Dr. Bryan McKinley Jones Brayboy of Arizona State University. In addition to the author, PEG members included Drs. Angelina Castagno (Northern Arizona University), Amy Fann (University of North Texas), Susan Faircloth (Pennsylvania State University), and Sharon Nelson-Barber (Pacific Resources for Education and Learning). Susie Amundson, Director of Research, and Andy Leija, Project Manager, both of Kauffman & Associates Inc., facilitated the PEG’s work.

English, others may be predominately Native-speaking. Some children may have knowledge of several languages, as in certain Southwestern communities where Spanish, English, and one or more Native languages are spoken. Many students are English-dominant with receptive (listening) abilities in the Native language. Still others may have little or no Native-language exposure at all. In most Native communities, yet another language variety is present: English modified by the structure and use patterns of the Native language – sometimes called “village English,” “Indian English,” or more precisely, “Navajo English,” “Crow English,” and so on. Students with each of these social-linguistic profiles (or some combination) may be present in a single classroom or school.

This variability requires that educators attend closely to local language and culture practices *in situ*, recognizing that they are not amenable to a uniform, one-size-fits-all approach. As discussed in the next subsection, “promising practices” are able to discern these variations and thereby build on the linguistic, cultural, cognitive, and affective strengths individual learners bring to school.

Promising Practices. As defined by the PEG, promising practices facilitate learners’ self-efficacy, critical capacities, and intrinsic motivation as thinkers, readers, writers, and ethical social agents. Promising practices support teachers’ professionalism and invest in the intellectual resources present in local communities. Promising practices promote Indigenous self-determination. In addition, promising practices:

1. Enable students to achieve full educational parity with their White mainstream peers, with the long-term goal of preparing Indigenous students for full participation in their home communities and as citizens of the world (Thomas & Collier, 1997).
2. Contribute substantively and positively to learners’ personal well being and the development of their academic and ethnic identities.
3. Promote positive, trusting relationships between the school and the community, helping to complete the circle of what the linguist Fred Genesee (1994) calls “the whole child, the whole curriculum, the whole community.”

The following sections illustrate these characteristics in the context of research in diverse Native American settings.

Review of Literature on the Role of Native Languages and Cultures in AI/AN/NH Student Achievement⁴

Role of the Native Language and Culture When the Home Language Is Not the School Language

Research in the fields of education, linguistics, anthropology, and cognitive psychology is unequivocal on one point: Students who enter school with a primary language other than the school language (e.g., English) perform significantly better on academic tasks when they receive consistent and cumulative academic support in the native/heritage language for a minimum of four to seven years. In the most extensive longitudinal study of language minority achievement to date (1982-1996), Thomas and Collier (1997, p. 15) found that for 700,000 students representing 15 language groups and five school systems, “the most powerful predictor of academic success” – defined as

⁴ This review of the literature is drawn from McCarty (2009a, 2009b).

reaching full academic parity with native-English speakers in all content areas within 5 to 6 years – was 4 to 7 years of instruction in the native/heritage language. What is especially pertinent about this study is that its findings held true for children who entered school with no English background, children raised bilingually from birth, and “children dominant in English who [were] losing their heritage language” (Thomas & Collier, 1997, p. 15). These characteristics encompass the range of communicative repertoires typical of Native American learners today.

Although published studies are limited relative to the education literature at large, the positive effects of well-implemented Native American bilingual-bicultural education programs are well documented. The remainder of this section examines data from three such programs.

The Rock Point Data. The Navajo community school at Rock Point, Arizona, has had a long-standing bilingual-bicultural education program in which “rigorous, ongoing evaluation of student learning” has been a primary concern (Holm & Holm, 1990, p. 178). In the early 1970s, the Rock Point School began one of the first contemporary Indigenous literacy programs. According to program cofounders Agnes and Wayne Holm, English at the time was, for all practical purposes, a foreign language at Rock Point, with nearly all students entering school dominant in Navajo. At the same time, Rock Point students scored near the bottom of all students in comparable Navajo Bureau of Indian Affairs (BIA) schools on English standardized tests (Holm & Holm, 1990, p. 173).

Drawing on research from well-implemented bilingual-bicultural programs around the world, Rock Point based its program on the principle that children learn to read only once, most easily in the language they already speak. Although learning to read in a second language requires mastering new sound-symbol associations and grammatical rules, “the essential concepts of reading can be transferred” (Rosier & Farella, 1976, p. 380). The design that emerged was called “coordinate bilingual instruction,” meaning that separate but complementary time was devoted to learning in each language. Navajo-language teachers (NLTs) taught and interacted entirely in Navajo, and English-language teachers (ELTs) taught and interacted only in English. Externally imposed status distinctions between credentialed (primarily non-Native) and non-credentialed (Navajo) teaching staff were dissolved, as NLTs and ELTs jointly planned, carried out, and evaluated instruction (Rosier & Farella, 1976, p. 380).

Using extant Navajo literacy materials and ones developed locally, students learned to read first in Navajo, then English. They learned mathematics in both languages and studied science and social studies in Navajo, including Navajo clanship, history, social problems, government, and economic development. A high school applied literacy program engaged students in locally relevant research that was published in a bilingual school newspaper and broadcast on a school television station (Holm & Holm, 1990, p. 176; McLaughlin, 1995).

Longitudinal data from Rock Point show that students there not only outperformed comparable Navajo students in English-only programs, they surpassed their own previous annual growth rates and those of comparison-group students in BIA schools – and they did so by a greater margin each year (Holm & Holm, 1990, pp. 177-178). As Rosier and Farella discuss these findings, students “who spoke only limited English were able to express themselves more fully and [grasped] higher abstract concepts when the vernacular was used” (1976, p. 380). In addition to learning English, of course, these students had the benefit of becoming bilingual and biliterate, an approach referred to

as *additive bilingualism*, denoting the fact that one or more languages are added to learners' pre-existing communicative repertoires.⁵

In a 25-year retrospective analysis of the Rock Point program, Holm and Holm (1990) describe the “four-fold empowerment” the bilingual-bicultural program engendered: of the Navajo school board, who acquired increasing credibility with parents, staff, and students; of the Navajo staff, whose instructional expertise was validated within and outside the community; of parents, who played active roles in their children’s schooling; and of the students, who “came to value their Navajo-ness and to see themselves as capable of succeeding because of, not despite that Navajo-ness.” The significance of the Rock Point data, Holm and Holm conclude, is “that they showed, contrary to the conventional wisdom, that being rural and speaking Navajo need not lead to doing poorly in school” (Holm & Holm, 1990, pp. 182-184; see also Holm & Holm, 1995).

*The Rough Rock-KEEP Data.*⁶ Not far from Rock Point is the first American Indian community-controlled school, located at Rough Rock, Arizona. In 1983, anthropologists and reading specialists from the Hawai'i-based Kamehameha Early Education Program (KEEP) came to Rough Rock for the express purpose of determining whether the culturally compatible reading strategies proven effective with Native Hawaiian children would work with Navajo students (Vogt, Jordan, & Tharp, 1993). The Rough Rock-KEEP collaboration lasted five years, during which it was found that approaches that had been successful with Native Hawaiian students needed to be significantly modified to produce successful outcomes with Navajo learners. By the end of the five-year period, the Rough Rock-KEEP partnership blossomed into a local teacher-led initiative, the Rough Rock English-Navajo Language Arts Program (RREN LAP), which served approximately 200 students each year in grades K-6.

Based on the principle that students are more successful if they are able to learn in ways that are socially, linguistically, and cognitively compatible with their natal culture, RREN LAP classrooms were organized around learning centers and small-group instruction in Navajo and English. Curriculum content, much of it developed by local bilingual teachers, centered on interdisciplinary units with local themes. Annual summer literature camps involved students, teachers, parents, and elders in conducting field-based research on culturally relevant topics using Native storytelling, song, drama, and arts. Key to all of this was a strong professional development component in which bilingual teachers conducted their own classroom research and regularly collaborated to “indigenize” the curriculum.⁷

Longitudinal data from RREN LAP show that after four years in the program, students’ mean scores on criterion-referenced tests of English comprehension increased from 58 percent to 91 percent. On standardized reading tests, RREN LAP students’ scores initially declined, then rose steadily, in some

⁵ *Additive bilingualism* occurs “where the addition of a second language and culture is unlikely to replace or displace the first language and culture”; this stands in contrast to *subtractive bilingualism* in which a second (dominant) language replaces the home/community language, typically through dominant-language (only) schooling (Baker & Jones, 1998, p. 154).

⁶ The material in this section derives from Lomawaima & McCarty (2006, ch. 6), and McCarty (2002, 2003).

⁷ For reports on the Rough Rock-KEEP collaboration, see Begay et al. (1995); Vogt & Au (1995); Vogt, Jordan, & Tharp (1993).

cases approaching or exceeding national norms. When individual and grade cohort data were analyzed over five years, RRENLAP students demonstrated superior English reading, language arts, and mathematics performance compared to a matched peer group who did not participate in the program. Not surprisingly, RRENLAP students also were assessed as having stronger Navajo oral language and biliteracy abilities; they became stronger in both languages and had the benefit of additive bilingualism.⁸

The Manokotak Data. In Alaska, two or more languages are spoken in many Native villages: the Native language as spoken by elders, the Native language modified by English, English modified by the Native language (“village English”), and “standard” or “schooled” English (Hartley & Johnson, 1995). Situated along the southern coast of the Bering Sea in the Southwest Regional School District, Manokotak is one such village. In the 1990s, it remained an almost entirely Yup’ik-speaking community. Systemic problems within the local K-6 school, which was implementing an all-English curriculum, were evident in the high levels of student attrition, poor standardized test performance, student disinterest, and strained student-teacher and community-school relations. According to Elizabeth Hartley and Pam Johnson, educators close to the school at the time, “These stresses affected everyone in the village” (Hartley & Johnson, 1995, p. 574).

Using research on effective bilingual and English-as-a-second-language (ESL) approaches and data from a community survey as starting points, Manokotak began a school restructuring process. The result was a Yup’ik immersion program with a strong ESL component, which started in kindergarten with four hours of instruction in Yup’ik and one in English, progressively increasing English instruction to 4.5 hours by the fifth and sixth grades. The program used a holistic approach to language arts, capitalizing on students’ home-community experiences as content for literacy development. This approach enabled students to acquire “Western” literacy skills in the context of their culture while retaining literacy in community-valued knowledge and skills. “In this way,” Hartley and Johnson say, “students’ identity with their community was supported” (1995, p. 572). Ongoing staff and materials development and parent workshops were additional program components.

At the end of the program’s initial year, kindergartners exceeded the district’s expected means for their performance on standardized tests, while first and second graders achieved below expected means. By the second year, all student groups exceeded the district’s expected means. Moreover, community feedback, student and family self-reports, student writing samples, behavior reports, and teacher observations showed improved student self-esteem and school-community relations. As Hartley and Johnson describe these outcomes: “Students reported feeling good about going to school and being interested in what they were doing. . . . Parents were able to discuss school with their children because they now had a common language.” In short, “Vision, patience, and committed effort [were] the primary ingredients necessary to achieve needed improvements to enhance student success and community empowerment at the Manokotak site” (Hartley & Johnson, 1995, pp. 581-582, 584).

⁸ For details on RRENLAP classroom organization and curriculum, see Begay et al. (1995) and McCarty (2002, ch. 11).

Role of the Native Language and Culture When a Primary Goal Is Revitalization

Nāwahīokalani‘ōpu‘u Laboratory School. Native Hawaiians face many of the same educational challenges as American Indians and Alaska Natives. The Hawaiian language is also severely endangered, being spoken as a first language primarily by those born before 1920. In this context, Nāwahīokalani‘ōpu‘u Laboratory School (called Nāwahī for short), is making a difference for this population of Native Americans (Native Hawaiians) while serving as a fully developed model of Indigenous-language immersion in the U.S (Hinton, 2001; Wilson & Kamanā, 2006).

Nāwahī is a Hawaiian-medium, early childhood through high school affiliation of programs featuring a college preparatory curriculum rooted in Native Hawaiian language and culture. Named for a major 19th century figure in Hawaiian-medium education, the school grows out of the ‘Aha Pūnana Leo (Hawaiian “language nest”) movement that began in the 1980s. In 1983, a small group of parents and language educators established the Pūnana Leo non-profit organization and then its preschools, which enable children to interact with fluent speakers entirely in Hawaiian. The goal is to cultivate children’s fluency and knowledge of Hawaiian language and culture much as occurred in the home in earlier generations (Wilson & Kamanā, 2001; see also Warner, 2001). The movement entered the public schools and added a grade a year, reaching intermediate school in 1994, when Nāwahī was founded.

The school teaches all subjects through Hawaiian language and values. According to William H. Wilson, cofounder of the Pūnana Leo and Nāwahī School, English instruction begins in fifth grade with a standard English language arts course; students enroll in such a course every semester through grade 12. Elementary students also study Japanese, and intermediate students study Latin – opportunities for contrastive linguistic analysis with Hawaiian and for building students’ multilingual-multicultural skills. Students also study Hawaiian grammar, focusing on forms and usages that might be influenced by English. “At Nāwahī,” Wilson states, “we seek to give our immersion students the same, and even higher, metalinguistic knowledge of Hawaiian, as that of students who study Hawaiian as a second language in a strong high school program” (personal communication, September 8, 2008).

Some 2,000 Native Hawaiian students now attend a coordinated set of schools, beginning with Pūnana Leo preschools and moving through Hawaiian immersion elementary and secondary programs. To continue teaching through Hawaiian at the tertiary level, the state of Hawai‘i has established the Ka Haka ‘Ula O Ke‘elikōlani College of Hawaiian Language at the University of Hawai‘i-Hilo, which offers an immersion teacher education certification program, two MAs, and a PhD in Hawaiian and Indigenous language and culture revitalization (<http://hilo.hawaii.edu/academics/hawn>); at the University of Hawai‘i-Mānoa, the Kawaihuelani Center for Hawaiian Language offers bachelor and master’s degrees in Hawaiian and a undergraduate certificate (<http://www.catalog.hawaii.edu/schoolscolleges/hawaiian/kawaihuelani.htm>). This educational system is further supported by widespread teaching of Hawaiian courses in English-medium high schools and colleges throughout the state (Furman, Goldberg, & Lusin, 2007; Wilson & Kawaiaea, 2007).

Although it has emphasized Hawaiian language and culture revitalization over (English-based) academic achievement, Hawaiian-medium schooling has yielded impressive academic results.

Nāwahī students, 60 percent of whom come from reduced and free lunch backgrounds, typically live on or have close ties to Hawaiian Home Lands that require at least one parent to be of at least 50 percent Hawaiian ancestry. Children of these backgrounds tend to face the most severe academic disparities in Hawai'i schools, yet Nāwahī students not only surpass their non-immersion peers on English standardized tests, they outperform the state average for all ethnic groups on high school graduation, college attendance, and academic honors. The school has a 100 percent high school graduation rate and a college attendance rate of 80 percent. Two students recently were selected to attend a Harvard summer school program. School leaders Kauanoē Kamanā and William Wilson attribute these outcomes to an academically challenging curriculum that applies knowledge to daily life and is rooted in Hawaiian identity and culture. According to Wilson, the school has succeeded through its strong emphasis on achievement in Hawaiian language and culture “and holding Hawaiian language and culture high through the hard work so highly valued by Hawaiian elders.” He adds: “In today’s world, that hard work means applying oneself in academics to outperform those in mainstream schools to move the Hawaiian people forward” (William H. Wilson, personal communication, July 23, 2008; see also Warner, 2001; Wilson & Kamanā, 2001; Wong, 2011).

Tséhootsooi Diné Bi’ólta’. One of the better-documented American Indian immersion programs operates on the eastern border of the Navajo Nation, in the small town of Fort Defiance within the Window Rock Unified School District (WRUSD). When the program began in 1986, fewer than one in 20 of all kindergarten and first grade students were considered “reasonably fluent” speakers of Navajo; a third were judged to have passive knowledge of the language. At the same time, many Fort Defiance students were identified as “limited English proficient”; they possessed conversational proficiency in English but struggled with the decontextualized academic English required by standardized tests (Arviso & Holm, 2001).

In light of these circumstances, WRUSD opted for a voluntary Navajo immersion program similar to that developed for Hawaiian students and for the Māori in New Zealand. Starting with a kindergarten through fifth grade Navajo immersion track in an otherwise all-English public school, the program expanded into a full-immersion K-8 school, *Tséhootsooi Diné Bi’ólta’* (TDB, The Navajo School at the Meadow Between the Rocks or the Fort Defiance Navajo Immersion School), with plans under way for an early college program and expansion through grade 12. In the lower grades, all instruction, including initial literacy, occurs in Navajo. English is introduced in second grade and gradually increased until a 50-50 distribution is attained by grade 6.

TDB’s program is organized to afford maximum exposure to Navajo, incorporating tribal standards for Navajo language and culture and state content standards. According to the school’s early leaders, Florian Tom Johnson and Jennifer Legatz, TDB also emphasizes a “Diné [Navajo] language and culture rich environment . . . including lunch room, playground, hallways and the bus” (Johnson & Legatz, 2006, p. 30). Like Hawaiian immersion, a key program component is the involvement of parents and elders, who commit to spending time interacting with their children in Navajo after school.

Longitudinal data from TDB show that the benefits to Native-language revitalization have not come at the cost of children’s acquisition of English or their academic achievement. Navajo immersion students consistently outperform their peers in English-only classrooms on local and state assessments of English reading, writing, and mathematics while also developing strong Navajo oral

language and literacy skills. According to program cofounder Wayne Holm, there is another, less quantifiable but equally important benefit to this approach: “What the children and their parents taught us was that Navajo immersion gave students Navajo pride” (Holm, 2006, p. 33).

Puente de Hózhó Trilingual Public Magnet School. A final example in this section comes from a trilingual K-5 public magnet school in Flagstaff, Arizona. Called Puente de Hózhó (*Puente de* for the Spanish words “bridge of,” and *Hózhó* for the Navajo “beauty” or “harmony”), the school’s name means, literally, Bridge of Beauty. As school cofounder Michael Fillerup describes it, the name mirrors the school’s vision: “to create an educational environment where students of different language and cultural backgrounds could learn harmoniously together while pursuing the goals of academic excellence, bilingualism, and cultural enrichment” (2005, p. 14). In a school district in which 25 percent of students are American Indians and 20 percent are Latino, “local educators were searching for innovative ways to bridge the seemingly unbridgeable gap between the academic achievement of language-minority and language-majority children” Fillerup states (2005, p. 15).

To do this, the school offers two parallel bilingual programs: a conventional dual immersion model in which native Spanish-speaking and native English-speaking students are taught jointly for a half-day in each language, and one-way Navajo immersion in which English-dominant Navajo students are taught in Navajo. In the latter program, kindergartners receive 80 percent of their instruction in Navajo, with English instructional time gradually increased until a 50/50 balance is attained in grades 4 and 5. All state standards are taught in Navajo and English or Spanish and English.

Many promising practices are evident at this school, but three are especially noteworthy. First, the school explicitly rejects the remedial labels historically associated with bilingual and American Indian education in the U.S. Rather than “problems to be solved,” Fillerup notes, students are considered “an educational elite – the ones who are learning Navajo, that most difficult language” used by the famous Code Talkers that defied translation and speeded the Allied victory in World War II. Second, bilingual-bicultural-multicultural education is central, not auxiliary, to the curriculum: “it is a matter of heart and soul,” Fillerup points out, adding, “That is why indigenous language programs are not nice but essential” (2005, p. 18). Third, like Nāwahī and TDB, Puente de Hózhó has exceptionally high levels of parent involvement – a practice widely associated with enhanced student achievement but rarely ascribed to Native families.

Puente de Hózhó has consistently met state standards, with its students outperforming comparable peers in monolingual English programs by as much as 7 points in English language arts, 10 points in mathematics, and 21 points in English reading. Equally important, Fillerup states, are less quantifiable but equally consequential program effects: enhanced student motivation and the “smiles on the faces of parents, grandparents, and students as they communicate in the language of their ancestors” (2005, p. 16; see also Fillerup, 2008, 2011).

Culturally Based Education/Culturally Responsive Schooling

Premised on the theory that the most influential factor in students’ school performance is “how we teach and arrange social activity in schools” (Beaulieu, 2006, p. 52), culturally based education (CBE, also called culturally responsive schooling or CRS) incorporates many of the promising practices described for the cases above. In an exhaustive review of the CRS literature, Castagno and Brayboy (2008), citing the Assembly of Alaska Native Educators (1998, p. 2), state that CRS “assumes that a ‘firm grounding in the heritage language and culture indigenous to a particular tribe is a fundamental

prerequisite for the development of culturally-healthy students and communities...and thus is an essential ingredient for...educators, curriculum and schools.” Beaulieu (2006, p. 52) describes CBE as education that is both academically effective and locally meaningful in light of community members’ aspirations for their children; further, “CBE that is cultural in character is...more powerful” and whole-school approaches that use the Native language as the medium of instruction are stronger than “add-on” programmatic interventions (personal communication, November 6, 2008).

In a review of 145 federally funded language preservation grants and 1,200 Indian Education Act formula grants, Beaulieu distills 5 CBE types:

1. culturally based instruction;
2. Native language instruction;
3. Native studies programs;
4. Native cultural enrichment; and
5. culturally relevant materials. (2006, pp. 56-57)

Drawing on meta-analyses and field research described in this paper’s introduction, Demmert, Grissmer, & Towner (2006) add these six critical elements of CBE:

1. use of the Native language as the language of instruction, either as a first or second language;
2. pedagogies that stress traditional cultural practices and child-adult interactions;
3. pedagogies that simultaneously incorporate contemporary ways of knowing and learning;
4. curriculum that emphasizes the importance of Native spirituality, placing this in contemporary contexts;
5. strong Native community participation; and
6. knowledge and use of community social and political mores.

In both Demmert’s and Beaulieu’s frameworks, the most effective programs identified are those that focus on and systematically incorporate cultural knowledge, resources, and practices present in the local social-linguistic context (David Beaulieu, personal communication, November 5, 2008; see also Beaulieu, 2003, 2006; McCardle & Demmert, 2006a, 2006b).

In addition to the promising practices already discussed, there are many outstanding examples of CBE/CRS; space limits the discussion here to just a few. The seminal CBE research was undertaken by researchers and classroom teachers associated with KEEP. Using ethnographically derived understandings of culturally patterned interaction (e.g., peer/sibling mentoring versus direct adult instruction) and communication styles (e.g., joint conversational turn-taking in Hawaiian “talk story”), KEEP personnel formulated a highly effective English language arts program for Native Hawaiian students (Vogt et al., 1993, p. 63). This included peer learning centers that encouraged children to help each other with learning tasks (as opposed to teacher-directed instruction), and the co-narration of student responses during story time. As discussed above, when KEEP was transported to a Navajo setting, it required modification to make it congruent with local Navajo cultural norms. Once those modifications were in place, the Rough Rock-KEEP collaboration produced salutary and long-term educational processes and outcomes (Vogt & Au, 1995; Vogt et al., 1993; see also Tharp & Gallimore, 1988[1995]; Villegas, 1991).

In Alaska, the Math in a Cultural Context (MCC) curriculum, developed through university-school-community partnerships with Yup'ik elders and teachers, has proven effective for both Native and non-Native students. As Jerry Lipka and his associates on the MCC project describe it, the curriculum “is based on Yup'ik cultural knowledge and norms, and...seeks to bridge the culture of the community with that of the school” (Lipka et al., 2005, p. 368; see also Lipka et al., 2007; Webster & Yanez, 2007). In quasi-experimental and qualitative studies, Lipka et al. found that MCC is not only statistically significant in improving Alaska Native students' academic performance, it alters the classroom social organization in ways that support high levels of student engagement with mathematics content. “MCC seems to provide students with a more highly contextualized approach to math learning,” Nelson-Barber and Lipka write, which students find both challenging and motivating (2008, p. 117).

The Alaska Rural Systemic Initiative (AKRSI), a statewide partnership between the University of Alaska Fairbanks, the Alaska Federation of Natives, and 176 rural schools serving 20,000 Alaska Native students, is implementing an education reform strategy focused on integrating Indigenous knowledge and pedagogical practices into all aspects of the education system. This partnership – which includes the creation of multimedia science materials, parent involvement, an academy of elders, leadership development, and Alaska standards for culturally responsive schools – has, according to Barnhardt and Kawagley (2005, p. 15), substantially strengthened the quality of education “and consistently improve[d] the academic performance of students in participating schools.”

Challenges and Opportunities in Implementing CBE/CRS

Data from four additional studies provide both cautionary examples and evidence of the multifaceted opportunities in implementing CBE/CRS. Again, many such studies could be cited; the ones referenced here are particularly relevant in terms of Beaulieu's five “CBE types” and Demmert's six “critical elements” of CBE.

The Ojibwe Data: Teaching Culture through Language. In the first study, Hermes reports on the incorporation of Ojibwe culture at three schools in Minnesota and Wisconsin. “Cultural instruction was implemented in the schools in a variety of ways,” she states, “some of which focused more on integration into academic areas or existing school structure, whereas others simply provided a context in which educators hoped culture would ‘happen’” (Hermes, 2005, p. 48). Hermes characterizes these as “add-on” approaches, noting the problems of teaching Native cultural content in English and the constraints placed on local cultural practices by trying to fit them into existing school structures. She argues instead for school-wide restructuring and implementation of heritage-language immersion, which provides the “complete meaning-making context” for cultural content (2005, p. 53).

In a subsequent ethnographic study of a recently established pre-K–4 Ojibwe immersion school, Waadookodaading, located near the Lac Courte Oreilles Reservation in Wisconsin, Hermes reports that students are learning Ojibwe while keeping up with the standard curriculum. Although the school is in the early stages of collecting quantitative data on student achievement, Hermes notes that Waadookodaading “has been heralded as a success,” as measured by: (1) its rapid but exemplary start-up process, including “creating a literate tradition for an oral language”; (2) high levels of

parent involvement (90 to 100 percent); and (3) enhanced student motivation: The students “are motivated to learn the Objiwe language beyond our dreams,” Hermes states (2006, p. 60).

Indigenous Studies Classes: A Hawaiian Cautionary Example. Kaomea (2005) presents a “cautionary example” from her in-depth research on the teaching of elementary-level Hawaiian studies, in which a combination of ill-informed textbooks and ill-prepared non-Native teachers perpetuated demeaning depictions of Hawaiian history and early Hawaiian leaders. Kaomea urges non-Native teachers to take a more proactive role in Indigenous studies education by team-teaching with Native community elders and cultural experts. Teachers should assume “a supportive role that allows Hawaiian experts to take the lead,” she advises (2005, p. 40).

The Native Language Shift and Retention Study: What Can We Learn from Research among Indigenous Youth? Finally, in a recent large-scale, federally funded study of the impacts of Native language loss and retention on American Indian students’ academic achievement, McCarty et al. (2006, 2009) and Romero-Little et al. (2007) document youth language practices and attitudes across a continuum of “strong” to “weak” Native language and culture (NLC) programs that parallel the program types and critical elements proposed by Beaulieu and Demmert cited above.⁹ This study is especially salient as it responds to a 1998 Executive Order (13096), which, like Executive Order 13336, called for research to evaluate the role of Native languages and cultures in AI/AN education. This is also the only comparative study of these processes and includes data from urban and rural settings, public and tribal/community schools, and diverse Native language and culture groups. This 5-year (2001-2006) study took place at 7 school-community sites enrolling 1,739 Native students. The researchers conducted 205 in-depth ethnographic interviews with Native youth and adults, administered 500 sociolinguistic questionnaires, and collected student achievement data from all 7 sites. The study’s goal was to examine the unique educational and sociolinguistic conditions and practices within each of these communities as a means of informing education policies and programs. (For more on the study see McCarty, Romero-Little, & Zepeda, 2006; McCarty et al., 2009; Romero-Little et al., 2007.)

This research found that “strong” NLC programs – those characterized by a combination of academic rigor and incorporation of NLC as part of the core curriculum (including as a key component of the school’s accountability system) – were correlated with higher levels of additive bilingualism and student achievement. In contrast, “weak” programs – pull-out or add-on classes with little articulation with the mainstream curriculum – produced subtractive bilingualism (the attrition of Indigenous-language expertise) and were not correlated with improved student outcomes. The study also found that, regardless of their Native-language expertise, most youth valued the NLC, viewed this as integral to their identities, and desired to learn their heritage language – findings supported by other recent research (McCarty et al., 2006, p. 660; see also Lee’s [2007,

⁹ Funding for the Native Language Shift and Retention Study was provided by the U.S. Department of Education, Institute of Education Sciences. At the request of the Institutional Review Board that authorized the final two years of the study, all data, statements, opinions, and conclusions or implications reported herein reflect the view of the researchers and research participants, and do not necessarily reflect the views of the funding agency, tribes or their tribal councils, the Arizona Board of Regents or Arizona State University. The information is presented here in the pursuit of academic research and is published solely for educational and research purposes. These data may not be reproduced in any medium, transmitted or distributed, in whole or in part, without prior written consent.

2009] research on Navajo and Pueblo youth language attitudes and ideologies, Nicholas's [2009, 2011] research on Hopi youth language practices, and Wyman's [2009] study of Yup'ik youth peer culture and Native language retention). However, these researchers caution, the ability of schools to provide this kind of instruction is compromised by the pressures associated with the No Child Left Behind (NCLB) Act of 2001 – in particular, penalties associated with high-stakes tests. Test pressure led some schools to curtail or eliminate proven NLC programs and to narrow the curriculum to teach to the test (Romero-Little et al., 2007; Wyman et al., 2010).¹⁰

Summary of Findings from the Research Literature

The previous sections have reviewed the substantial and growing database on the role and impact of Native languages and cultures in AI, AN, and NH student achievement, highlighting promising practices as well as the constraints on their implementation. This section summarizes key findings from this research.¹¹

1. There is compelling empirical evidence that strong, additive, academically rigorous Native language and culture programs have salutary effects on both Native language and culture maintenance/revitalization and student achievement, as measured by multiple types of assessments. As shown in Table 1, strong programs include NLC immersion (e.g., Nāwahī, TDB, Manokotak, Waadookodaading), Indigenous language and culture maintenance (e.g., Rock Point, RREN LAP), and dual language and one-way immersion programs such as Puente de Hózhó. In contrast, weaker, transitional, pull-out, and add-on programs lead to subtractive bilingualism and have not been found to be correlated with high levels of academic achievement.

2. Regardless of students' Native-language expertise on entering programs characterized as "strong," time spent learning the Native language is not time lost in developing academic English. When provided with sustained, cumulative NLC instruction, students perform as well as or better than their peers in mainstream classes on academically challenging tasks. Meanwhile, they have the benefit of developing oracy and literacy in a second language (i.e., additive bilingualism).

3. It takes a minimum of four to seven years for students to develop age-appropriate academic proficiency in a lesser-used language (English or the Native/heritage language). Long-term programs that begin with a solid foundation (80 to 100 percent of instructional time) in the Native language and provide 4 to 7 years of high-quality English instruction by the end of the program (which may entail as little as 20 percent of instructional time, as the Hawaiian data show), are most effective in promoting high levels of English achievement while also supporting learning in and of the Native/heritage language and culture.¹²

¹⁰ For additional sources on the impacts of NCLB on the implementation of NLC programs, see Beaulieu, Sparks, & Alonzo, 2005; McCarty, 2008, 2009a).

¹¹ For additional data and related findings, see Romero-Little & McCarty (2006).

¹² I thank Dr. William H. Wilson (personal communication, September 8, 2008) for the insights on the percentage of instructional time needed to attain genuine bilingualism, biliteracy, and bi-/multiculturalism. Noting that many people assume that Indigenous-language fluency is "fairly easy to maintain with a half-day program," he points out that the Hawaiian experience shows that "English is extremely strong [because of its privileged status in the larger society] and will be learned even under circumstances where a strong academic program is provided through the 'nationally weaker' language" – a finding congruent with studies of French-English immersion in Canada and heritage-language immersion in other parts of the world. For more on these points, see Wilson (2008).

4. *Strong NLC programs enhance student motivation, self-esteem, and ethnic pride.* These outcomes are evidenced in such factors as improved attendance and college-going rates (e.g., Nāwahī), lower attrition (e.g., Nāwahī, Manokotak), and enhanced teacher-student and school-community relations (e.g., Manokotak, Puente de Hózhó, Rock Point, RRENLAP).

5. *Strong programs offer unique and varied opportunities to involve parents and elders in children's learning.* This is a powerful positive factor in all the promising practices profiled here, and one universally associated with enhanced student achievement.

6. *Strong programs are characterized by strong investments in teachers' professional development and community intellectual resources, as evidenced by "grow your own" approaches to Native teacher preparation and curriculum development* (e.g., Nāwahī, Rock Point, RRENLAP, Waadookodaading).

7. *The effectiveness of strong NLC programs (i.e., their ability to achieve their goals, as identified in Table 1) rests on the ability of tribes and Native communities to exercise self-determination in the content, process, and medium of instruction.* Culturally based leadership and decision-making are integral components of effective CBE/CRS.

Table 1. A Typology of Language and Culture Education Programs for Native American Learners*

Program Type	STRONG (Additive or Full Bilingualism/Biculturalism)			WEAK (Subtractive or Limited Bilingualism/Biculturalism)		
	Child's Language Status	Language of Classroom	Program Goals	Child's Language Status	Language of Classroom	Program Goals
<i>Indigenous-Language and Culture Immersion</i>	Indigenous/ Non-dominant	Indigenous language	Indigenous-language maintenance/ revitalization; full bilingualism, biculturalism, biliteracy**	N/A	N/A	N/A
<i>Indigenous-Language and Culture Maintenance ("Language Shelter")</i>	Indigenous/ Non-dominant	Bilingual with emphasis on Indigenous language	Indigenous-language maintenance/ revitalization; bilingualism, biculturalism, biliteracy	N/A	N/A	N/A
<i>Two-Way Bilingual/ Dual Language</i>	Indigenous/ Non-dominant and majority (50/50; 60/40, etc.)	Mixed Indigenous language/ English (90%/10%; 50%/50%, etc.)	Indigenous-language maintenance/ revitalization; bilingualism, biculturalism, biliteracy	N/A	N/A	N/A
<i>Transitional</i>	N/A	N/A	N/A	Indigenous/ Non-dominant	Indigenous language used for first years of schooling, then replaced with English	Strong English dominance/ monolingualism; may include some Native-language and culture enrichment
<i>Mainstream with Indigenous-Language and Culture Pull-Out Classes</i>	N/A	N/A	N/A	Indigenous/ Non-dominant	Indigenous language and English	Strong English dominance/ monolingualism, with some Native-language and culture enrichment
<i>Mainstream with Foreign Language Instruction</i>	N/A	N/A	N/A	Indigenous/ Non-dominant and majority	English with Indigenous language taught as a "foreign" language	Strong English dominance; limited bilingualism; little or no cultural emphasis
<i>Structured (English) Immersion***</i>	N/A	N/A	N/A	Indigenous/ Non-dominant	English only	English monolingualism/ monoculturalism (assimilation)

* This table is taken from McCarty (2010, pp. 98-99) and adapted from Baker (2006).

** A primary goal of many Indigenous-language programs is oral proficiency (i.e., not Native-language literacy).

*** Structured English immersion programs are best characterized as "non-forms" of bilingual/multicultural education, also known as "sink or swim" (Skutnabb-Kangas & McCarty, 2008, p. 12).

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