# Compilation of Abstracts
# Effective Teaching of American Indian Students
## A Preliminary Response

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Prepared by

The Regional Educational Laboratory for the Central Region

for

The National Indian Education Association

and including

ADDENDUM: Additional Native Hawaiian Resources
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## INTRODUCTION

American Indian student achievement is an issue of concern across the nation. As a subgroup, American Indian students struggle with high dropout rates (Faircloth & Tippeconnic, 2010; Freeman & Fox, 2005; National Caucus of Native American State Legislators, 2008); high rates of absenteeism, suspension, and expulsion (Freeman & Fox, 2005); and low academic performance (Freeman & Fox, 2005; Grigg, Moran, & Kuang, 2010; National Caucus of Native American State Legislators, 2008; Nelson, Greenough, & Sage, 2009).

REL Central has received multiple requests to identify the research literature on effective teaching of Native students. The National Indian Education Association (NIEA), a collaborating partner, requested this review; in addition, the chief state school officers of the Central Region states[1] served by REL Central have repeatedly requested assistance with improving student achievement results for their American Indian students, as five of the Central Region states have large American Indian student populations. Finally, the Mountain Plains Desert Collaborative (MPDC)[2] specifically requested that REL Central prepare a report about the effective teaching of American Indian students to inform the work of that group.

Interventions currently in use for improving American Indian[3] student academic performance focus on nurturing resilience (Strand & Peacock, 2002) or self-esteem (Gilliland, 1999) among American Indian students and suggest teaching to American Indian learning styles (Hilberg & Tharp, 2002; Pewewardy, 2002) or using practices such as one-on-one and small group settings (Sorkness & Kelting-Gibson, 2006). Some interventions stress the importance of building strong positive relationships between teachers and their American Indian students (Cleary & Peacock, 1998; Powers, Potthoff, Bearinger, & Resnick, 2003). A growing body of American Indian education literature suggests that educational interventions, including teaching, should be congruent with American Indian cultures, values, and belief systems (Buly & Ohana, 2004; Castagno & Brayboy, 2008; Cleary & Peacock, 1998; Deloria & Wildcat, 2001; Demmert, 2001; Demmert & Towner, 2003; Gay, 2000; Hermes, 2007; Lambe, 2003; Lipka, Sharp, Brenner, Yanez, & Sharp, 2005; Lomawaima & McCarty, 2006; McCarty, 2002; Oakes & Maday, 2009; Pewewardy & Hammer, 2003; Powers, 2006; Reyhner, 1992; Swisher & Tippeconnic, 1999; Tippeconnic, 2000; Whitbeck, Hoyt, Stubben, & LaFramboise, 2001; Yazzie-Mintz, 2007). However, educational interventions that incorporate American Indian cultures, values, and belief systems are not enough to produce positive educational outcomes if teachers don't know how to incorporate them into classroom instruction (Agbo, 2001).

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[1] The Central Region states are Colorado. Kansas, Missouri, Nebraska, North Dakota,. South Dakota, and Wyoming

[2] The Mountain Plains Desert Collaborative is a collaborative of Equity Assistance Centers, Comprehensive Centers, and other agencies providing technical assistance to a 22-state region of the Western United States and to the Bureau of Indian Education.

[3] See also the Addendum to this document with additional references for Native Hawaiian students.

This compilation of abstracts from articles about the effective teaching of Native students was designed as an initial response to these identified regional needs. In this compilation, abstracts are included unedited, as they were obtained from public sources. The compilation is a first step in identifying the extant research base for effective teaching of American Indian, Alaskan and Hawaiian Native students.

### Organization of the Document

The compilation of abstracts includes 128 unique abstracts. They are divided into five topics, which in turn are subdivided into a total of 25 subtopics. If an abstract indicated that the article was relevant for more than one topic, it is repeated in the second topic area, so that the section for any one topic includes all relevant abstracts. With duplication, 204 abstracts are cited. The sections of the compilation include: introduction; discussion of literature search results; abstracts listed by topic and sorted by subtopic; references; and the appendix, which describes the methods.

With gratitude to Kauhale Kīpaipai, of the Kamehameha Schools an addendum has been added to the document which includes 29 additional abstracts of articles on Hawaiian Native students organized in the Compilation's four primary topic areas.

## Literature Search Results

An initial literature search resulted in 3,274 articles, books, and other documents, such as theses, conference proceedings, and electronic articles. Initial review of the items for relevancy resulted in 482 possible articles. After omitting duplicate sources, certain publication types (e.g., books, newsletters), and sources that did not meet the selection criteria, 128 items remained. REL Central researchers separately reviewed and coded each of the retained abstracts according to their primary topic. Although the majority of the documents were produced from 2000 through 2011, almost one-third (28 percent) of the relevant sources were published between 1990 and 1999. While articles on Hawaiian Native and Alaskan Native students were obtained in theses searches, these were not included as key words.

Many sources address more than one topic. The conceptual framework for the abstract literature compilation was organized around an emergent and iteratively developed list of topics. During the abstract coding process, researchers developed and revised this list of topics. The appendix contains a more detailed description of the methodology. Sources that address more than one topic are listed multiple times (once for each topic they address), for a total of 204 citations. The breakdown of the articles/documents by topic is:

- Language needs of native speakers 25
- The effect of family and community involvement 18
- Alternative instructional techniques 97
- Culturally responsive schooling 57
- Standards-based instruction 7

# Language Needs of Native Speakers

## Working Definition

This topic deals with the instructional role of native and English languages for American Indian students. A review of the 25 abstracts (two abstracts are in each of two subtopics) from the research literature on this topic indicates five major areas, or subtopics, of interest, including (a) the role of the students' native language in the classroom (7); (b) bilingual instruction in the native language and in English (5); (c) total immersion in the native language (5); (d) specific English Language Learner (ELL) instruction (4); and (e) perceptions by particular American Indian cultures of the social value or role of language (4).

## Abstracts

### The role of the students' native language in the classroom

August, D., Branum-Martin, L., Cardenas-Hagan, E., & Francis, D. (2009). The impact of an instructional intervention on the science and language learning of middle grade English language learners. *Journal of Research on Educational Effectiveness, 2*(4), 345-376.

The goal of this study was to assess the effectiveness of an intervention--Quality English and Science Teaching (QuEST)--designed to develop the science knowledge and academic language of middle grades English language learners studying science in their second language and their English-proficient classmates. Ten sixth-grade science teachers in five middle schools in a large south Texas district participated in the study. For each teacher, two sections were randomly assigned to the intervention, Project QuEST, and two sections were randomly assigned to the district curriculum. The sample of students included English language learners, former English language learners, and fluent English-speaking students. Treatment effects were tested separately for science knowledge and vocabulary using a 3-level, multilevel analysis of covariance (students nested within section, sections nested within teacher, and teacher) with the analogous pretest serving as the covariate. Analyses included fixed effects of treatment assignment and the covariate. Treatment effects were tested at the level of the section. Results indicated that posttest differences favoring the treatment group sections were statistically significant for both science knowledge and vocabulary.

Karathanos, K. (2009). Exploring U.S. mainstream teachers' perspectives on use of the Native language in instruction with English language learner students. *International Journal of Bilingual Education and Bilingualism, 12*(6), 615-633.

In the U.S., public school teachers are currently experiencing an unprecedented increase in the number of English language learner (ELL) students with whom they work. Research shows the practice of incorporating ELL students' native languages (L1) into instruction to be a major factor enhancing their success in school. In this study, 327 preservice and experienced mainstream teachers in the midwestern region of the U.S.A. were surveyed on their perspectives related to this practice. Findings from descriptive analyses indicated that while teachers generally supported L1 use in instruction, they tended to show stronger

support for its underlying theory than for its practical implementation. Results from a series of analyses of variances (ANOVA) suggested a clear link between English as a second language specific university preparation and an increased support for the theory and practice of L1 use in instruction. Results further suggested links among some combination of teaching experience and an increase in support for this practice. Findings from this study are discussed in relation to strategies and directions for teacher educators with the responsibility of preparing mainstream teachers to effectively serve ELL students in regions of the USA with unprecedented increases in culturally and linguistically diverse student populations.

Lipka, J. (2002). *Schooling for self-determination: Research on the effects of including native language and culture in the schools. ERIC Digest*. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools (ERIC ED459989).
This digest briefly reviews the impacts of assimilationist education for American Indians and Alaska Natives (AI/AN) and describes recent examples of successful AI/AN schools that incorporate students' Native language and traditional culture into the curriculum. Beginning in the 1870s, federal policy emphasized assimilation as the goal of AI/AN education. Assimilationist policies had the effects of separating AI/AN students from their communities, weakening Native languages and cultures, driving students toward a marginalized identity, alienating students from schooling, and producing subtractive bilingualism. The past three decades have seen many efforts to restore and revitalize Native languages and cultures through the schools and to use Indigenous knowledge and language to meet both local and Western educational goals. Concurrently, the notion of appropriate academic knowledge has been reevaluated, and some teachers and elders have found ways to connect local practical and cultural knowledge to the school curriculum. Four exemplary AI/AN programs are described that involve community or tribally controlled schools, use Indigenous culture and language, and have resulted in a significant gain in academic achievement. These include Navajo programs in Arizona, a Native Hawaiian program in Honolulu, and an Inuit-controlled school using Inuktitut in Nunavik (northern Quebec).

Reyhner, J. (1991). The challenge of teaching minority students: An American Indian example. *Teaching Education, 4*(1), 103-111.
Current teacher education programs do not provide appropriate knowledge for teaching minority students. The article focuses on American Indian students as an example. It discusses the value of using students' home language and culture at school, particularly in the early years, and stresses the value of responsive teaching methods.

Washinawatok, K. (1993). *Teaching cultural values and building self-esteem* (B.A. Thesis). M.A.E.S. College/ Menominee Study Site (ERIC ED366470).
The Menominee Pride Program was a whole-language summer program developed for first grade students at the Menominee Tribal School in Keshena, Wisconsin. The purpose of the program was to increase students' self-esteem by imparting Native values, culture, and language. The curriculum focused on three legends of the Menominee culture and emphasized culturally relevant values identified by Menominee community members.

Program staff received training regarding key elements of Menominee culture. This program came about in response to a lack of Native language and culture programs and to an educational process that lowers the self-esteem of Native students by isolating them from their elders in restrictive, enclosed environments. This paper suggests that tribal school systems must enhance tribal sovereignty by ensuring that cultural and spiritual needs are being addressed through integration of Native history, language, and culture. The Menominee Pride Program was successful in increasing academic skills, improving student interaction, and improving student attitudes toward school. Appendices include a list of values for Menominee schools, a Menominee value statement stressing the importance of family bonding, and the Menominee Pledge.

Winstead, T., Lawrence, A., Brantmeier, E., & Frey, C. (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.

In this interpretive analysis elucidating fundamental tensions of the implementation of the 2001 No Child Left Behind (NCLB) Act within Native-serving schools, we point to ways in which NCLB further limits the already contested sovereignty tribes exercise over how, and in what language, their children are instructed. We discuss issues related to the self-determination exercised by schools, some problematic cultural assumptions inherent in the NCLB law, and the legal tension between NCLB and the 1990/1992 Native American Languages Act. Finally, we examine the detrimental effects that NCLB accountability measures could have on Navajo communities, and look at how the Navajo Nation has addressed sovereignty over tribal education in recent years vis-a-vis NCLB.

Yazzie, T. (1999). Culturally appropriate curriculum: A research-based rationale. In K.G. Swisher & J.W. Tippeconnic, III (Eds.), *Next steps: Research and practice to advance Indian education* (pp. 83-106). Charlotte, WV: Appalachia Educational Laboratory, ERIC Clearinghouse on Rural Education and Small Schools.

Educational researchers and practitioners have long advocated adopting a culturally appropriate curriculum to strengthen the education of Native youth. Such an approach uses materials that link traditional or cultural knowledge originating in Native home life and community to the curriculum of the school. Deeply imbedded cultural values drive curriculum development and implementation and help determine which subject matter and skills will receive the most classroom attention. This chapter examines theoretical and practical research studies that support and inform the development of culturally appropriate curriculum for American Indian children in K-12 classrooms. These studies fall into the following areas: (1) historical roots, including the Meriam Report of 1928; (2) theoretical frameworks (modes of linguistic interaction, supportive learning environments, communication and interaction styles of students and teachers); (3) curriculum development (approaches to overcome culture conflict, parent and community involvement, inquiry-based curriculum, role of Native language in concept development, local community issues, appropriate communication with elders); (4) curriculum practice and implementation (characteristics and behaviors of effective teachers, teacher role); and (5) implications for educational research and practice.

## Bilingual instruction in the native language and in English

Conway, E. L. (2007). *Teaching American Indian and Alaska Native students.* Unpublished master's thesis, The Evergreen State College, Olympia, Washington.

This paper examines a significant body of research that pertains to American Indian and Alaska Native learners in order to determine what causes the trends of low academic achievement and high dropout rates among this population. The historical background of American Indian and Alaska Native education gives a comprehensive summary of how policies and practices, such as the formation of government boarding schools, were used to acculturate and assimilate students into the Anglo-American, Christian society; and later, how the concept of self-determination was established. The review of the research studies represents a broad range of American Indian and Alaska Native populations in order to reveal some of the potential causes for such trends, and to reveal effective strategies for teaching American Indian and Alaska Native students across the country. The research studies concentrate on the following areas: curriculum, parent and community attitudes, schools and current policies, high drop-out rates, racism, traditionalism, motivation, learning styles, methods of assessment, and teaching strategies. Suggestions for how teachers can improve the academic opportunities of American Indian and Alaska Native students are presented in three key areas: teachers as learners, teachers as innovators, and teachers as allies.

Cowell, A. (2002). Bilingual curriculum among the Northern Arapaho. *American Indian Quarterly*, 26(1), 24- 28.

Suggests that Northern Arapaho language classrooms, led by Native-speaking elders, offer the best example within the culture of how traditional practices of oral performance can be mediated via written materials. Socio-economics of bilingual curriculum production on a reservation; socio-historical context of bilingual education in Arapaho culture; discussion on incipient literary traditions; and forums for written debate.

Holmes, K., Rutledge, S., & Gauthier, L. (2009). Understanding the cultural-linguistic divide in American classrooms: Language learning strategies for a diverse student population. *Reading Horizons, 49*(4), 285-300.

This article addresses critical factors that impact learning for a growing population of students in American classrooms, the English Language Learner (ELL). Even in the smallest school districts, it is common for teachers to have one or more students with limited or no command of the English language in their classrooms. Many students in schools with specialized ELL programs spend the majority of their day in regular classrooms trying to fit in with their peers as they struggle to learn a new language. This article focuses on the five stages of language acquisition and proficiency along with corresponding research-based strategies teachers can use at each stage. Elements of an effective language program described in this article are based on an asset model of instruction where students' differences are valued, respected, and utilized. When cultural-linguistic differences are used as assets rather than problems, all students, native and non-

native English speakers, benefit.

Pewewardy, C. D. (1992, May). *"Practice into Theory" Journey to the Year 2000: Culturally responsible pedagogy in action...The American Indian Magnet School.* Paper presented at the Conference on Native American Studies: The Academy and the Community, Minneapolis, MN.
Many American Indian youth confront a choice of forfeiting their cultural heritage in favor of academic achievement. The newly established American Indian Magnet School in St. Paul (Minnesota) addresses this issue by integrating American Indian methodology and ideology across all curriculum areas through effective teaching and sensitivity to learning styles of all students. The school serves 300 Indian and non-Indian students in Grades K-8, and uses cooperative teaching methods, whole language instruction, multicultural literature, and noncompetitive assessment methods. The school provided action research to rediscover the teaching and child-rearing practices of traditional Native peoples and to blend "practice into theory." This paper also discusses: (1) characteristics needed by teachers of Indian students; (2) elements of a teacher education curriculum that espouses a culturally responsible pedagogy for Indian children; (3) recommendations for classroom techniques; (4) the importance of language preservation programs; (5) the debate over the form of Native language instruction; (6) "cultural literacy" and the literary canon versus multicultural education; (7) matching teaching and learning styles; (8) American Indian Studies programs; and (9) developing links between school and tribal community.

Rynkofs, J. (2008). Culturally responsive talk between a second grade teacher and Native Hawaiian children during "Writing Workshop". *Educational Perspectives, 41*(1), 44-54.
In this article, the author describes a three-month study he conducted in Ellen Hino's classroom during writing workshop. The major purpose of the study was to look at the ways this Native-born teacher responds orally to students who share her own bidialectical background. Most of these students are Native Hawaiian and speak a nonprestigious dialect called Hawai'i Creole (HC) as their primary language and Standard English (SE) as their secondary language. Not only do these students speak a dialect particular to the Hawaiian Islands, but their classroom interactions can be strikingly different from those of mainstream American culture. This study addresses issues of linguistic and cultural differences in the context of what is called "writing workshop."

### Total immersion in the native language

McCarty, T. L. (2003). Revitalising indigenous languages in homogenising times. *Comparative Education, 39*(2), 147-163.
Data from three well-documented American Indian language immersion programs (teaching Navajo, Hawaiian, and Keres) and from an ongoing large comparative study of language shift/retention in six Indian school-community sites suggest that immersion schooling can serve the dual roles of promoting students' school success and revitalizing endangered indigenous languages.

Nault, D. (2007). Linking language and literacy: The Legend of the Bluebonnet. *Learning*

*Languages, 13*(1), 25-27.

In immersion programs, language is not directly taught, but rather embedded into the content of a lesson. The target language is the medium of the lesson, not the object of the instruction. A story provides a language experience and encourages students to participate actively in the lesson. Children are also more apt to learn and retain ideas and language from the context of a story and picture books. In this article, the author presents a lesson that uses a story-based approach which can be applied to any other children's literature since it provides the opportunity to cover several curricular objectives at once. In this lesson, children listen to and discuss a story and then write their own stories based on the children's book, "The Legend of the Bluebonnet," by Tomie dePaola. This particular story reinforces concepts on the Native American tribes from Social Studies Curriculum. It also enhances the development of the children's literacy skills. The students improve their oral language skills with the meaningful discourse in the classroom.

Peck, F. (1998). Fort Peck combines language immersion with Montessori methods. *Tribal College, 9*(4), 15.

Describes the new teaching methods at Fort Peck, which include the combination of language-immersion and Montessori methods of teaching. The Montessori method, grounded in spiritual traditions, integrates all subjects and includes cultural immersion and parental involvement.

Redmond, M., & Wiethaus, U. (2009). The Atse Kituwah Academy: An immersion model that holds the key to the future of the Cherokee language and culture. *Learning Languages, 15*(1), 34-37.

The Atse Kituwah Academy (New Kituwah Academy) houses the new Cherokee immersion school in Cherokee, North Carolina. Cherokee is located on the Qualla Boundary in the mountains of the western part of the state, the contemporary homeland of the Eastern Band of Cherokee Indians (EBCI). In 2005, a comprehensive study of the health of the Cherokee language revealed that of a population of over 10,000 EBCI members, only about 420 members were fluent speakers. Of these, 72% were older than 51 years. Only 2% of all households used the Cherokee language at home. The study estimated that the last fluent speaker will pass away in about 25 years. The EBCI has reacted forcefully to these dire statistics. Two years after the publication of the study, the Kituwah Language Revitalization Initiative was in place to guide a comprehensive multi-pronged tribal effort to save and revitalize the Cherokee language. Supported by the tribal government and supplemented by programs to re-establish public usage of Cherokee in local media and the community at large, the immersion school has become a key component of the Kituwah Initiative. In addition to supporting the Atse Kituwah Academy, the EBCI has forged a partnership with Western Carolina University (North Carolina) to create teaching licensure programs for language teachers through university courses and internships and to conduct language revitalization research and scholarship. In October of 2007, the Cherokee Nation in Oklahoma, the EBCI in North Carolina, Northeastern State University, and the United Keetowah Band of Cherokee Indians formed the Cherokee Language Consortium to unite linguistic resources and organize joint programs to revitalize

and strengthen Cherokee language. Such unity of purpose and action is firmly grounded in the knowledge that "the values, culture, and spirituality of Cherokee peoples are embodied in their language and culture."

Umbhau, K. (2009). Firing up White Clay: Immersion school students encouraged to return, give back. *Tribal College Journal of American Indian Higher Education, 21*(2), 26-27.
Fort Belknap College President Carole Falcon-Chandler does not fluently speak the "A'ani" (White Clay) language, but her granddaughter does. The girl, one of the 12 students in the White Clay Language Immersion School located on the college campus in Harlem, Montana, is part of the next generation of fluent A'ani speakers. The language immersion school keeps the same group of students, or cohort, until each student reaches high school. The students are from ages 9 to 12 in grades fifth through seventh. Soon, the 12 students will transfer to different high schools, but when it is time for college, Falcon-Chandler hopes the students enroll at Fort Belknap College. At White Clay Language Immersion School, students are instructed in A'ani as well as learning cultural games, tribal values, and academic skills. The school uses the partial immersion method, in which instructional time is divided equally between English and A'ani. However, cultural teachers are embedded when subjects such as math and reading are taught in English. At the White Clay Immersion School, educators are also developing college-level language courses and a certificate program with the Montana Office of Public Instruction.

## Specific English Language Learner (ELL) instruction

Brown, G. L. (1991). *Reading and language arts curricula in elementary and secondary education for American Indians and Alaska Natives.* Washington, D.C., U.S. Department of Education, Indian Nations At Risk Task Force.
Native students rank far below norms in reading, language arts, and language arts-related subjects. This paper reviews the literature to address strategic plans for reading and language arts curricula for Native students. An overview is presented of theories of first and second language acquisition and learning, stages of language development, and the influence of the learning environment. Second language instruction framed in current theory includes the comprehension, communicative, holistic or integrated, and natural approaches. Instruction and student evaluation are described for the total physical response method. Content-based instructional approaches and the relationship between academic competency and second language (English) competency are discussed, including: the academic needs of Native students; the importance of the nature of the text, the nature of the reader, and the interaction between text and reader in reading instruction for Native students; major impediments facing Native students as they learn to read in English; and methods of overcoming these impediments. Also discussed are the language experience approach and its effectiveness with Native students, adapting the basal reader, integrating the language arts, and the whole language approach. Specific instructional strategies that have proven effective for Native students are offered: analyzing the language complexity of the learning task; providing contextual cues; peer interaction and cooperative learning experiences; modifying lessons or providing alternative activities for limited English

proficient students; incorporating comprehension checks; using preview and review techniques; making the text comprehensible; and adapting content.

Karathanos, K. (2009). Exploring U.S. mainstream teachers' perspectives on use of the Native language in instruction with English language learner students. *International Journal of Bilingual Education and Bilingualism, 12*(6), 615-633. (See abstract earlier in this section.)

McIntosh, A., Graves, A., & Gersten, R. (2007). The effects of response to intervention on literacy development in multiple-language settings. *Learning Disability Quarterly, 30*(3), 197-212.
This descriptive study documents the effects of response-to-intervention type practices in four first-grade classrooms of English learners (ELs) from 11 native languages in three schools in a large urban school district in southern California. Observations and interviews in four classrooms across two consecutive years were compared to first-grade gains in oral reading fluency (N=111). Reading fluency data were examined in relation to ratings of literacy practices, including the degree to which Tier 1 alone or Tier 1 plus Tier 2-type instruction was implemented. The correlation between classroom ratings on the English Learners Classroom Observation Instrument (ELCOI) and gain from pre- to posttest in first grade on oral reading fluency was moderately strong in both Year 1 (r = 0.61) and Year 2 (r = 0.57). The correlation between Cluster II teacher ratings and OF gains was strong in both Year 1 (r = 0.75) and Year 2 (r = 0.70), suggesting a strong relationship between Tier 2-type literacy practices and end-of-first-grade oral reading fluency. Results indicated a strong correlation (r = -0.81) between the number of students below DIBELS benchmark thresholds at the end of first grade and the teacher rating on the amount of instruction provided for low performers. Follow-up data at the end of third grade in oral reading fluency and comprehension indicate moderate correlations to first-grade scores (N=51). Patterns of practice among first-grade teachers and patterns among ELs who were ultimately labeled as having learning disabilities are discussed. Educational implications and recommendations for future research are also presented.

Pappamihiel, N., Lake, V., & Rice, D. (2005). Adapting a social studies lesson to include English language learners. *Social Studies and the Young Learner, 17*(3), 4-7.
If one were to search for classroom strategies for English Language Learners (ELLs), it would not take much time to find many different types of activities that are all useful with ELLs. Additionally, if one were to search for social studies strategies to use with native English speakers, he or she would have little difficulty in finding a variety of innovative and clever approaches. However, if one were to search for strategies that would be effective for both ELLs and native English speakers in the same classroom, he or she would be hard pressed to find a good integration of theory and classroom strategy that would result in quality learning for both groups. Yet, this challenge is exactly the dilemma faced by thousands of primary education teachers as they implement the typical social studies curriculum. This article brings theory into practice and demonstrates how to apply commonly accepted language acquisition theories to lesson plans designed for native speakers. Using an everyday social studies lesson designed for primary grade classrooms, the authors reveal how to adapt objectives for ELLs and how to analyze lessons in order to

modify the language demands of each lesson.

### Perceptions by particular American Indian cultures of the social value or role of language

Martinez, R. (2000). Languages and tribal sovereignty: Whose language is it anyway? *Theory Into Practice, 39*(4), 211-219.
Argues that the ways in which other languages such as Spanish have been dealt with in the schools, particularly in bilingual programs, should not be applied to Pueblo languages in the United States. Information on Spanish-English bilingual programs in schools; Background of the Pueblo Indian people in New Mexico; Brief history of the Pueblo society; Role of language in maintaining Pueblo heritage; Language loss in Pueblo communities.

Nault, D. (2007). Linking language and literacy: The Legend of the Bluebonnet. *Learning Languages, 13*(1), 25-27. (See abstract earlier in this section.)

Reyhner, J. E. (1992*). Teaching American Indian students*. Norman, OK: University of Oklahoma.
This book consists of 18 essays that discuss teaching methods and resource material promoting productive school experiences for American Indian students. The first section of the book introduces the notion of empowerment of Indian students through multicultural education, foundations of Indian education, the history of Indian education, tribal and federal language policies, and a successful bilingual program. Section 2 discusses the importance of adapting teaching methods and curriculum to Indian culture and to the learning styles of Indian children. It also offers recommendations for promoting a positive working relationship between teachers and parents. Section 3 describes language and literacy development, the role of the first language in second language development, and the characteristics of American Indian English. Section 4 addresses the importance of Indian students' exposure to literature relevant to their culture and background. It provides suggestions for whole language teaching strategies, teaching strategies to enhance students' reading comprehension, and an overview of literature written by American Indians. Section 5 makes specific suggestions for teaching social studies, science, mathematics, and physical education to Indian students. Appendices include population and education statistics of American Indians, sources and recommendations for Indian children's literature, resources in social studies, and extensive references.

Stancavage, F.B., Mitchell, J.H., de Mello, V.P., Gaertner, F.E., Spain, A.K., & Rahal, M.L. (2006). *National Indian Education Study, Part II: The educational experiences of fourth- and eighth-grade American Indian and Alaska Native students.* (NCES 2007-454). Washington, D.C.: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics.
This report presents results from a national survey, conducted in 2005, that examined the educational experiences of American Indian/Alaska Native (AI/AN) students in grades 4 and 8, with particular emphasis on the integration of native language and culture into school and classroom activities. Students, teachers, and school principals all participated in

the survey, which constituted Part II of the National Indian Education Study (NIES). NIES was a two-part study conducted by the National Center for Education Statistics (NCES), with the support of the Office of Indian Education (OIE), for the U.S. Department of Education. Part I of NIES collected information on the academic performance of AI/AN students, as measured by the National Assessment of Educational Progress (NAEP). This report describes important aspects of the educational experiences of AI/AN students in grades 4 and 8. Although the central focus of the report is AI/AN students, information is also provided about non-AI/AN students, where available, so that the reader can compare the characteristics of AI/AN students with their peers from different backgrounds. The source of the information on non-AI/AN students is NAEP, which included a survey component to collect limited demographic information about all students who participated in 2005. The NAEP survey, however, did not collect information on the role of AI/AN culture or language in education--topics which are the central focus of NIES.

## The Effect of Family & Community Involvement

### Working Definition

This topic refers to the effect that family and community influence have on schools with large American Indian enrollment. Eighteen abstracts are cited in this section. Family and community influence focuses on five subtopics: (a) including the importance of support at home (3); (b) the input of parents into the classroom or school (3); (c) the input of the community into the classroom or school (7); (d) the congruence of classroom instruction with the community's educational role (3); and (e) the context of community values for how and what is learned in the classroom (2).

### Abstracts

#### Including the importance of support at home

Applequist, K., Mears, R., & Loyless, R. (2009). Factors influencing transition for students with disabilities: The American Indian experience. *International Journal of Special Education, 24*(3), 45-56.

The purpose of this study was to explore those factors impacting successful transition of American Indian students with mild to moderate disabilities to postsecondary academic settings and other lifelong learning opportunities. Thirty-five individuals from three Southwestern tribes were interviewed about personal factors during transition, and secondary, and postsecondary experiences. A second interview was conducted with 14 participants approximately two years later to follow-up on the progress of the student following transition. Many of the participants did not see themselves as active participants in the IEP process and educational placements ranged from inclusive to more traditional resource classrooms and self-contained settings. Secondary teachers and mentors offered support and encouragement to participants. Fewer participants received accommodations in postsecondary settings, and in some instances instructors lacked an understanding about ADA and ways to modify instruction. Participants highlighted the importance of family

and religion in their lives throughout the transition process. Those participating in both interviews showed statistically significant positive change in self-ratings of dimensions of self advocacy and self-determination. Implications of the findings will be discussed.

Hartle-Schutte, D. (1990, April). *Beating the odds: Navajo children becoming literate*. Paper presented at the 19th Annual International Bilingual/Bicultural Education Conference, Tucson, AZ. A retrospective ethnographic study examined the sociocultural environments of fifth-grade Navajo children who have become successful readers. During the second month of school, six fifth-grade teachers at Fort Defiance Elementary School on the Navajo Reservation identified 66 of their 150 students as successful readers, a judgment that was verified for 63 of the students by individual reading evaluation based on miscue analysis. This success rate is much higher than those commonly reported for Navajo children taking standardized achievement tests. Demographic and sociocultural data revealed that the development of literacy among these children was not prevented by home environment conditions, such as low income, single parenting, alcoholism, and employment, nor by linguistic differences or limited amounts of written material in the home. Open-ended interviews with 11 female and 4 male students and their parents, teachers, and principal identified the home, rather than the school, as the most important factor in the students' development as successful readers. Within the home, the achievement of literacy was assisted by child-initiated activities and questioning and supportive adult responses, rather than by direct instruction. Two case studies detail some of the multiple paths to literacy in this Navajo community.

Yazzie, T. (1999). Culturally appropriate curriculum: A research-based rationale. In K.G. Swisher & J.W. Tippeconnic, III (Eds.), *Next steps: Research and practice to advance Indian education* (pp. 83-106). Charlotte, WV: Appalachia Educational Laboratory, ERIC Clearinghouse on Rural Education and Small Schools.

Educational researchers and practitioners have long advocated adopting a culturally appropriate curriculum to strengthen the education of Native youth. Such an approach uses materials that link traditional or cultural knowledge originating in Native home life and community to the curriculum of the school. Deeply imbedded cultural values drive curriculum development and implementation and help determine which subject matter and skills will receive the most classroom attention. This chapter examines theoretical and practical research studies that support and inform the development of culturally appropriate curriculum for American Indian children in K-12 classrooms. These studies fall into the following areas: (1) historical roots, including the Meriam Report of 1928; (2) theoretical frameworks (modes of linguistic interaction, supportive learning environments, communication and interaction styles of students and teachers); (3) curriculum development (approaches to overcome culture conflict, parent and community involvement, inquiry-based curriculum, role of Native language in concept development, local community issues, appropriate communication with elders); (4) curriculum practice and implementation (characteristics and behaviors of effective teachers, teacher role); and (5) implications for educational research and practice.

## The input of parents into the classroom or school

Demmert, W. G., Jr. (2001). *Improving academic performance among Native American students: A review of the research literature*. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools (ERIC Document Reproduction Service No. ED463917)
This literature review examines research-based information on educational approaches and programs associated with improving the academic performance of Native American students. A search reviewed ERIC's over 8,000 documents on American Indian education, as well as master's and doctoral dissertations and other sources of research on the education of Native Americans. Selected research reports and articles were organized into the following categories: early childhood environment and experiences; Native language and cultural programs; teachers, instruction, and curriculum; community and parental influences on academic performance; student characteristics; economic and social factors; and factors leading to success in college or college completion. The status of research and major research findings are reviewed for each of these categories; brief summaries of research findings with citations are included following the review of each category. Also included are an annotated bibliography of more than 100 research reports, journal articles, and dissertations, most published after 1985; and a bibliography of 23 additional references to other literature reviews and non-Native studies.

North Carolina Department of Public Instruction. (2000). *Intervention practices and strategies*. Raleigh, NC: North Carolina Department of Public Instruction, Division of School Improvement.
This document is designed as a resource to assist North Carolina schools in providing the best programs and strategies in the areas of acceleration, remediation, and intervention. The best practices described here are applicable to most students, including students with disabilities. The programs and strategies were validated as effective by the U.S. Department of Education's National Diffusion Network (NDN), are supported by research-based findings, or are supported by anecdotal evidence. The first section lists strategies for improving reading, writing, and mathematics proficiency; related publications by the North Carolina Department of Public Instruction; and other resources. The second section, submitted by the Black Leadership Caucus of the General Assembly, lists eight effective strategies for teaching African American students and notes related research and examples of possible actions. A section on effective strategies for teaching Native American students was endorsed by the Office of Indian Education. Brief descriptions and contact information are provided for 28 programs proven effective with American Indian students. A section on programs validated by the NDN profiles 22 programs, including grade level, resources needed, areas addressed, and a brief description. The final section presents 35 programs and strategies supported by research and positive anecdotal evidence. Grade level, resources needed, areas addressed, and descriptions of varying length are included.

Yazzie, T. (1999). *Culturally appropriate curriculum: A research-based rationale.* In K.G. Swisher & J.W. Tippeconnic, III (Eds.), *Next steps: Research and practice to advance Indian education* (pp.84-106). Charlotte, WV: Appalachia Educational Laboratory, ERIC Clearinghouse on Rural

Education and Small Schools. (See abstract earlier in this section.)

### The input of the community into the classroom or school

Cunningham-Sabo, L., Bauer, M., Pareo, S., Phillips-Benally, S., Roanhorse, J., & Garcia, L. (2008). Qualitative investigation of factors contributing to effective nutrition education for Navajo families. *Maternal & Child Health Journal*, *12* (Supplement 1), 68-75. Objectives Obesity rates in American Indian and Alaskan Native children are a major health threat, yet effective ways to address this remain elusive. Building on an earlier dietary assessment of Navajo Head Start families which indicated a gap in parental nutrition awareness despite a strong program emphasis, the aim of this project was to identify culturally relevant nutrition education strategies for Navajo parents and educators of young children. Methods Eight focus group interviews were conducted with 41 parents and early childhood education paraprofessionals to identify contributors to both healthful and unhealthy food ways of Navajo preschoolers. Results were presented in two community venues to verify the themes and discuss implications. Results Barriers to healthful eating included availability/cost, parenting/control, preferences/habits, time pressures, and knowledge/education. Enablers to healthful eating included the categories of schools/education, and support/modeling. Reactions to these findings during community forums suggested (1) the need for stronger parenting and parental control over the food environment; (2) community-level action to address these barriers; and (3) the need for knowledge and culturally relevant educational strategies for caregivers and children. Conclusions Implications for interventions include building upon existing community resources to enhance culturally relevant and respectful parental, family, and community support for affordable and acceptable food experiences and choices for young children and their families.

Demmert, W. G., Jr. (2001). *Improving academic performance among Native American students: A review of the research literature*. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools (ERIC Document Reproduction Service No. ED463917). (See abstract earlier in this section.)

Landis, S. (1999). *Making school work in a changing world: Tatitlek Community School. Case study.* Portland, OR: Northwest Regional Educational Laboratory, School Improvement Program. As part of a larger study of systemic educational reform in rural Alaska, this case study examines the implementation of the Alaska Onward to Excellence (AOTE) improvement process in the village of Tatitlek in south-central Alaska. The village has about 100 residents, mostly of Alutiiq heritage (Native peoples of Prince William Sound). A three-room K-12 school serves about 23 students. The aftermath of the 1989 Exxon Valdez oil spill turned the village toward increased connection to the outside and intentional planning for the future. A main AOTE goal is a community-school partnership that often focuses on integrating Native knowledge, culture, and language into the school. In Tatitlek, however, the overriding priority was ensuring student success both in and outside the village. In the early stages, AOTE meetings enjoyed strong turnout, and participants

reached consensus on which district goals should be pursued locally. However, later participation dropped considerably. The district took the community goals and developed dramatic changes to curriculum and instruction: the Chugach Instructional Model, which progresses from drill to real-life connections; standards-based curriculum, assessment and report card; emphasis on hands-on learning; and Anchorage House, an urban residential experience for secondary students. Improved school-community relations were supported by the strong, innovative leadership of district staff; high levels of trust among all parties; and new teachers who are highly respectful of Native lifestyle and have become friends and advocates within the community. Barriers to sustainability and a student attitude survey are discussed. Appendices describe Anchorage House, district standards, beliefs, student goals and the AOTE action plan.

Lipka, J. (2002). *Schooling for self-determination: Research on the effects of including Native language and culture in the schools. ERIC Digest*. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools (ERIC ED459989).

This digest briefly reviews the impacts of assimilationist education for American Indians and Alaska Natives (AI/AN) and describes recent examples of successful AI/AN schools that incorporate students' native language and traditional culture into the curriculum. Beginning in the 1870s, federal policy emphasized assimilation as the goal of AI/AN education. Assimilationist policies had the effects of separating AI/AN students from their communities, weakening Native languages and cultures, driving students toward a marginalized identity, alienating students from schooling, and producing subtractive bilingualism. The past 3 decades have seen many efforts to restore and revitalize Native languages and cultures through the schools and to use Indigenous knowledge and language to meet both local and Western educational goals. Concurrently, the notion of appropriate academic knowledge has been reevaluated, and some teachers and elders have found ways to connect local practical and cultural knowledge to the school curriculum. Four exemplary AI/AN programs are described that involve community or tribally controlled schools, use Indigenous culture and language, and have resulted in a significant gain in academic achievement. These include Navajo programs in Arizona, a Native Hawaiian program in Honolulu, and an Inuit-controlled school using Inuktitut in Nunavik (northern Quebec).

North Carolina Department of Public Instruction. (2000). *Intervention practices and strategies*. Raleigh, NC: North Carolina Department of Public Instruction, Division of School Improvement. (See abstract earlier in this section).

Rivera, H., & Tharp, R. (2006). A Native American community's involvement and empowerment to guide their children's development in the school setting. *Journal of Community Psychology*, 17.

This study provides an empirical description of the dimensions of community values, beliefs, and opinions through a survey conducted in the Pueblo Indian community of Zuni in New Mexico. The sample was composed of 200 randomly chosen community members ranging from 21 to 103 years old. A principal component factor analysis was conducted, as well as a multivariate analysis of variance, to explore gender, age, education, language, and

socioeconomic (SES) differences on values, beliefs, and opinions from survey participants. Overall, the findings suggest a strong agreement by the community on the direction to be taken by their school district in their efforts to improve classroom instruction, as well as in their efforts to guide their children's development as Native Americans.

Yazzie, T. (1999). Culturally appropriate curriculum: A research-based rationale. In K.G. Swisher & J.W. Tippeconnic, III (Eds.), *Next steps: Research and practice to advance Indian education* (pp. 83-106). Charlotte, WV: Appalachia Educational Laboratory, ERIC Clearinghouse on Rural Education and Small Schools. (See abstract earlier in this section.)

### The congruence of classroom instruction with the community's educational role

Apthorp, H. S., D'Amato, E. D., & Richardson, A. (2002). *Effective standards-based practices for Native American students: A review of research literature.* Aurora, CO: Mid-continent Research for Education and Learning.

This report reviews education programs and practices that have improved Native American student achievement in English language arts and mathematics. In Navajo tribal schools, teaching Indigenous language and literacy first, followed by teaching English and promoting bilingualism, helped students perform well on tests of vocabulary, comprehension, and writing. In Hawaii, a culturally congruent English language arts program significantly improved Native Hawaiian children's achievement in reading. Emphasis on comprehension over mechanics and phonics allowed children to learn in ways that were congruent with their everyday experiences outside of school. The use of ethnomathematics, based on the same principles of cultural congruence, led to improved student achievement for Native Hawaiian children and Alaskan rural middle school students. All these programs required extensive collaboration and time. Although limited in scope, the evidence suggests that congruency between the school environment and the culture of the community is critical to educational success. Collaborative research and development efforts, carried out at the local level, are needed. Seven action steps are recommended in this regard. An appendix outlines McREL's plan for further research.

Demmert, W. G., Jr. (2001). *Improving academic performance among Native American students: A review of the research literature*. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools (ERIC Document Reproduction Service No. ED463917). (See abstract earlier in this section.)

Rivera, H., & Tharp, R. (2006). A Native American community's involvement and empowerment to guide their children's development in the school setting. *Journal of Community Psychology*, 17. (See abstract earlier in this section.)

### The context of community values for how and what is learned in the classroom

Applequist, K., Mears, R., & Loyless, R. (2009). Factors influencing transition for students with disabilities: The American Indian experience. *International Journal of Special Education, 24*(3), 45-56. (See abstract earlier in this section.)

Peck, F. (1998). Fort Peck combines language immersion with Montessori methods. *Tribal College, 9*(4), 15.
Describes the new teaching methods at Fort Peck, which include the combination of language-immersion and Montessori methods of teaching. The Montessori method, grounded in spiritual traditions, integrates all subjects and includes cultural immersion and parental involvement.

## Alternative Instructional Techniques

### Working Definition

Alternative instructional techniques are practical classroom applications of the particular educational needs of American Indian students. For this topic, the numerous subjects we found in the abstract literature have been combined into ten subtopics organized according to their similarities or correlations. There are 97 abstracts cited in this section, including duplicates. The subtopics can be grouped into four categories: (a) method (50); (b) content (22); (c) a combination of method and content (17); and (d) other (8). There are four areas within method: collaboration, active performance, coaching/mentoring, and small group instruction. There are three areas within content: native cultural epistemology, visuals, and narratives. Method and content combinations include two areas: project-based instruction and practical relevance. The fourth category, other, contains subjects that appear sparsely or uniquely in the abstract literature.

### Abstracts

#### Method – Collaboration

Allison, B. N., & Rehm, M. L. (2007). Effective teaching strategies for middle school learners in multicultural, multilingual classrooms. *Middle School Journal, 39*(2), 12-18.
Middle school teachers, like all educators around the nation, are encountering classrooms comprised of an unprecedented number of students from various cultural, ethnic, and racial backgrounds. Due to the influx of immigrants entering the U.S. educational system, the number of students who speak a native language other than English has grown dramatically and will account for about 40% of the school-age population by 2040. The reality of a multicultural, multilingual student population dictates that educators, 87% of whom are Caucasian, must be prepared to interact and work with students who do not share the same language, culture, or national origin. Some researchers believe that meeting the needs of diverse students is, and will be, even more challenging for middle school teachers than other teachers, because they must also help students deal with the unique developmental changes that occur during this time. As young adolescents confront a host of transitions associated with the emergence of puberty, including dramatic physical, social-emotional, and cognitive changes, they also undergo transformations in relationships with parents, encounter more emotionally intense interactions with peers, and struggle with personal identity issues. Middle school teachers, therefore, must become educated about and skilled in using pedagogy that is sensitive and responsive to the developmental and

educational needs of young adolescents from diverse racial, ethnic, and cultural backgrounds. This article explores instructional strategies employed by teachers in middle school classrooms in Florida, a state in which 50% of the students in public schools are members of ethnic minority groups.

Boognl, M. (2006). Hand-on approach to teaching composition of functions to a diverse population. *Mathematics Teacher, 99*(7), 516-520.
This article presents a project that introduces compositions and inverses of functions, using a method that compliments the learning styles of Native American students.

Conway, E. L. (2007). *Teaching American Indian and Alaska Native students.* Unpublished master's thesis, The Evergreen State College, Olympia, Washington.
This paper examines a significant body of research that pertains to American Indian and Alaska Native learners in order to determine what causes the trends of low academic achievement and high dropout rates among this population. The historical background of American Indian and Alaska Native education gives a comprehensive summary of how policies and practices, such as the formation of government boarding schools, were used to acculturate and assimilate students into the Anglo-American, Christian society; and later, how the concept of self-determination was established. The review of the research studies represents a broad range of American Indian and Alaska Native populations in order to reveal some of the potential causes for such trends, and to reveal effective strategies for teaching American Indian and Alaska Native students across the country. The research studies concentrate on the following areas: curriculum, parent and community attitudes, schools and current policies, high drop-out rates, racism, traditionalism, motivation, learning styles, methods of assessment, and teaching strategies. Suggestions for how teachers can improve the academic opportunities of American Indian and Alaska Native students are presented in three key areas: teachers as learners, teachers as innovators, and teachers as allies.

Demmert, W. G., Jr. (2001). *Improving academic performance among Native American students: A review of the research literature*. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools (ERIC Document Reproduction Service No. ED463917)
This literature review examines research-based information on educational approaches and programs associated with improving the academic performance of Native American students. A search reviewed ERIC's over 8,000 documents on American Indian education, as well as master's and doctoral dissertations and other sources of research on the education of Native Americans. Selected research reports and articles were organized into the following categories: early childhood environment and experiences; Native language and cultural programs; teachers, instruction, and curriculum; community and parental influences on academic performance; student characteristics; economic and social factors; and factors leading to success in college or college completion. The status of research and major research findings are reviewed for each of these categories; brief summaries of research findings with citations are included following the review of each category. Also included are an annotated bibliography of more than 100 research reports, journal articles,

and dissertations, most published after 1985; and a bibliography of 23 additional references to other literature reviews and non-Native studies.

Ingalls, L., Hammond, H., Dupoux, E., & Baeza, R. (2006). Teachers' cultural knowledge and understanding of American Indian students and their families: Impact of culture on a child's learning. *Rural Special Education Quarterly*, *25*(1), 16-24.
This manuscript discusses educational practices used in a K-12 reservation school system and speculates how these practices may be culturally insensitive to American Indian students and their families in the community. Focus group discussions were conducted with seven teachers, who were students in a graduate program, and were working on a reservation school located in a rural community in the southwestern United States. The students were queried as a group during class meetings on educational practices. These discussions revealed a list of commonly used teaching methods that are incompatible with this population and reasons for the incompatibility. Since the teachers were familiar with the American Indian culture, they were able to generate a list of culturally responsive educational practices (solutions) to address each problem area. These findings have major implications for this population of students as they have one of the highest special education referral and placement rates of all minority groups.

Lambe, J. (2003). Indigenous education, mainstream education, and Native studies: Some considerations when incorporating indigenous pedagogy into Native studies. *American Indian Quarterly, 27*(1-2), 308-324.
Discusses the characteristics of indigenous education based on the experience of a Native scholar with a Mohawk elder and Lakota mentor. Traditional forms of knowledge; impact of the indigenous education on the Mohawk; information on the structures of Western education.

North Carolina Department of Public Instruction. (2000). *Intervention practices and strategies*. Raleigh, NC: North Carolina Department of Public Instruction, Division of School Improvement.
This document is designed as a resource to assist North Carolina schools in providing the best programs and strategies in the areas of acceleration, remediation, and intervention. The best practices described here are applicable to most students, including students with disabilities. The programs and strategies were validated as effective by the U.S. Department of Education's National Diffusion Network (NDN), are supported by research-based findings, or are supported by anecdotal evidence. The first section lists strategies for improving reading, writing, and mathematics proficiency; related publications by the North Carolina Department of Public Instruction; and other resources. The second section, submitted by the Black Leadership Caucus of the General Assembly, lists eight effective strategies for teaching African American students and notes related research and examples of possible actions. A section on effective strategies for teaching Native American students was endorsed by the Office of Indian Education. Brief descriptions and contact information are provided for 28 programs proven effective with American Indian students. A section on programs validated by the NDN profiles 22 programs, including grade level,

resources needed, areas addressed, and a brief description. The final section presents 35 programs and strategies supported by research and positive anecdotal evidence. Grade level, resources needed, areas addressed, and descriptions of varying length are included.

Pewewardy, C. (2002). Learning styles of American Indian/Alaska Native students: A review of the literature and implications for practice. *Journal of American Indian Education, 41*(3), 22-56. Review of theories, research, and models of the learning styles of American Indian/Alaska Native students reveals that they generally learn in ways characterized by social/affective emphasis, harmony, holistic perspectives, expressive creativity, and nonverbal communication. Native learning styles are strongly influenced by language, culture, and heritage and are "different" but not deficient. Implications for instruction, curricula, assessment, and future research are discussed.

Pewewardy, C. D. (1992, May). *"Practice into Theory" Journey to the Year 2000: Culturally responsible pedagogy in action...The American Indian Magnet School.* Paper presented at the Conference on Native American Studies: The Academy and the Community, Minneapolis, MN.
Many American Indian youth confront a choice of forfeiting their cultural heritage in favor of academic achievement. The newly established American Indian Magnet School in St. Paul (Minnesota) addresses this issue by integrating American Indian methodology and ideology across all curriculum areas through effective teaching and sensitivity to learning styles of all students. The school serves 300 Indian and non-Indian students in Grades K-8, and uses cooperative teaching methods, whole language instruction, multicultural literature, and noncompetitive assessment methods. The school provided action research to rediscover the teaching and child-rearing practices of traditional Native peoples and to blend "practice into theory." This paper also discusses: (1) characteristics needed by teachers of Indian students; (2) elements of a teacher education curriculum that espouses a culturally responsible pedagogy for Indian children; (3) recommendations for classroom techniques; (4) the importance of language preservation programs; (5) the debate over the form of Native language instruction; (6) "cultural literacy" and the literary canon versus multicultural education; (7) matching teaching and learning styles; (8) American Indian Studies programs; and (9) developing links between school and tribal community.

Preston, V. (1991). *Mathematics and science curricula in elementary and secondary education for American Indian and Alaska Native students.* Washington, D.C.:U.S. Department of Education, Indian Nations At Risk Task Force.
Issues related to the improvement of mathematics and science education pertain to Native students as well as to the general population. Native students are most successful at tasks that use visual and spatial abilities and that involve simultaneous processing. Instruction should build on Native students' strengths. Experiential learning and cooperative learning are two methods that are particularly effective with Native students in improving student attitudes and problem-solving abilities and reducing mathematics anxiety. Storytelling techniques can be used to develop culturally relevant problems. Career days show students the uses of mathematics in the real world. Curriculum development strategies include establishing the relationships and connections between mathematics and other subjects,

and incorporating culturally relevant materials, such as Maya or Inca mathematics and science. Strategies of exemplary programs include summer math camps for Native students, summer institutes to improve teacher instructional skills and methods, after-school and summer enrichment activities in science and engineering, instructional materials developed to accompany a science series on public television, magnet schools, after-school college preparatory courses in mathematics, and parent resource centers. Recommendations are offered related to instructional methods, program development, and federal funding. This paper contains over 130 references.

Safran, S. P., & et al. (1994). Native American youth: Meeting their needs in a multicultural society. *Journal of Humanistic Education and Development, 33*(2), 50-57.
Although Native Americans are among the fastest growing ethnic groups, educators and counselors frequently understand little about their cultural heritage and customs. This overview of factors such as cooperation/competitiveness, communication, and learning styles should help educators and counselors to promote multicultural awareness and to develop teaching strategies compatible with Native American culture.

Sherman, L. (2002). From division to vision: Achievement climbs at a reservation high school in the Rocky Mountains. *Northwest Education, 8*(1), 22-27.
In response to Salish and Kootenai tribal demands for educational equity, a Montana school district chose a reform model based on cooperative learning strategies, which fits American Indian learning styles, and switched from tolerating to celebrating American Indian culture. Academic achievement has risen in all subjects, and the achievement gap between Indian and White students has narrowed.

Sparks, S. (2000). Classroom and curriculum accommodations for Native American students. *Intervention in School & Clinic*, *35*(5), 259-263.
Explores ways to enhance the classroom and the curriculum to meet the learning and social needs of Native American students in the United States. Use of culture-specific teaching method; Goal of acclimating students to multiple societies and cultures; Manner of gathering information on students; Communication strategies for educators; Teachers' development of cultural sensitivity; Student characteristics.

Vallines Mira, R. (2009). Teachers' beliefs regarding effective teaching strategies for American Indian students in mathematics. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 69*(7-A).
Extensive research has been conducted on teaching strategies that are effective for American Indians in mathematics. Despite the variety of cultural, linguistic, socioeconomic, and geographic factors influencing student learning within and among American Indian communities, common characteristics of learning styles and effective teaching practices have been identified. Though the wording in each definition varies, research based on a variety of theoretical frameworks and using a variety of methodologies and instruments suggests that among American Indian students, there is a tendency to learn better when the following three strategies are used: contextualization, modeling and

demonstration, and joint productive activity. Despite the general agreement in education research that the beliefs that teachers hold about mathematics teaching and learning greatly impact their instructional decisions in the classroom, few, if any, of those studies have examined teachers' beliefs regarding effective strategies for American Indians in mathematics. The main purpose of this study was to add the voices of four teachers to the research community conversation about effective teaching strategies for American Indians in mathematics. Two elementary and two high school teachers from two schools in Montana were selected for this study for their experience with and commitment to the mathematics education of American Indian students. Two are American Indians and two are White. Using a combination of classroom observations and a modification of videoclip interviews, the beliefs of the four teachers were identified with particular focus on the three teaching strategies mentioned above. The study shows that teachers' definitions of research-based strategies often differ from those intended by the research. Teachers' views about these strategies seemed to be idiosyncratic to individual teachers and appeared to be shaped by multiple lenses. In this study, some of those lenses emerged including, among others, school structures and teachers' cultural backgrounds. In light of the results of the study, future efforts for constructive bi-directional communication between the research community and practitioners are recommended.

Yazzie, T. (1999). Culturally appropriate curriculum: A research-based rationale. In K.G. Swisher & J.W. Tippeconnic, III (Eds.), *Next steps: Research and practice to advance Indian education* (pp. 83-106). Charlotte, WV: Appalachia Educational Laboratory, ERIC Clearinghouse on Rural Education and Small Schools.

Educational researchers and practitioners have long advocated adopting a culturally appropriate curriculum to strengthen the education of Native youth. Such an approach uses materials that link traditional or cultural knowledge originating in Native home life and community to the curriculum of the school. Deeply imbedded cultural values drive curriculum development and implementation and help determine which subject matter and skills will receive the most classroom attention. This chapter examines theoretical and practical research studies that support and inform the development of culturally appropriate curriculum for American Indian children in K-12 classrooms. These studies fall into the following areas: (1) historical roots, including the Meriam Report of 1928; (2) theoretical frameworks (modes of linguistic interaction, supportive learning environments, communication and interaction styles of students and teachers); (3) curriculum development (approaches to overcome culture conflict, parent and community involvement, inquiry-based curriculum, role of Native language in concept development, local community issues, appropriate communication with elders); (4) curriculum practice and implementation (characteristics and behaviors of effective teachers, teacher role); and (5) implications for educational research and practice.

### Method - Active performance

Allison, B. N., & Rehm, M. L. (2007). Effective teaching strategies for middle school learners in multicultural, multilingual classrooms. *Middle School Journal, 39*(2), 12-18. (See abstract earlier in this section.)

Barta, J. (1999). Native American beadwork and mathematics. *Winds of Change, 14*(2), 36-41.
Many Native Americans struggle with mathematics because they cannot see its relevance. Comments from three Native Americans reveal how art, culture, and math can be taught in an integrated fashion through beadwork. Elementary school children can experience nearly all mathematical concepts presented in school through beadwork, which also teaches organization, discipline, and observation. Includes math/beadwork activity suggestions.

Boognl, M. (2006). Hand-on approach to teaching composition of functions to a diverse population. *Mathematics Teacher, 99*(7), 516-520. (See abstract earlier in this section).

Conway, E. L. (2007). *Teaching American Indian and Alaska Native students.* Unpublished master's thesis, The Evergreen State College, Olympia, Washington. (See abstract earlier in this section.)

Cothran, D., Kulinna, P., & Garn, A. (2010). Classroom teachers and physical activity integration. *Teaching and Teacher Education: An International Journal of Research and Studies, 26*(7), 1381-1388.
This project examined 23 teachers' involvement in a curricular project to integrate physical activity into the school day. The teachers represented all grade levels and worked in schools that served Native American students in the United States. Interviews occurred twice during the year-long project. Data were analyzed via constant comparison. Teachers' willingness to engage was influenced positively by caring about students and their own personal wellness history. Their engagement was impeded by institutional factors of scheduling and assessment pressures. The results provide insights into how teachers might be persuaded to and prepared for the implementation of similar programs in new locations.

Holiday, S. (2003). A native species restoration project. *Science Scope, 27*(2), 24-27.
The southwestern United States is experiencing the third year of a perhaps long-term drought. Many places in the West are considered desert, with less than 10 inches of rainfall per year. Because of local drought conditions, conservation of water is essential. Leupp, Arizona, where the author teaches, is situated on the Colorado Plateau, a region that can be classified as a cold desert. The town is located on the Navajo Reservation. Temperatures range from near 100 degrees Fahrenheit in the summer afternoons to below 20 on winter nights, with rainfall averaging about 6.4 inches per year. Most of the native flora consists of scrub, and some willows and cottonwood trees along the Little Colorado River. There is little natural landscaping near homes or in the town due to grazing of livestock, lack of water availability, and low rainfall. Soil erosion is common near inhabited areas, resulting in bare rock exposure and steep gullies. To help combat erosion and improve the landscaping around local residences, the author's students decided to landscape their community using plants that required very little water--a technique known as "xeriscaping." The students chose to xeriscape around the dwellings of tribal elders on the reservation, but this project could be adapted for use in a low-income housing area, a vacant lot in a

city, or at a senior center.

Landis, S. (1999). *Making school work in a changing world: Tatitlek Community School. Case study.* Portland, OR: Northwest Regional Educational Laboratory, School Improvement Program. As part of a larger study of systemic educational reform in rural Alaska, this case study examines the implementation of the Alaska Onward to Excellence (AOTE) improvement process in the village of Tatitlek in south-central Alaska. The village has about 100 residents, mostly of Alutiiq heritage (Native peoples of Prince William Sound). A three-room K-12 school serves about 23 students. The aftermath of the 1989 Exxon Valdez oil spill turned the village toward increased connection to the outside and intentional planning for the future. A main AOTE goal is a community-school partnership that often focuses on integrating Native knowledge, culture, and language into the school. In Tatitlek, however, the overriding priority was ensuring student success both in and outside the village. In the early stages, AOTE meetings enjoyed strong turnout, and participants reached consensus on which district goals should be pursued locally. However, later participation dropped considerably. The district took the community goals and developed dramatic changes to curriculum and instruction: the Chugach Instructional Model, which progresses from drill to real-life connections; standards-based curriculum, assessment and report card; emphasis on hands-on learning; and Anchorage House, an urban residential experience for secondary students. Improved school-community relations were supported by the strong, innovative leadership of district staff; high levels of trust among all parties; and new teachers who are highly respectful of Native lifestyle and have become friends and advocates within the community. Barriers to sustainability and a student attitude survey are discussed. Appendices describe Anchorage House, district standards, beliefs, student goals and the AOTE action plan.

Lippitt, L., & et al. (1993). *Integrating teaching styles with students' learning styles (Series of 14).* Santa Fe, NM: Santa Fe Indian School, Learning Approaches Resource Center.
This document begins with a report of a study of the learning styles of American Indian students at the Santa Fe Indian School (New Mexico). Santa Fe Indian School is a secondary school of 550 students, primarily from the Pueblo communities of New Mexico. A learning style assessment instrument was administered to 459 students, Grades 7-12, in 4 tribal language groups. A preferred instructional style was not found overall or for any of the tribal language groups. Analysis of student profiles suggests that teaching strategies and curriculum should focus on: small-group learning activities; developing a positive rapport between teachers and students; augmenting information-processing skills that address right and left hemispheric approaches to learning; and developing a flexible instructional delivery that incorporates information on individual learning styles. Following the report, 14 social studies and language arts lesson units, developed for Indian middle school students as a result of the study are presented, based on the 4MAT instructional model that acknowledges a diversity of learning styles and incorporates both right and left hemispheric modes of learning. The units cover various topics related to American Indian history and culture, cultural exchange, outdoor education, study skills, and thinking skills. Each unit consists of lesson plans and learning activities related to creating and analyzing

an experience; integrating experience with analysis; teaching, practicing, and personalizing the concept; analyzing personal application; and celebrating knowledge gained.

Marley, S., Levin, J., & Glenberg, A. (2007). Improving Native American children's listening comprehension through concrete representations. *Contemporary Educational Psychology, 32*(3), 537-550.

The primary purpose of the present study was to determine whether recent findings documenting the benefits of text-related motor activity on young children's memory for reading passages [Glenberg, A. M., Gutierrez, T., Levin, J. R., Japuntich, S., & Kaschak, M. (2004). Activity and imagined activity can enhance young readers' reading comprehension. "Journal of Educational Psychology, 96," 424-436.] could be extended to the text processing of Native American children. Forty-five third through seventh-grade students with academic learning difficulties listened to four narrative passages under one of three instructional conditions: manipulate, where students moved toy objects to represent the story's content; visual, where students observed the results of an experimenter's toy manipulations; and free-study, where students thought about the content of the presented story sentences. Findings were consistent with the literature documenting the comprehension and memory benefits of text-relevant concrete representations, with students in the manipulate and visual conditions statistically outrecalling students in the free-study condition. In contrast to the results of the Glenberg et al. (2004) reading study, no conditions-related differences were observed on a final passage where students were instructed to generate internal visual images of story events in the absence of external visual support (i.e., when no toys were present).

Marley, S., Levin, J., & Glenberg, A. (2010). What cognitive benefits does an activity-based reading strategy afford young Native American readers? *Journal of Experimental Education, 78*(3), 395-417.

The authors conducted two experiments with children from a reservation community. In Experiment 1, 45 third-grade children were randomly assigned to the following reading strategies: (a) "reread," in which participants read each sentence of a story and then reread it; (b) "observe," in which participants read sentences and then observed an experimenter move manipulatives as directed by the story; and (c) "activity," in which participants read sentences and then moved manipulatives as directed by the story. In Experiment 2, 40 second-grade children were randomly assigned to either the reread or activity strategy. In both experiments, activity participants remembered more story content than did reread participants. In Experiment 1, the authors identified no memory differences between observe and activity strategies. When imagery instructions replaced the original strategies, Experiment 1 third-grade activity (and observe) participants recalled more story content than did reread participants, but Experiment 2 second-grade activity participants did not. The authors discuss the instructional benefits of activity-based reading strategies, along with developmental implications.

Neuman, L. (2008). Indian play: Students, wordplay, and ideologies of Indianess at a school for Native Americans. *American Indian Quarterly, 32*(2), 178-203.

This article discusses the history of Bacone College, an American Baptist high school and junior college for American Indians in Muskogee, Oklahoma, and its programs which emphasized American Indian cultures. Peer relationships and student life from the years 1927 to 1955 are explored. How students used Indian play to articulate the meanings of being educated and being Indian are examined. The author investigates how Indian play was connected to the creation of Indian identities among students and the importance of the Bacone school concerning theories of schooling, hegemony, counterhegemony and resistance.

North Carolina Department of Public Instruction. (2000). *Intervention practices and strategies.* Raleigh, NC: North Carolina Department of Public Instruction, Division of School Improvement. (See abstract earlier in this section.)

Pewewardy, C. (2002). Learning styles of American Indian/Alaska Native students: A review of the literature and implications for practice. *Journal of American Indian Education, 41*(3), 22-56. (See abstract earlier in this section.)

Prater, G., & et al. (1995, March). *Effective teachers: Perceptions of Native American students in rural areas.* Paper presented at the American Council on Rural Special Education (ACRES), Las Vegas, NV.

This paper examines perceptions of Native American students regarding effective practices of non-Native teachers. A survey of students in grades 3-12 in 3 rural school districts on the Navajo Reservation (Arizona) questioned 148 Navajo students and 10 non-Native students. The sample included 28 special needs students (17.7 percent). The survey consisted of open-ended questions regarding what kind of teacher students learned the most from; what students would do in the classroom if they were teachers; qualities of ideal teachers; what teachers do in the classroom that discourages learning; student preferences for English-only or bilingual teachers; and the degree to which teachers should be aware of students' cultural background. Results reveal that students learn more from hands-on projects and teachers who encourage varied means of learning. Students also stressed that it was important for teachers to treat students with respect and to teach responsibility. Students indicated that if they were teachers they would teach patience and honesty, tolerance, and the golden rule. Students felt that the most important teacher qualities were respect, kindness, positive attitude, patience, and sense of humor, and that teachers should avoid talking too fast, making fun of Native culture, and giving boring lectures. Although many students felt that a bilingual teacher was not necessary, many others desired to learn more about their Native language. An overwhelming number of students felt that teachers needed to be more sensitive to Native culture.

Russell, M., & Tripp, L. (2010). Learning about minerals through the art of jewelry making: A multicultural science connection. *Science Activities: Classroom Projects and Curriculum Ideas, 47*(4), 115-124.

This article presents an activity that focuses on helping students investigate the formation of rocks, minerals, and gemstones. Students describe visual, textual, and physical properties

of various specimens of minerals. Using compare and contrast skills, students can classify the primary types of rock, ask questions about the Earth's inner processes that result in the formation of our natural resources, and discuss cross-cultural traditions' perspectives on many of our Earth's natural resources. In this multicultural science activity, children actively engage in a hands-on lesson that allows them to visualize and appreciate the beauty of the Earth's natural resources through the art of jewelry making. This lesson provides an artistic approach to science as students explore various properties of the Earth's materials and physical properties of matter.

Sparks, S. (2000). Classroom and curriculum accommodations for Native American students. *Intervention in School & Clinic*, 35 (5), 259-263. (See abstract earlier in this section)

Vierling, K., Bolman, J., & Lane, K. (2005). Field ecology in a cultural context. *Science Teacher, 72*(3), 26-31.
Ecological studies that examine how organisms interact with their environment provide a particularly useful backdrop for high school students to both quantitatively and qualitatively explore the natural world. In Hot Springs, South Dakota, the authors developed a module that integrated modern ecological theory within an American Indian cultural framework. In this weeklong field study course, Lakota Sioux high school students explored woodpecker habitat selection and fire ecology. American Indian students learn best when content is presented in an active-learning setting, is communicated through visual or oral means, is tethered to cultural context, and involves a holistic view of natural systems coupled with a holistic approach to learning. The following article describes the module the authors developed and how these elements were incorporated. The module can be modified to correlate with regular semester coursework as well as different cultures.

Wall, K., & Scott, M. (1990). Using Native American dice games to teach mathematics concepts. *Tower Review, 7*(2), 18-23.
Culturally based programs can help increase Native Americans' achievement in mathematics. Dice games are traditional to most tribes and are easily adapted to elementary mathematics and specific tribal customs. This article presents dice activities for primary (K-3) and intermediate (4-6) grades.

Zwick, T. T., & Miller, K. W. (1996). A comparison of integrated outdoor education activities and traditional science learning with American Indian students. *Journal of American Indian Education, 35*(2), 1-9.
Comparison of a culturally-sensitive activity-based outdoor science curriculum with a traditional textbook and classroom approach found that fourth-grade American Indian students in the activity-based group had significantly higher science achievement scores than those in the control group. There were no significant differences between Indian and non-Indian students receiving activity-based instruction.

### Method - Coaching/mentoring

Allison, B. N., & Rehm, M. L. (2007). Effective teaching strategies for middle school learners in

multicultural, multilingual classrooms. *Middle School Journal, 39*(2), 12-18. (See abstract earlier in this section.)

Boognl, M. (2006). Hand-on approach to teaching composition of functions to a diverse population. *Mathematics Teacher, 99*(7), 516-520. (See abstract earlier in this section.)

Buly, M. (2005). Leaving no American Indian/Alaska Native behind: Identifying reading strengths and needs. *Journal of American Indian Education, 44*(1), 29-52.

American Indian/Alaska Native (AI/AN) students are often labeled as struggling readers based on the results of large-scale standardized tests yet little empirical data about specific strengths and needs exists. In the present study we looked beyond high-stakes assessment to highlight reading strengths and needs for a group of fourth grade American Indian students in order to provide specific information to guide instruction. A description of skills considered basic to proficient reading is followed by an explanation of the assessment methods used. The majority of the students demonstrated fairly strong skills in phonemic awareness, vocabulary when assessed orally, and basic word identification (phonics). Reading with a rate appropriate to purpose and comprehension strategies were identified as instructional needs. Explicit instruction in the identified areas is suggested as vital to the future success of these students and may provide a starting point for the identification and instruction of other American Indian/Alaska Native students with similar needs.

Conway, E. L. (2007). *Teaching American Indian and Alaska Native students.* Unpublished master's thesis, The Evergreen State College, Olympia, Washington. (See abstract earlier in this section.)

Glau, G. R. (1990). Returning power: Native American classroom (dis)comfort and effective communication. *Writing Instructor, 10*(1), 51-58.

Suggests giving some power back to Native American students by using small groups, acting more as a coach than as an instructor, and using culturally relevant and interesting materials. Notes that these suggestions increase teaching effectiveness with Native American students.

Ingalls, L., Hammond, H., Dupoux, E., & Baeza, R. (2006). Teachers' cultural knowledge and understanding of American Indian students and their families: Impact of culture on a child's learning. *Rural Special Education Quarterly, 25*(1 ), 16-24. (See abstract earlier in this section.)

Lambe, J. (2003). Indigenous education, mainstream education, and Native studies: Some considerations when incorporating indigenous pedagogy into Native studies. *American Indian Quarterly, 27*(1-2), 17. (See abstract earlier in this section.)

North Carolina Department of Public Instruction. (2000). *Intervention practices and strategies.* Raleigh, NC: North Carolina Department of Public Instruction, Division of School Improvement. (See abstract earlier in this section.)

Pewewardy, C. D. (1992). "*Practice into Theory" Journey to the Year 2000: Culturally responsible pedagogy in action...The American Indian Magnet School.* Paper presented at the Conference on Native American Studies: The Academy and the Community, Minneapolis, MN. (See abstract earlier in this section.)

Swisher, K. G., & Tippeconnic, J. W., III. (1999). Research to support improved practice in Indian education. In K.G. Swisher & J.W. Tippeconnic, III (Eds.), *Next steps: Research and practice to advance Indian education* (pp. 295-307). Charlotte, WV: Appalachia Educational Laboratory, ERIC Clearinghouse on Rural Education and Small Schools.
In recent years, various task forces and studies, including the White House Conference on Indian Education, have established that research on Indian education, history, and culture must consider the Native perspective and involve Native researchers. Improving Indian education depends upon good research. Aspects of Indigenous education and community life that need study include: the teaching-learning relationship between Native students and teachers and how a good Native teacher can enhance that relationship; how to attract and retain effective principals or leadership teams in order to maintain stability for planning and implementing improvements; school collaborations with nearby colleges, including distance learning and culturally appropriate programs; how agency workers serving youth and families can collaborate more fully in creating conditions for educational success; developing systems to help students with the transition from one phase of schooling to the next; expunging stereotypes about Native peoples from curricula and teacher education programs; broadening Native education research beyond the reservation context; how Native Americans can educate America and the rest of the world about the unique Native political status; building coalitions between Native Americans and Indigenous people from other countries; educational effects of recent tribal economic development programs such as gambling operations; how to make more connections between schooling and daily life, consistent with the holistic nature of Native worldviews; and building coalitions for research and development among tribal governments, federal agencies, colleges, and the private sector. Contains endnotes.

### Method - Small group instruction

Abdel-Monem, T., Bingham, S., Marincic, J., & Tomkins, A. (2010). Deliberation and diversity: Perceptions of small group discussions by race and ethnicity. *Small Group Research*, *41*(6), 746-776.
One of the challenges facing public deliberation scholars and practitioners is to identify deliberative processes that address inequities in interaction and foster active participation among all members of ethnically or racially diverse groups. This study draws from co-cultural communication theory and uses mixed methodology to examine the experiences of citizens assigned to racially/ethnically diverse small groups who participated in “By the People: Dialogues in Democracy” a national/local initiative and public deliberation event. One hundred participants in a local deliberation in Omaha, Nebraska, completed a post-event questionnaire and 20 participants were subsequently interviewed. Data were analyzed to compare the perceptions of White participants and participants of color (African

American, Hispanic, Native American, Asian American). Analysis of variance indicated that participants of color perceived greater communication quality and group effectiveness and experienced more satisfaction with their small groups than did Whites. Both White interviewees and interviewees of color said they valued being exposed to diverse group members and perspectives, the respectful tone of the group interaction, the facilitator's ability to guide the interaction, and the opportunity to learn. Consistent with co-cultural communication theory, participants of color specially praised the equal opportunity to speak in their groups and the experience of being heard. The results fortify the importance for public deliberation practitioners to take concerted steps to ensure racial/ethnic diversity and egalitarian interaction of members in deliberative small groups.

Boognl, M. (2006). Hand-on approach to teaching composition of functions to a diverse population. *Mathematics Teacher, 99*(7), 516-520. (See abstract earlier in this section.)

Landis, S. (1999). *Making school work in a changing world: Tatitlek Community School. Case study*. Portland, OR: Northwest Regional Educational Laboratory, School Improvement Program. (See abstract earlier in this section.)

Lippitt, L., & et al. (1993). *Integrating teaching styles with students' learning styles (Series of 14)*. Santa Fe, NM: Santa Fe Indian School, Learning Approaches Resource Center. (See abstract earlier in this section.)

North Carolina Department of Public Instruction. (2000). *Intervention practices and strategies*. Raleigh, NC: North Carolina Department of Public Instruction, Division of School Improvement. (See abstract earlier in this section.)

Pewewardy, C. (2002). Learning styles of American Indian/Alaska Native students: A review of the literature and implications for practice. *Journal of American Indian Education, 41*(3), 22-56. (See abstract earlier in this section.)

### Content - Native cultural epistemology

Akiba, M., Chiu, Y., Zhuang, Y., & Mueller, H. (2008). Standards-based mathematics reforms and mathematics achievement of American Indian/Alaska Native eighth-graders. *Education Policy Analysis Archives, 16*(20), 1-31.
Using the NAEP nationally-representative data collected from eighth-graders, we investigated the relative exposure of American Indian/Alaska Native (AIAN) students to mathematics teachers who are knowledgeable about standards, participate in standards-based professional development, and practice standards-based instruction; American Indian/Alaska Native student reports of standards-based classroom activities; and how student reports of classroom activities and teacher reports of their knowledge, professional development, and practices are associated with mathematics achievement of American Indian/Alaska Native students. We found that AIAN students had among the lowest exposure to teachers who reported they were knowledgeable about standards, who participated in standards-based professional development, and who practiced standards-

based instruction. In addition, AIAN students were less likely than African American and Latino students to report that they experienced standards-based classroom activities. Our data showed that teacher reports of standards-based knowledge and practice of standards-based instruction were not significantly associated with mathematics achievement of AIAN students. However, student reports of classroom activities characterizing standards-based instruction was associated with higher mathematics achievement of AIAN students.

Hankes, J. E. (1998). *Native American pedagogy and cognitive-based mathematics instruction.* Florence, KY: Garland Publishing.

This study was motivated by the fact that Native Americans have the smallest percentage of secondary and postsecondary students performing at the advanced level in mathematics of all ethnic groups. The study sought to determine whether teaching methods employed in Cognitively Guided Instruction (CGI), an approach that provides teachers with research-based knowledge about primary mathematics in relation to children's thinking, were compatible with the teaching methods of Native American pedagogy. A literature review outlines five instructional methods common across Native American tribes: indirect rather than direct instruction, problem solving based on sense-making, problem solving that is culturally situated and based on the lived experiences of the student, cooperative rather than competitive instruction, and time-generous rather than time-driven problem solving. Determination of whether Native American pedagogy and CGI were compatible was dependent upon one teacher's knowledge of both approaches. After participating in two 30-hour CGI workshops, an Oneida kindergarten teacher implemented the approach in her classroom. After reflecting on how Oneida cultural values influenced her teaching and how her teaching corresponded with Native American methods, this teacher identified the commonalities between Oneida/Native American pedagogy and CGI as she understood them. On a nine-item test, the Oneida kindergartners demonstrated a remarkable mathematical problem-solving ability, indicating that CGI is a culturally compatible way of teaching mathematics to Native American children. Appendices present CGI problem types and solution strategies, research documents, analysis of Oneida cultural values, and analysis of teacher interviews and children's solution strategies.

Ingalls, L., Hammond, H., Dupoux, E., & Baeza, R. (2006). Teachers' cultural knowledge and understanding of American Indian students and their families: Impact of culture on a child's learning. *Rural Special Education Quarterly, 25*(1), 16-24 (See abstract earlier in this section.)

Lambe, J. (2003). Indigenous education, mainstream education, and Native studies: Some considerations when incorporating indigenous pedagogy into Native studies. *American Indian Quarterly, 27*(1-2), 17. (See abstract earlier in this section.)

Pewewardy, C. (2002). Learning styles of American Indian/Alaska Native students: A review of the literature and implications for practice. *Journal of American Indian Education, 41*(3), 22-56. (See abstract earlier in this section.)

Starnes, B. (2006). What we don't know can hurt them: White teachers, Indian children. *Phi Delta Kappan, 87*(5), 384-392.
This article focuses on Indian education in the United States and the idea of putting white teachers on Indian reservations. The programs initiated by the 2004 No Child Left Behind Act conflict with Native American learning best practices. Native American students tend to be holistic, so a reflective processing of information is an appropriate learning strategy. The author, who worked at Rocky Boy Elementary School on the Chippewa-Cree reservation in Montana, learned that, to be effective, teachers need mentors and an awareness of Native American history and culture. Factors that contribute to a strong mentoring program include educating teachers to culturally appropriate practices and supporting cultural risk-taking.

Wilgosh, L., & Mulcahy, R. (1993). Cognitive educational models of assessment, programming and instruction for Native learners. *Canadian Journal of Native Education, 20*(1), 129-135.
Reviews various approaches to assessment and instruction of Native students in Canada and the United States, particularly attempts to identify Native learning styles and to adapt curriculum to them. Describes two approaches particularly suitable for Native and other minority students because they teach social and academic cognitive and metacognitive strategies not tied to specific content.

### Content – Visuals

Allison, B. N., & Rehm, M. L. (2007). Effective teaching strategies for middle school learners in multicultural, multilingual classrooms. *Middle School Journal, 39*(2), 12-18. (See abstract earlier in this section.)

Boognl, M. (2006). Hand-on approach to teaching composition of functions to a diverse population. *Mathematics Teacher, 99*(7), 516-520. (See abstract earlier in this section.)

Cothran, D., Kulinna, P., & Garn, A. (2010). Classroom teachers and physical activity integration. *Teaching and Teacher Education: An International Journal of Research and Studies, 26*(7), 1381-1388 (See abstract earlier in this section.)

Fayden, T. (1997). What is the effect of shared reading on rural Native American and Hispanic kindergarten children? *Reading Improvement, 34*(1), 22-30.
Finds that the use of predictable Big Books in the classroom with primarily Native American and Hispanic kindergarten children and with children whose early experiences with books are limited is an effective way to develop reading skills.

Ingalls, L., Hammond, H., Dupoux, E., & Baeza, R. (2006). Teachers' cultural knowledge and understanding of American Indian students and their families: Impact of culture on a child's learning. *Rural Special Education Quarterly*, 9 (See abstract earlier in this section.)

Marley, S., Levin, J., & Glenberg, A. (2010). What cognitive benefits does an activity-based reading

strategy afford young Native American readers? *Journal of Experimental Education, 78*(3), 395-417 (See abstract earlier in this section.)

Pewewardy, C. (2002). Learning styles of American Indian/Alaska Native students: A review of the literature and implications for practice. *Journal of American Indian Education, 41*(3), 22-56. (See abstract earlier in this section.)

Preston, V. (1991). *Mathematics and science curricula in elementary and secondary education for American Indian and Alaska Native students.* Washington, D.C.:U.S. Department of Education, Indian Nations At Risk Task Force. (See abstract earlier in this section.)

Sparks, S. (2000). Classroom and curriculum accommodations for Native American students. *Intervention in School & Clinic, 35*(5), 259-263. (See abstract earlier in this section)

Vierling, K., Bolman, J., & Lane, K. (2005). Field ecology in a cultural context. *Science Teacher, 72*(3), 26-31 (See abstract earlier in this section.)

### Content – Narratives

Adams, A. (2007). Forget the Alamo: Thinking about history in John Sayles' "Lone Star". *History Teacher, 40*(3), 339-348.

John Sayles' film "Lone Star" is an excellent vehicle for teaching about the production and interpretation of history in a high school or introductory level college history class. The film illustrates that history is subjective, that the sorting and arrangement of evidence is what makes history, and that history is not necessarily an inevitable linear progression toward Western "civilization." Set in a small Texas border town of Frontera in contemporary times, "Lone Star" examines the relationship between past and present, the importance of perspective in historical accounts, and the origins of differing perspectives. Sayles has expressed his view that history is eminently revisitable, and in "Lone Star," he revisits and alters Frontera's traditionally white, Walter Prescott Webb-based history by including Mexicans, African Americans, and Native Americans as objects and subjects of history. Those who have been hidden from history, who have been excluded from the official history texts, are given equal time in Sayles' film. Sayles wants to reflect the multicultural history of the United States.

Ingalls, L., Hammond, H., Dupoux, E., & Baeza, R. (2006). Teachers' cultural knowledge and understanding of American Indian students and their families: Impact of culture on a child's learning. *Rural Special Education Quarterly, 25*(1), 16-24. (See abstract earlier in this section.)

Pewewardy, C. (2002). Learning styles of American Indian/Alaska Native students: A review of the literature and implications for practice. *Journal of American Indian Education, 41*(3), 22-56 (See abstract earlier in this section.)

Sparks, S. (2000). Classroom and curriculum accommodations for Native American students. *Intervention in School & Clinic*, 5. Cothran, D., Kulinna, P., & Garn, A. (2010). Classroom Teachers and Physical Activity Integration. *Teaching and Teacher Education: An International Journal of Research and Studies, 26*(7), 1381-1388. (See abstract earlier in this section.)

Vierling, K., Bolman, J., & Lane, K. (2005). Field ecology in a cultural context. *Science Teacher, 72*(3), 26-31. (See abstract earlier in this section.)

### Method - Content Combination - Project-based instruction

Akiba, M., Chiu, Y., Zhuang, Y., & Mueller, H. (2008). Standards-based mathematics reforms and mathematics achievement of American Indian/Alaska Native eighth-graders. *Education Policy Analysis Archives, 16*(20), 1-31. (See abstract earlier in this section.)

Conway, E. L. (2007). *Teaching American Indian and Alaska Native students.* Unpublished master's thesis, The Evergreen State College, Olympia, WA. (See abstract earlier in this section.)

Hankes, J. E. (1996, April). *Investigating the correspondence between Native American pedagogy and constructivist based instruction.* Paper presented at the Annual Convention of the American Educational Research Association, New York, NY.
This paper reviews studies detailing formal and nonformal instruction of Native American children by Native American teachers and compares attributes common to traditional Native education with principles of the constructivist approach to instruction. Five pedagogic principles are considered: (1) teacher as facilitator, guiding rather than telling; (2) focus on learner-developed understanding; (3) problem-based instruction, with the problems situated in the learner's culture and lived experiences; (4) cooperative rather than competitive instruction; and (5) time-generous rather than time-driven instruction. Culturally responsive pedagogy can only be practiced in culturally sensitive environments where ways of perceiving, believing, acting, and evaluating are shared. The literature review suggests that Native American pedagogy and constructivism share common beliefs and perceptions about teaching and learning. Therefore, constructivist ways of teaching promise to be culturally responsive to cultures valuing Native American pedagogy. Ways in which constructivism and Native American pedagogy conflict with traditional pedagogic assumptions of the dominant culture are outlined, and possible reasons are offered as to why constructivism was developed among dominant-culture educators.

Heath, M., Burns, M., Dimock, K. V., Burniske, J., Menchaca, M., & Ravitz, J. (2000). *Applying technology to restructuring and learning. Final Research Report.* Austin, TX: Southwest Educational Development Laboratory.
A two-tier intervention study was designed to provide descriptive models of constructivist learning environments supported by appropriate technology, as they emerged in project classroom. Tier 1 was a collective case study of approximately 150 classrooms in 5 southwestern states whose teachers received training in applying technology. Tier 2 consisted of detailed case studies of six teachers and how they created constructivist

learning environments. The project focused on classrooms with high populations of traditionally underserved students, including economically disadvantaged, linguistically diverse, rural, American Indian, and Mexican American students. The intervention consisted of assistance to participating teachers in technology planning, professional development, and follow-up assistance and support. Findings indicate that (1) while teachers with only one computer can and did change their practice, that change was minimal compared with that observed in classrooms with more computers; (2) knowing how computer technology can be used to enhance learning and being able to plan effective learning activities were more important than having strong personal computer skills; (3) professional development that engaged teachers as learners and modeled the integration of technology with learner-centered approaches enabled many teachers to implement technology and constructivism concurrently; (4) rather than a single model, a range of constructivist practices supported by technology emerged; (5) more change in teaching practice and technology use occurred at sites where more teachers participated; and (6) the change process varied with different teachers. Appendices present an overview of the case studies, the six case studies, case study interview questions, and other research materials.

Ingalls, L., Hammond, H., Dupoux, E., & Baeza, R. (2006). Teachers' cultural knowledge and understanding of American Indian students and their families: Impact of culture on a child's learning. *Rural Special Education Quarterly*, 9. (See abstract earlier in this section.)

Lippitt, L., & et al. (1993). *Integrating teaching styles with students' learning styles (Series of 14).* Santa Fe, NM: Santa Fe Indian School, Learning Approaches Resource Center. (See abstract earlier in this section.)

Pass, S. (2009). Teaching respect for diversity: The Oglala Lakota. *Social Studies, 100*(5), 212-217. Teaching about diversity and respect for others is a challenging task for today's educators--especially at the middle school level. This article describes successful attempts to do so at the sixth-grade level. These real-life experiences enhanced classroom learning and reached out to the community. The author hopes that other educators will duplicate this endeavor. Although the lessons described focused on the Lakota nation, educators can teach about any tribal culture by using this approach.

Preston, V. (1991). *Mathematics and science curricula in elementary and secondary education for American Indian and Alaska Native students.* Washington, D.C.:U.S. Department of Education, Indian Nations At Risk Task Force. (See abstract earlier in this section.)

Rickard, A. (2005). Constant perimeter, varying area: A case study of teaching and learning mathematics to design a fish rack. *Journal of American Indian Education, 44*(3), 80-100. This case study examines a sixth-grade teacher and her students in an urban school district in Alaska, engaging in an activity from a module that is part of the Math in a Cultural Context (MCC) series. By analyzing the module, the teacher's practice, classroom discourse, and students' work, the case shows that the teacher and the MCC module supported students in developing substantive reasoning and understanding about the

mathematical relationship between constant perimeter and varying area in rectangles. Comparison of students' scores on pre- and post-tests show that the class as a whole outperformed the control group. Moreover, Alaska Native students, comprising slightly over one-fourth of the class, outperformed the control group, had gains in achievement commensurate with the entire class, and outperformed their Alaska Native peers in the control group by a wide margin. The case shows that the MCC module and the teacher's practice support improved mathematics achievement through interwoven connections between content, pedagogy, and culture.

Sparks, S. (2000). Classroom and curriculum accommodations for Native American students. *Intervention in School & Clinic*, 5. Cothran, D., Kulinna, P., & Garn, A. (2010). Classroom Teachers and Physical Activity Integration. *Teaching and Teacher Education: An International Journal of Research and Studies, 26*(7), 1381-1388. (See abstract earlier in this section.)

Swisher, K. G., & Tippeconnic, J. W., III. (1999). Research to support improved practice in Indian Education. In K.G. Swisher & J.W. Tippeconnic, III (Eds.), *Next steps: Research and practice to advance Indian education* (pp.295-307). Charlotte, WV: Appalachia Educational Laboratory, ERIC Clearinghouse on Rural Education and Small Schools. (See abstract earlier in this section.)

Vallines Mira, R. (2009). Teachers' beliefs regarding effective teaching strategies for American Indian students in mathematics. *Dissertation Abstracts International Section A: Humanities and Social Sciences, 69*(7-A). (See abstract earlier in this section.)

### Method-Content Combination - Practical relevance

Conway, E. L. (2007). *Teaching American Indian and Alaska Native Students.* Unpublished master's thesis, The Evergreen State College, Olympia, WA. (See abstract earlier in this section.)

Holiday, S. (2003). A Native Species Restoration project. *Science Scope, 27*(2), 24-27 (See abstract earlier in this section.)

Ingalls, L., Hammond, H., Dupoux, E., & Baeza, R. (2006). Teachers' cultural knowledge and understanding of American Indian students and their families: Impact of culture on a child's learning. *Rural Special Education Quarterly*, 9. (See abstract earlier in this section.)

North Carolina Department of Public Instruction. (2000). *Intervention practices and strategies.* Raleigh, NC: North Carolina Department of Public Instruction, Division of School Improvement. (See abstract earlier in this section.)

### Other

#### *Instruction in drill-practice and phonics*

North Carolina Department of Public Instruction. (2000). *Intervention practices and strategies.*

Raleigh, NC: North Carolina Department of Public Instruction, Division of School Improvement. (See abstract earlier in this section.)

### *Team-teaching*

North Carolina Department of Public Instruction. (2000). *Intervention practices and strategies.* Raleigh, NC: North Carolina Department of Public Instruction, Division of School Improvement. (See abstract earlier in this section.)

Parrett, W. H. (2005). Against all odds: Reversing low achievement of one school's Native American students. *School Administrator, 62*(1), 26.

Lapwai Elementary School, located on the Nez Perce Reservation in northern Idaho, serves a K-6 population of 302 students, 84 percent of whom are Native Americans. Seventy-nine percent of the students live at or below the poverty level. The remarkable success of this school in teaching minority children represents just one of dozens of schools nationwide that have reversed a history of underachievement and low performance. In 1999, only 16 percent of Lapwai's 3th graders were achieving at or above the state's proficiency level in reading and only 17 percent were doing so in math. Dissatisfied with a tradition of low performance, a team of teachers and administrators received school board support to aggressively address the achievement of their students. First, they tackled their curriculum to align it to state standards and assessments. They made time for this work by adjusting the daily schedule to gain two hours of common planning and professional development each Friday. They worked with the school district for guidance on alignment. The leadership team focused its work on the implementation of effective reading and math programs and interventions. They initiated full-day kindergarten, reduced class sizes, initiated looping, extended afterschool tutoring and increased daily instructional time in reading and math for all students. The teachers and administrators participated in assessment-literacy-learning teams, which focused on both the assessment of learning and, more importantly, assessment for learning. Content benchmarks and clear learning targets became the norm. Successfully educating underachieving minority students presents a most formidable challenge to public school educators, yet it is not insurmountable. Any school district can attain and sustain these successes if they employ the pattern of improvement components, as did Lapwai, in their classrooms and schools.

### *Special education classes include English Language Learning (ELL) and disabilities*

Applequist, K., Mears, R., & Loyless, R. (2009). Factors influencing transition for students with disabilities: The American Indian experience. *International Journal of Special Education, 24*(3), 45-56.

The purpose of this study was to explore those factors impacting successful transition of American Indian students with mild to moderate disabilities to postsecondary academic settings and other lifelong learning opportunities. Thirty-five individuals from three Southwestern tribes were interviewed about personal factors during transition, and secondary, and postsecondary experiences. A second interview was conducted with 14 participants approximately two years later to follow-up on the progress of the student

following transition. Many of the participants did not see themselves as active participants in the IEP process and educational placements ranged from inclusive to more traditional resource classrooms and self-contained settings. Secondary teachers and mentors offered support and encouragement to participants. Fewer participants received accommodations in postsecondary settings, and in some instances instructors lacked an understanding about ADA and ways to modify instruction. Participants highlighted the importance of family and religion in their lives throughout the transition process. Those participating in both interviews showed statistically significant positive change in self-ratings of dimensions of self advocacy and self-determination. Implications of the findings will be discussed.

Jones, S., Brown, J., Hoglund, W., & Aber, J. (2010). A school-randomized clinical trial of an integrated social-emotional learning and literacy intervention: Impacts after one school year. *Journal of Consulting and Clinical Psychology, 78*(6), 829-842.
Objective: To report experimental impacts of a universal, integrated school-based intervention in social-emotional learning and literacy development on change over 1 school year in 3rd-grade children's social-emotional, behavioral, and academic outcomes. Method: This study employed a school-randomized, experimental design and included 942 3rd-grade children (49% boys; 45.6% Hispanic/Latino, 41.1% Black/African American, 4.7% non-Hispanic White, and 8.6% other racial/ethnic groups, including Asian, Pacific Islander, Native American) in 18 New York City public elementary schools. Data on children's social-cognitive processes (e.g., hostile attribution biases), behavioral symptomatology (e.g., conduct problems), and literacy skills and academic achievement (e.g., reading achievement) were collected in the fall and spring of 1 school year. Results: There were main effects of the 4Rs Program after 1 year on only 2 of the 13 outcomes examined. These include children's self-reports of hostile attributional biases (Cohen's d = 0.20) and depression (d = 0.24). As expected based on program and developmental theory, there were impacts of the intervention for those children identified by teachers at baseline with the highest levels of aggression (d = 0.32-0.59) on 4 other outcomes: children's self-reports of aggressive fantasies, teacher reports of academic skills, reading achievement scaled scores, and children's attendance. Conclusions: This report of effects of the 4Rs intervention on individual children across domains of functioning after 1 school year represents an important first step in establishing a better understanding of what is achievable by a schoolwide intervention such as the 4Rs in its earliest stages of unfolding. The first-year impacts, combined with our knowledge of sustained and expanded effects after a second year, provide evidence that this intervention may be initiating positive developmental cascades both in the general population of students and among those at highest behavioral risk.

Kashi, T. (2008). Response to intervention as a suggested generalized approach to improving minority AYP scores. *Rural Special Education Quarterly, 27*(4), 37-44.
The Response to Intervention (RTI) model has been of growing interest to educators for several decades, culminating in the 2004 enactment of federal regulations. The mutual and cooperative dependence between research and practice is evident regarding practical RTI implementation. The RTI process shows promise to meet the individual education needs

of diverse populations. An Alaska school district that includes rural/remote schools and varied populations including minority majority classrooms describes its positive experience with the RTI process. The RTI process may be a key to improving minority student Annual Yearly Progress (AYP) scores. Further statistical research is clearly warranted.

McIntosh, A., Graves, A., & Gersten, R. (2007). The effects of response to intervention on literacy development in multiple-language settings. *Learning Disability Quarterly, 30*(3), 197-212.

This descriptive study documents the effects of response-to-intervention type practices in four first-grade classrooms of English learners (ELs) from 11 native languages in three schools in a large urban school district in southern California. Observations and interviews in four classrooms across two consecutive years were compared to first-grade gains in oral reading fluency (N = 111). Reading fluency data were examined in relation to ratings of literacy practices, including the degree to which Tier 1 alone or Tier 1 plus Tier 2-type instruction was implemented. The correlation between classroom ratings on the English Learners Classroom Observation Instrument (ELCOI) and gain from pre- to posttest in first grade on oral reading fluency was moderately strong in both Year 1 (r = 0.61) and Year 2 (r = 0.57). The correlation between Cluster II teacher ratings and OF gains was strong in both Year 1 (r = 0.75) and Year 2 (r = 0.70), suggesting a strong relationship between Tier 2-type literacy practices and end-of-first-grade oral reading fluency. Results indicated a strong correlation (r = -0.81) between the number of students below DIBBLES benchmark thresholds at the end of first grade and the teacher rating on the amount of instruction provided for low performers. Follow-up data at the end of third grade in oral reading fluency and comprehension indicate moderate correlations to first-grade scores (N = 51). Patterns of practice among first-grade teachers and patterns among Els who were ultimately labeled as having learning disabilities are discussed. Educational implications and recommendations for future research are also presented.

St. Germaine, R. D. (2000, May). *A chance to go full circle: Building on reforms to create effective learning.* Paper presented at the American Indian and Alaska Native Education Research Agenda Conference, Albuquerque, NM.

As background for discussion of an educational research agenda for American Indians and Alaska Natives (AI/AN), this paper reviews the role and purpose of school, recent social changes in Native communities, and a brief history of AI/AN education. Four broad goals of American schooling are noted, and the need for AI/AN communities to define the purpose or mission of their schools is emphasized. In recent decades, Native communities have been affected by changes in family structure; increasing poverty, violence, and substance abuse; attractions of the material American world; and television. A historical review of Indian education begins with the assimilationist role that education played for centuries after contact. This role started to erode in the 1930s when allotment of Indian lands ended, recommendations of the Meriam Report were implemented, and Bureau of Indian Affairs (BIA) schools were localized. Reforms resumed in the 1960s with Headstart, and in the 1970s some educational governance was placed in the hands of Native parents and communities. In the 1990s, self-determination legislation allowed tribes to start new

schools or take over the operation of BIA schools. The effective schools movement focused on the improvement of educational opportunities for low-achieving students. With these reforms moving to create dynamic learning environments for AI/AN students, the traditional ways of transmitting knowledge from one generation to the next are being recognized, leading to a radical change in school improvement planning. Recommendations for Indian education research focus on emphasizing early childhood education and training for parenthood; ensuring a school environment conducive to learning; improving the quality of teachers and teaching; providing a challenging curriculum; and ensuring that AI/AN children with disabilities receive a free, appropriate education in the least restrictive environment. An addendum presents effective schools correlates.

## Culturally Responsive Teaching

### Working Definition

Culturally responsive teaching refers to the impact of American Indian culture on the instruction of American Indian students in the settings of either the reservation and rural school or the urban school. Including duplicates, there are 57 citations in this section. Culturally responsive teaching includes eight topics: (a) global and holistic worldviews and values, which are relative and reciprocal (7); (b) comparative or cross-cultural instruction (9); (c) evaluating the practical relevance of instruction and curriculum to the American Indian culture (16); (d) embedding instruction and curriculum in the local American Indian community's specific culture (11); (e) pro-American Indian culture, or instructional and curricular biases in favor of American Indian culture (2); (f) students' traditional methods of acquiring and using knowledge and skills (5); (g) students' general cultural characteristics (7); and h) evidence for the efficacy of culturally sensitive instruction (1).

### Abstracts

#### American Indian global and holistic world views and values

Benham, M. (2006). A challenge to Native Hawaiian and Pacific Islander scholars: What the research literature teaches us about our work. *Race, Ethnicity & Education, 9*(1), 29-50.
What do we currently know, in light of conceptual, empirical, and applied studies, about the status of educational research on Native Hawaiians and Pacific Islanders? And why is this knowing important? This article proposes that illuminating the themes of what has already been examined might help policymakers, researchers, educational leaders and teachers to better negotiate the tensions of school context, content, and culture. Hence, it examines current research literature, which leads to questions about academic disparity, challenges of methodological support, and areas for further teaching and learning scholarship.

Bock, T. (2006). A consideration of culture in moral theme comprehension: Comparing Native and European American students. *Journal of Moral Education, 35*(1), 17.
The use of stories to teach character is popular among educators, yet little is known about

student comprehension of these stories. An important factor that may influence comprehension of stories and story themes is culture. The purpose of this study was to examine the extent to which students from a Native American culture understand European-based stories in the same way as European American children. Native and European American students in Grade 4-8 (ages 10-18) read eight short stories depicting eight different virtues and identified the best theme from a list of choices. Differences were found between the two groups' theme comprehension scores. Each group also had different variables predicting their theme comprehension scores. Reasons for these differences and educational implications for the findings are discussed.

Conway, E. L. (2007). *Teaching American Indian and Alaska Native students.* Unpublished master's thesis, The Evergreen State College, Olympia, Washington.
This paper examines a significant body of research that pertains to American Indian and Alaska Native learners in order to determine what causes the trends of low academic achievement and high dropout rates among this population. The historical background of American Indian and Alaska Native education gives a comprehensive summary of how policies and practices, such as the formation of government boarding schools, were used to acculturate and assimilate students into the Anglo-American, Christian society; and later, how the concept of self-determination was established. The review of the research studies represents a broad range of American Indian and Alaska Native populations in order to reveal some of the potential causes for such trends, and to reveal effective strategies for teaching American Indian and Alaska Native students across the country. The research studies concentrate on the following areas: curriculum, parent and community attitudes, schools and current policies, high drop-out rates, racism, traditionalism, motivation, learning styles, methods of assessment, and teaching strategies. Suggestions for how teachers can improve the academic opportunities of American Indian and Alaska Native students are presented in three key areas: teachers as learners, teachers as innovators, and teachers as allies.

Hollowell, M., & Jeffries, R. (2004). Worldviews of urban Iroquois faculty: A case study of a Native American resource program. *American Indian Quarterly, 28*(3), 764-785.
This article highlights the Native American Magnet School, also known as P.S. #19, in Buffalo, NY, a unique public school for kindergarten through eighth-grade students. The school's Native American population constitutes one-third of the entire student body and comes from the six Iroquois tribes: Oneida, Seneca, Mohawk, Cayuga, Onondaga, and Tuscarora, with the majority being Seneca and Mohawk. Positive, high expectations by Iroquois faculty are viewed as key factors for student success.

Peck, F. (1998). Fort Peck combines language immersion with Montessori methods. *Tribal College, 9*(4), 15.
Describes the new teaching methods at Fort Peck, which include the combination of language-immersion and Montessori methods of teaching. The Montessori method, grounded in spiritual traditions, integrates all subjects and includes cultural immersion and parental involvement.

Pewewardy, C. (2002). Learning styles of American Indian/Alaska Native students: A review of the literature and implications for practice. *Journal of American Indian Education, 41*(3), 22-56.
Review of theories, research, and models of the learning styles of American Indian/Alaska Native students reveals that they generally learn in ways characterized by social/affective emphasis, harmony, holistic perspectives, expressive creativity, and nonverbal communication. Native learning styles are strongly influenced by language, culture, and heritage and are "different" but not deficient. Implications for instruction, curricula, assessment, and future research are discussed.

Swisher, K. G., & Tippeconnic, J. W., III. (1999). Research to support improved practice in Indian education. In K.G. Swisher & J.W. Tippeconnic, III (Eds.), *Next steps: Research and practice to advance Indian education* (pp.295-307). Charlotte, WV: Appalachia Educational Laboratory, ERIC Clearinghouse on Rural Education and Small Schools.
In recent years, various task forces and studies, including the White House Conference on Indian Education, have established that research on Indian education, history, and culture must consider the Native perspective and involve Native researchers. Improving Indian education depends upon good research. Aspects of Indigenous education and community life that need study include: the teaching-learning relationship between Native students and teachers and how a good Native teacher can enhance that relationship; how to attract and retain effective principals or leadership teams in order to maintain stability for planning and implementing improvements; school collaborations with nearby colleges, including distance learning and culturally appropriate programs; how agency workers serving youth and families can collaborate more fully in creating conditions for educational success; developing systems to help students with the transition from one phase of schooling to the next; expunging stereotypes about Native peoples from curricula and teacher education programs; broadening Native education research beyond the reservation context; how Native Americans can educate America and the rest of the world about the unique Native political status; building coalitions between Native Americans and Indigenous people from other countries; educational effects of recent tribal economic development programs such as gambling operations; how to make more connections between schooling and daily life, consistent with the holistic nature of Native worldviews; and building coalitions for research and development among tribal governments, federal agencies, colleges, and the private sector.

### Comparative and cross-cultural instruction

Adams, B., Adam, S., & Opbroek, M. (2005). Reversing the academic trend for rural students: The case of Michelle Opbroek. *Journal of American Indian Education, 44*(3), 55-79.
This case study explores the interactions between a teacher, her students, and a culturally based math curriculum in a fifth and sixth grade classroom in rural Alaska. The case attempts to identify and illuminate factors that created a rich learning environment while implementing Star Navigation: Explorations into Angles and Measurement, a module from the series, Math in a Cultural Context (MCC). This case describes how the teacher facilitated the embedded Yup'ik cultural knowledge into lively, mathematical

communication and learning made relevant to a non-Yup'ik group of students. Students' pre- and post-test results showed strong gain scores as well as high absolute post-test scores, placing this class in the small category where a rural treatment group outperformed all urban treatment and control groups. Thus, this compelling case provides an example of a classroom and curricular learning environment that reverses national trends for rural students in general and shows potential for Alaska Native students in particular. Further, it provides examples of factors that other teachers, administrators, and teacher educators can employ in their own teaching and classes to create more effective math classrooms.

Atwater, M. (2010). Multicultural science education and curriculum materials. *Science Activities: Classroom Projects and Curriculum Ideas, 47*(4), 6.
This article describes multicultural science education and explains the purposes of multicultural science curricula. It also serves as an introductory article for the other multicultural science education activities in this special issue of "Science Activities."

Conway, E. L. (2007). *Teaching American Indian and Alaska Native students.* Unpublished master's thesis, The Evergreen State College, Olympia, WA. (See abstract earlier in this section.)

Garrison, E. R., & et al. (1995). Navajo scientists of the next century--Laanaa Hasin. *Journal of Navajo Education, 12*(3), 3-7.
Advocates teaching science education from both Navajo and Western perspectives, giving Navajo students the ability to expand on the scientific method by constructing alternative explanatory hypotheses. Suggests that drawing from both cultural backgrounds stimulates development of the highest level of scientific thinking, which could lead to superior Navajo scientists.

Moore-Hart, P. (2004). Creating learning environments that invite all students to learn through multicultural literature and information technology: The intermingling of cultures, religions, and languages across the United States enriches classrooms, while presenting new challenges to teaching and learning. *Childhood Education, 81*(2), 87.
The following article describes how Mrs. Mansfield (Mary), Ms. Bortz (Elaine), and the author combined their talents in order to promote students' literacy learning through the integration of multicultural literature and information technology with a reading/writing curriculum. The students in Mary's and Elaine's classrooms, who come from diverse backgrounds, include a large number of African American and European American students and a few Native American, Chinese, Japanese, Latino, Hmong, and Indian children. The economic backgrounds of the students in their classes are also varied, with numerous students receiving free and reduced lunches, as are their academic abilities, with a large number of students receiving additional support through learning resource centers and special education teachers. The article begins with a description of their literacy curriculum, and then describes how Mary and Elaine integrated technology with their reading/ writing curriculum to increase students' cultural awareness and appreciation of diversity. The article concludes with classroom implications in order that other teachers may see how to adapt these ideas to their own classroom settings and with other electronic

contexts.

Ngai, P., & Koehn, P. (2010). Indigenous studies and intercultural education: the Impact of a place-based, primary-school program. *Intercultural Education*, *21*(6), 597-606.
The article presents a student-impact assessment of a model two-year place-based intercultural approach to indigenous education. Students at Lewis & Clark Primary School in Missoula, Montana, connected face-to-face with tribal educators and members residing in the nearby American Indian reservation. The program's learning outcomes included impressive gains in knowledge of Montana tribes, fewer stereotypical images, enhanced consciousness about the histories and cultures of the place in which students' reside, heightened appreciation for and connectedness with Native Americans, and increased cultural awareness. The power of the place-based intercultural-education approach is that K-5 students can acquire cultural knowledge, break stereotypes, and develop new appreciation for, and interest in, diverse peoples and issues by directly experiencing the local context in which diversity resides.

Russell, M., & Tripp, L. (2010). Learning about minerals through the art of jewelry making: A multicultural science connection. *Science Activities: Classroom Projects and Curriculum Ideas*, *47*(4), 115-124.
This article presents an activity that focuses on helping students investigate the formation of rocks, minerals, and gemstones. Students describe visual, textual, and physical properties of various specimens of minerals. Using compare and contrast skills, students can classify the primary types of rock, ask questions about the Earth's inner processes that result in the formation of our natural resources, and discuss cross-cultural traditions' perspectives on many of our Earth's natural resources. In this multicultural science activity, children actively engage in a hands-on lesson that allows them to visualize and appreciate the beauty of the Earth's natural resources through the art of jewelry making. This lesson provides an artistic approach to science as students explore various properties of the Earth's materials and physical properties of matter.

Van Hamme, L. (1996). American Indian cultures and the classroom. *Journal of American Indian Education, 35*(2), 21-36.
A culturally relevant education that also prepares American Indian students for participating in a culturally diverse, technological society must address the historical relationship between American Indian cultures and the educational system, recognize the importance of multicultural education, understand the nature of culture itself, and identify educational strategies that build on cultural strengths of Indian children.

Wilder, L., Jackson, A., & Smith, T. (2001). Secondary transition of multicultural learners: Lessons from the Navajo Native American experience. *Preventing School Failure*, *45*(3), 119-124.
Presents a study which described the impact of culture and cultural differences on school and work and discussed the importance of enhancing multicultural awareness among Navajo Native Americans. Common obstacles faced by minority students on post-

secondary transitions; Practical solutions for special educators working with students from diverse cultures.

### Practical relevance of instruction and curriculum

Barta, J. (1999). Native American beadwork and mathematics. *Winds of Change, 14*(2), 36-41.
Many Native Americans struggle with mathematics because they cannot see its relevance. Comments from three Native Americans reveal how art, culture, and math can be taught in an integrated fashion through beadwork. Elementary school children can experience nearly all mathematical concepts presented in school through beadwork, which also teaches organization, discipline, and observation. Includes math/beadwork activity suggestions.

Barta, J., Abeyta, A., Gould, D., Galindo, E., Matt, G., Seaman, D., et al. (2001). The mathematical ecology of the Shoshoni and implications for elementary mathematics education and the young learner. *Journal of American Indian Education, 40*(2), 1-27.
Interviews with five Shoshoni elders during a 1-year study showed that mathematics was integral to daily life and reflective of their culture. Classroom activities are described that integrate traditional Shoshoni mathematical knowledge into mathematics instruction. This knowledge may help Shoshoni students develop a deeper understanding of mathematics and expand their awareness of their heritage.

Barta, J., & Schaelling, D. (1998). Games we play: Connecting mathematics and culture in the classroom. *Teaching Children Mathematics, 4*(7), 388-393.
Presents Native American counting games. Argues that games involve a great deal of mathematics, so much so that play is easily one of the six "universal mathematics activities" of all cultures and mathematics is a vital aspect of culture. Concludes that students and teachers alike learn a great deal from creating and playing culturally relevant mathematics games.

Conway, E. L. (2007). *Teaching American Indian and Alaska Native students.* Unpublished master's thesis, The Evergreen State College, Olympia, Washington. (See abstract earlier in this section)

Cunningham-Sabo, L., Bauer, M., Pareo, S., Phillips-Benally, S., Roanhorse, J., & Garcia, L. (2008). Qualitative investigation of factors contributing to effective nutrition education for Navajo families. *Maternal & Child Health Journal*, *12*, Supplement 1, 68-75.
Objectives: Obesity rates in American Indian and Alaskan Native children are a major health threat, yet effective ways to address this remain elusive. Building on an earlier dietary assessment of Navajo Head Start families which indicated a gap in parental nutrition awareness despite a strong program emphasis, the aim of this project was to identify culturally relevant nutrition education strategies for Navajo parents and educators of young children. Methods: Eight focus group interviews were conducted with 41 parents and early childhood education paraprofessionals to identify contributors to both healthful and unhealthy food ways of Navajo preschoolers. Results were presented in two

community venues to verify the themes and discuss implications. Results: Barriers to healthful eating included availability/cost, parenting/control, preferences/habits, time pressures, and knowledge/education. Enablers to healthful eating included the categories of schools/education, and support/modeling. Reactions to these findings during community forums suggested (1) the need for stronger parenting and parental control over the food environment; (2) community-level action to address these barriers; and (3) the need for knowledge and culturally relevant educational strategies for caregivers and children. Conclusions: Implications for interventions include building upon existing community resources to enhance culturally relevant and respectful parental, family, and community support for affordable and acceptable food experiences and choices for young children and their families.

Demmert, W. G., Jr. (2001). *Improving academic performance among Native American students: A review of the research literature*. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools (ERIC Document Reproduction Service No. ED463917).
This literature review examines research-based information on educational approaches and programs associated with improving the academic performance of Native American students. A search reviewed ERIC's over 8,000 documents on American Indian education, as well as master's and doctoral dissertations and other sources of research on the education of Native Americans. Selected research reports and articles were organized into the following categories: early childhood environment and experiences; Native language and cultural programs; teachers, instruction, and curriculum; community and parental influences on academic performance; student characteristics; economic and social factors; and factors leading to success in college or college completion. The status of research and major research findings are reviewed for each of these categories; brief summaries of research findings with citations are included following the review of each category. Also included are an annotated bibliography of more than 100 research reports, journal articles, and dissertations, most published after 1985; and a bibliography of 23 additional references to other literature reviews and non-Native studies.

Garrett, M., Bellon-Harn, M., Torres-Rivera, E., Garrett, J. T., & Roberts, L. (2003). Open hands, Open hearts: Working with Native youth in the schools. *Intervention in School & Clinic*, *38*(4), 225-235.
A comprehensive discussion of the potential for cultural discontinuity experienced by Native youth in the schools is offered with implications for culturally responsive service delivery. Practical recommendations are provided for special educators and related service professionals working with Native youth to improve knowledge, awareness, and skills.

Glau, G. R. (1990). Returning power: Native American classroom (dis)comfort and effective communication. *Writing Instructor, 10*(1), 51-58.
Suggests giving some power back to Native American students by using small groups, acting more as a coach than as an instructor, and using culturally relevant and interesting materials. Notes that these suggestions increase teaching effectiveness with Native American students.

Hogan, M. (2008). The tale of two Noras: How a Yup'ik middle schooler was differently constructed as a math learner. *Diaspora, Indigenous, and Minority Education, 2*(2), 90-114.
This case study seeks to explain why a Yup'ik middle schooler, Nora, from a remote Alaskan village, was differently constructed as a math learner by her 6th- and 7th-grade math teachers. When a culturally relevant curriculum was used in 6th grade, Nora had a greater opportunity for leadership, ownership of knowledge, collaborative problem solving, conceptual learning, and participation in decolonized, culturally sustainable knowledge than when in a Western-style classroom based on the "No Child Left Behind Act" motivated reforms 1 year later.

Lippitt, L., & et al. (1993). *Integrating teaching styles with students' learning styles (Series of 14)*. Santa Fe, NM: Santa Fe Indian School, Learning Approaches Resource Center.
This document begins with a report of a study of the learning styles of American Indian students at the Santa Fe Indian School (New Mexico). Santa Fe Indian School is a secondary school of 550 students, primarily from the Pueblo communities of New Mexico. A learning style assessment instrument was administered to 459 students, Grades 7-12, in 4 tribal language groups. A preferred instructional style was not found overall or for any of the tribal language groups. Analysis of student profiles suggests that teaching strategies and curriculum should focus on: small-group learning activities; developing a positive rapport between teachers and students; augmenting information-processing skills that address right and left hemispheric approaches to learning; and developing a flexible instructional delivery that incorporates information on individual learning styles. Following the report, 14 social studies and language arts lesson units, developed for Indian middle school students as a result of the study are presented, based on the 4MAT instructional model that acknowledges a diversity of learning styles and incorporates both right and left hemispheric modes of learning. The units cover various topics related to American Indian history and culture, cultural exchange, outdoor education, study skills, and thinking skills. Each unit consists of lesson plans and learning activities related to creating and analyzing an experience; integrating experience with analysis; teaching, practicing, and personalizing the concept; analyzing personal application; and celebrating knowledge gained.

Pewewardy, C. (2002). Learning styles of American Indian/Alaska Native students: A review of the literature and implications for practice. *Journal of American Indian Education, 41*(3), 22-56.
(See abstract earlier in this section)

Posey, J. D. (1998). *Exploring indigenous pedagogies: Why is this knowledge important to today's educators?* Orem, UT: J.D. Posey/Legacy of Light.
Recent educational literature reveals a growing interest in understanding the educational needs of learners from other cultures and a growing awareness that instructional methods to help learners from nonwhite cultures should be anchored to indigenous ethnographic research. Western educators must holistically and comparatively understand not only indigenous cultural psychologies, but also how other cultures view the self. Researchers should address three issues. Issue one: How do non-western cultures teach their children,

involves understanding non-Western groups' complex world views and teaching and learning systems that are centered around specific cultural values?" Issue two: What academic skills were indigenously taught prior to white intervention, highlights skills incorporated within 15 cultural lifeway patterns? The skills emphasize group management, motivation, social organization, beliefs, values, problem solving approaches, time use, space use, maintaining relationships, sharing knowledge, educational and communication techniques, learning patterns, and instruction techniques. Issue three: Why this knowledge is important to today's educators, emphasizes educators' need to reevaluate the effectiveness of their instructional methods and recognize that many non-western groups have value systems and teaching and learning methods different from their own. This knowledge will allow educators to develop more appropriate educational environments, become more sensitive in designing culturally relevant instruction, identify non- western learners' culturally valued problem solving skills, and create opportunities for learners to use and share those skills.

Rickard, A. (2005). Constant perimeter, varying area: A case study of teaching and learning mathematics to design a fish rack. *Journal of American Indian Education, 44*(3), 80-100.
This case study examines a sixth-grade teacher and her students in an urban school district in Alaska, engaging in an activity from a module that is part of the Math in a Cultural Context (MCC) series. By analyzing the module, the teacher's practice, classroom discourse, and students' work, the case shows that the teacher and the MCC module supported students in developing substantive reasoning and understanding about the mathematical relationship between constant perimeter and varying area in rectangles. Comparison of students' scores on pre- and post-tests show that the class as a whole outperformed the control group. Moreover, Alaska Native students, comprising slightly over one-fourth of the class, outperformed the control group, had gains in achievement commensurate with the entire class, and outperformed their Alaska Native peers in the control group by a wide margin. The case shows that the MCC module and the teacher's practice support improved mathematics achievement through interwoven connections between content, pedagogy, and culture.

Sorkness, H. L., & Kelting-Gibson, L. (2007). Effective teaching strategies for engaging Native American students. *Journal of Intercultural Disciplines,* 7, 108.
Recent statistical data from South Dakota and Montana reveal the dropout rate among Native American students is high and the high school graduation rate for Native American youth is the lowest among various minorities (OPI, Dropout Data, 2003). Achievement test scores for Native American students are low in both states, as well. It is important that schools and teachers attempt to find ways to improve this situation. In this study, teachers in two South Dakota schools that had a significant number of Native American students, along with a group of K-12 teachers from Montana, were surveyed in an attempt to determine what strategies those teachers had found to be most successful. Teachers were also asked what aspects of the Native American culture had significant impact on classroom interactions. The results of the survey were compared to recommendations specified in two textbooks for pre-service and in-service teachers. The authors of those

textbooks had not focused specifically on South Dakota or Montana Native Americans, however.

Swisher, K., & Tippeconnic, J.W. (Eds.). (1999). *Next steps: Research and practice to advance Indian education*. 325. Charleston, WV: ERIC Clearinghouse and Rural Education and Small Schools. (ERIC Document Reproduction Service No. ED427902).
Written entirely by Native authors, this book addresses some critical issues in the education of American Indian and Alaska Native students. Intended for college classrooms, it aims to fill a void in the literature and textbooks used in multicultural and teacher education programs. The book has four sections: the past and present foundations of Indian education; curriculum issues, thoughts, and practice; the college and university experience; and next steps (research to support improved practice). Chapters are: (1) "The Unnatural History of American Indian Education" (K. Tsianina Lomawaima); (2) "Tribal Control of American Indian Education: Observations Since the 1960s with Implications for the Future" (John W. Tippeconnic III); (3) "Education and the Law: Implications for American Indian/Alaska Native Students" (Linda Sue Warner); (4) "Culturally Appropriate Curriculum: A Research-Based Rationale" (Tarajean Yazzie); (5) "Teaching through Traditions: Incorporating Languages and Culture into Curricula" (Linda Skinner); (6) "The Native American Learner and Bicultural Science Education" (Gregory A. Cajete); (7) "Student Assessment in Indian Education or What Is a Roach?" (Sandra J. Fox); (8) "Effective Counseling with American Indian Students" (Deborah Wetsit); (9) "The Role of Social Work in Advancing the Practice of Indigenous Education: Obstacles and Promises in Empowerment-Oriented Social Work Practice" (Michael J. Yellow Bird, Venida Chenault); (10) "American Indians and Alaska Natives in Higher Education: Promoting Access and Achievement" (D. Michael Pavel); (11) "Tribal Colleges: 1968-1998" (Wayne J. Stein); (12) "The Vanishing Native Reappears in the College Curriculum" (Clara Sue Kidwell); and (13) "Research To Support Improved Practice in Indian Education" (Karen Gayton Swisher, John W. Tippeconnic III).

Yazzie, T. (1999). Culturally appropriate curriculum: A research-based rationale. In K.G. Swisher & J.W. Tippeconnic, III (Eds.), *Next steps: Research and practice to advance Indian education* (pp. 83-106). Charlotte, WV: Appalachia Educational Laboratory, ERIC Clearinghouse on Rural Education and Small Schools.
Educational researchers and practitioners have long advocated adopting a culturally appropriate curriculum to strengthen the education of Native youth. Such an approach uses materials that link traditional or cultural knowledge originating in Native home life and community to the curriculum of the school. Deeply imbedded cultural values drive curriculum development and implementation and help determine which subject matter and skills will receive the most classroom attention. This chapter examines theoretical and practical research studies that support and inform the development of culturally appropriate curriculum for American Indian children in K-12 classrooms. These studies fall into the following areas: (1) historical roots, including the Meriam Report of 1928; (2) theoretical frameworks (modes of linguistic interaction, supportive learning environments, communication and interaction styles of students and teachers); (3) curriculum

development (approaches to overcome culture conflict, parent and community involvement, inquiry-based curriculum, role of Native language in concept development, local community issues, appropriate communication with elders); (4) curriculum practice and implementation (characteristics and behaviors of effective teachers, teacher role); and (5) implications for educational research and practice.

### Based in the local American Indian community

Apthorp, H. S., D'Amato, E. D., & Richardson, A. (2002). *Effective standards-based practices for Native American students: A review of research literature*. Aurora, CO: Mid-continent Research for Education and Learning.

This report reviews education programs and practices that have improved Native American student achievement in English language arts and mathematics. In Navajo tribal schools, teaching Indigenous language and literacy first, followed by teaching English and promoting bilingualism, helped students perform well on tests of vocabulary, comprehension, and writing. In Hawaii, a culturally congruent English language arts program significantly improved Native Hawaiian children's achievement in reading. Emphasis on comprehension over mechanics and phonics allowed children to learn in ways that were congruent with their everyday experiences outside of school. The use of ethnomathematics, based on the same principles of cultural congruence, led to improved student achievement for Native Hawaiian children and Alaskan rural middle school students. All these programs required extensive collaboration and time. Although limited in scope, the evidence suggests that congruency between the school environment and the culture of the community is critical to educational success. Collaborative research and development efforts, carried out at the local level, are needed. Seven action steps are recommended in this regard. An appendix outlines McREL's plan for further research.

Bang, M., & Medin, D. (2010). Cultural processes in science education: Supporting the navigation of multiple epistemologies. *Science Education*, *94*(6), 1008-1026.

Although there has been considerable focus on the underrepresentation of minorities in science, technology, engineering, and mathematics (STEM) disciplines and the need for science instruction that fosters diversity, much of the associated effort has focused on the goal of diversity and tended to assume that science and science learning are acultural. We describe a conceptual framework employed in our work with both urban and rural Native American communities that focuses on culturally based epistemological orientations and their relation to the cultural practices associated with science instruction. We summarize evidence on the efficacy of community-based science education to support the proposition for a shift in orientation toward science education from aiming to have students adopt specific epistemologies to supporting students' navigation of multiple epistemologies.

Bishop, A.J. (2002). Critical challenges in researching cultural issues in mathematics education. *Journal of Intercultural Studies*, *23*(2), 119-131.

Over the last 20 years there has been a growing interest in cultural issues in mathematics education, with the realisation that mathematical knowledge is a cultural product and that mathematics education is culturally shaped. The focus of this paper will be on cultural

aspects of research in mathematics education, and the discussion will be situated within the research context of mathematics education generally. The paper looks firstly at the challenge to teachers and curriculum developers of the idea of culturally based mathematical knowledge. The next section deals with research on teachers concerning the 'hidden' values in mathematics education, which have a cultural base. Thirdly is a consideration of researching mathematics learning and, in particular, of meeting the challenge of culturally situated learning. Finally the paper addresses some aspects of research methods themselves.

Buly, M., & Ohana, C. (2004). Back to heritage: A different kind of school for American Indian adolescents. *Multicultural Education, 12*(1), 30-32.

The United States system of education is far removed from the historic system of education in many American Indian communities, yet most American Indian students attend state-run public schools, often with little or no input from tribal communities. Something is clearly not working because many American Indian students experience high levels of educational failure and many drop out of school. In this article, the authors present an alternative to the traditional state-run public school for one group of American Indian adolescents. The authors describe the first year of a grades 6-12 "choice" school, within a public school system, that utilizes a project-based approach to education with a focus on local tribal culture. The school is somewhat unique because although it is located on a reservation and the student body predominantly (94%) identifies as American Indian, the school is within a public school system with a predominately White student body.

Inglebret, E., Jones, C., & Pavel, D. (2008). Integrating American Indian/Alaska Native culture into shared storybook intervention. *Language, Speech & Hearing Services in Schools*, *39*(4), 521-527.

Purpose: The purpose of this clinical exchange is to provide information for speech-language pathologists (SLPs) so they will be able to provide culturally responsive intervention for young children of American Indian and Alaska Native heritage. The focus is on a particular strategy-the integration of culturally based stories into shared storybook intervention. Method: The use of culturally based stories is presented as it relates to sociocultural theory and the expressed priority of Native peoples to revitalize their cultural teaching and learning practices, inclusive of storytelling. Strategies are presented that SLPs can follow in preparing for the use of culturally based stories, as well as in ensuring that the stories that are selected for use are authentic and appropriate for the children involved. The strategies discussed represent the collaborative efforts of Native and non-Native professionals to link a review of pertinent scholarly literature with ancestral knowledge that is derived from tribal elders and tradition bearers of the Southern Puget Salish peoples. The article concludes by illustrating the application of these strategies to a program involving young children of culturally and linguistically diverse backgrounds. Conclusion: SLPs can integrate culturally based stories into their language and literacy intervention to encourage American Indian and Alaska Native children.

Lipka, J. (2002). *Schooling for self-determination: Research on the effects of including Native language and*

*culture in the schools. ERIC Digest.* Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools (ERIC ED459989).
This digest briefly reviews the impacts of assimilationist education for American Indians and Alaska Natives (AI/AN) and describes recent examples of successful AI/AN schools that incorporate students' native language and traditional culture into the curriculum. Beginning in the 1870s, federal policy emphasized assimilation as the goal of AI/AN education. Assimilationist policies had the effects of separating AI/AN students from their communities, weakening Native languages and cultures, driving students toward a marginalized identity, alienating students from schooling, and producing subtractive bilingualism. The past 3 decades have seen many efforts to restore and revitalize Native languages and cultures through the schools and to use Indigenous knowledge and language to meet both local and Western educational goals. Concurrently, the notion of appropriate academic knowledge has been reevaluated, and some teachers and elders have found ways to connect local practical and cultural knowledge to the school curriculum. Four exemplary AI/AN programs are described that involve community or tribally controlled schools, use Indigenous culture and language, and have resulted in a significant gain in academic achievement. These include Navajo programs in Arizona, a Native Hawaiian program in Honolulu, and an Inuit-controlled school using Inuktitut in Nunavik (northern Quebec).

Locke, S., & Lindley, L. (2007). Rethinking social studies for a critical democracy in American Indian/Alaska Native education. *Journal of American Indian Education, 46*(1), 1-19.
This investigation examines an elementary social studies methods course taught on an American Indian reservation through a state university. Data were collected from American Indian pre-service teachers over four years through taped interviews, classroom observations, and a review of homework and in-class assignments. A Freirean critical pedagogy framework was utilized to analyze the data. Analysis revealed that the course replicated and reproduced dominant cultural values and knowledge of the state university and was insensitive to American Indian history, values, and pedagogy. Suggestions include the need for the course to interrogate historical interpretations and the economic and social structures of the local Indian community. The course also needed to emphasize the cultural strengths of the local community and its contributions and place in the context of state and national history.

Lowe, J. (2008). A cultural approach to conducting HIV/AIDS and Hepatitis C virus education among Native American adolescents. *Journal of School Nursing, 24*(4), 229-238.
This pilot study tests the feasibility of using a Talking Circle approach and measures cultural values and beliefs within a HIV/AIDS and hepatitis C virus (HCV) prevention program conducted among a Native American (Cherokee) youth population. A descriptive correlation design was used to examine the relationship between Cherokee self-reliance and HIV/AIDS and HCV knowledge, attitudes, and behaviors. The study used three questionnaires that were administered before and after the prevention program to collect data from a convenience sample of 41 students at a public high school within the boundaries of the Cherokee Nation in Oklahoma. Statistical analysis revealed immediate differences between pretests and posttests related to knowledge, attitudes, and behavioral

intentions concerning HIV/AIDS and HCV and the cultural dynamic of Cherokee self-reliance.

Meaney, T. (2002). Symbiosis or cultural clash? Indigenous students learning mathematics. *Journal of Intercultural Studies*, *23*(2), 167-187.
Mathematics is an important subject for students to know in order to gain places in further academic study and high-prestige, well-paid positions. However, mathematics and the way that it is taught is enmeshed in Western, generally middle-class values and beliefs. Many indigenous students in attempting to gain mastery of mathematics find that their own background and beliefs come in conflict with these. This paper examines perceptions of mathematics, sequences of student learning, teaching and learning mathematics and languages of instruction so that areas of conflict can be identified and resolutions suggested. Community involvement in mathematics curriculum decision-making is seen as the most appropriate way to overcome cultural conflict.

Reyhner, J. E. (1992). *Teaching American Indian students.* Norman, OK: University of Oklahoma**.**
This book consists of 18 essays that discuss teaching methods and resource material promoting productive school experiences for American Indian students. The first section of the book introduces the notion of empowerment of Indian students through multicultural education, foundations of Indian education, the history of Indian education, tribal and federal language policies, and a successful bilingual program. Section 2 discusses the importance of adapting teaching methods and curriculum to Indian culture and to the learning styles of Indian children. It also offers recommendations for promoting a positive working relationship between teachers and parents. Section 3 describes language and literacy development, the role of the first language in second language development, and the characteristics of American Indian English. Section 4 addresses the importance of Indian students' exposure to literature relevant to their culture and background. It provides suggestions for whole language teaching strategies, teaching strategies to enhance students' reading comprehension, and an overview of literature written by American Indians. Section 5 makes specific suggestions for teaching social studies, science, mathematics, and physical education to Indian students. Appendices include population and education statistics of American Indians, sources and recommendations for Indian children's literature, resources in social studies, and extensive references.

Washinawatok, K. (1993). *Teaching cultural values and building self-esteem.* (B.A. Thesis). M.A.E.S. College/ Menominee Study Site (ERIC ED366470).
The Menominee Pride Program was a whole-language summer program developed for first grade students at the Menominee Tribal School in Keshena, Wisconsin. The purpose of the program was to increase students' self-esteem by imparting Native values, culture, and language. The curriculum focused on three legends of the Menominee culture and emphasized culturally relevant values identified by Menominee community members. Program staff received training regarding key elements of Menominee culture. This program came about in response to a lack of Native language and culture programs and to an educational process that lowers the self-esteem of Native students by isolating them

from their elders in restrictive, enclosed environments. This paper suggests that tribal school systems must enhance tribal sovereignty by ensuring that cultural and spiritual needs are being addressed through integration of Native history, language, and culture. The Menominee Pride Program was successful in increasing academic skills, improving student interaction, and improving student attitudes toward school. Appendices include a list of values for Menominee schools, a Menominee value statement stressing the importance of family bonding, and the Menominee Pledge.

### Pro-American Indian bias curriculum and instruction

Sherman, L. (2002). From division to vision: Achievement climbs at a reservation school high in the Rocky Mountains. *Northwest Education, 8*(1), 22-27.
In response to Salish and Kootenai tribal demands for educational equity, a Montana school district chose a reform model based on cooperative learning strategies, which fits American Indian learning styles, and switched from tolerating to celebrating American Indian culture. Academic achievement has risen in all subjects, and the achievement gap between Indian and White students has narrowed.

Sparks, S. (2000). Classroom and curriculum accommodations for Native American students. *Intervention in School & Clinic*, 5.
Explores ways to enhance the classroom and the curriculum to meet the learning and social needs of Native American students in the United States. Use of culture-specific teaching method; Goal of acclimating students to multiple societies and cultures; Manner of gathering information on students; Communication strategies for educators; Teachers' development of cultural sensitivity; Student characteristics.

### Students' traditional methods of acquiring and using knowledge and skills

Bang, M., & Medin, D. (2010). Cultural processes in science education: Supporting the navigation of multiple epistemologies. *Science Education*, *94*(6), 1008-1026. (See abstract earlier in this section.)

Moore, G., & Slate, J. (2010). Advanced placement courses and American Indian performance. *American Secondary Education, 38*(2), 22.
Enrollment in Advanced Placement (AP) courses and performance on Advanced Placement examinations for American Indians in the U.S. for 2007 was analyzed. Scores on AP examinations, overall and then for five AP courses, were compared to the AP examination scores of White students. In every case, American Indians had AP examination scores that were significantly and practically lower than the scores of White students. American Indian female students had AP examination scores that were lower than the examination scores of White female students. Similar findings were present for male students. Implications of these findings are discussed.

Moore-Hart, P. (2004). Creating learning environments that invite all students to learn through multicultural literature and information technology: The intermingling of cultures,

religions, and languages across the United States enriches classrooms, while presenting new challenges to teaching and learning. *Childhood Education, 81*(2), 87. (See abstract earlier in this section.)

Posey, J. D. (1998). *Exploring indigenous pedagogies: Why is this knowledge important to today's educators?* Orem, UT: J.D. Posey/Legacy of Light. (See abstract earlier in this section.)

Rickard, A. (2005). Constant perimeter, varying area: A case study of teaching and learning mathematics to design a fish rack. *Journal of American Indian Education, 44*(3), 80-100. (See abstract earlier in this section.)

### Students' general cultural characteristics

Morgan, H. (2009). What every teacher needs to know to teach Native American students. *Multicultural Education, 16*(4), 10-12.

Many Native American students have problems in traditional American schools, and the dropout rate of Native American students indicates this (Lomawaima, 1995; Rhodes, 1988). Researchers often point out that one reason students may encounter difficulties in school has to do with a school district's neglect for the learning style or culture of a given group. In this article the author discusses the culture and learning styles of Native American students and offers educational practices that will likely aid this group of students to work to their potential. The author argues that in order to teach Native Americans in a way that reflects their culture, teachers must realize that Native America students are often taught differently at home than are mainstream students, but that Native American children can also differ greatly from each other. In order for Native American students to reach their potential in school, it is recommended that teachers understand those students' preferred ways of learning.

Peacock, T. (2006). Native students speak: What makes a good teacher? *Tribal College Journal of American Indian Higher Education, 17*(4), 4.

In this article, the author discusses what Native students have to say about teachers and good teaching. In an interview with the teachers of Native students and the students themselves, the teachers emphasized the importance of tapping students' intrinsic motivators--their need to feel self-determined, to satisfy their natural curiosity, to receive feedback, to feel competent, to express themselves, and to imitate, while the students identified two broad categories of attributes of good teaching--teaching characteristics and personal characteristics of teachers. The author describes the teaching characteristics and personal characteristics of effective teachers.

Pewewardy, C. D. (1998). *Culturally responsive teaching for American Indian learners.* Paper presented at the Kansas Institute on Effective Teaching Practices for Indian Education, Lawrence, KS.

Teachers in a multicultural society need to respect cultural differences, know the cultural resources their students bring to class, and be skilled at tapping into learners' cultural resources in the teaching-learning process. They must believe that all students are capable

of learning, and they must implement an enriched curriculum for all students. It is important to avoid cultural stereotypes. Instead, teachers should respond to the individual and identify and explore his or her values. Enhancing the self-concept of American Indian learners is essential to their effective education. Helping learners recognize their heritage and giving them a sense of belonging as well as a sense of their uniqueness as American Indian are equally essential. For many teachers of American Indian children, major changes in behaviors, attitudes, and values are required. Non-native people must learn that tribes have a unique government-to-government relationship with the federal government and that American Indians have dual citizenship: tribal and U.S. citizenship. Culturally responsive teachers understand that the classroom is an ecology of language, culture, and thought. When evaluating American Indian learners, teachers should be aware of cultural differences. Conventional program evaluation standards often omit the nuances of ideographic and phenotypic attributes of people of color. Respect for the cultural differences of students begins by acknowledging that there is no one correct way to learn and that every child brings the culture of their own home and community to school.

Prater, G., & et al. (1995). *Effective teachers: Perceptions of Native American students in rural areas.* Paper presented at the Conference Proceedings of the American Council on Rural Special Education (ACRES), Las Vegas, NV.

This paper examines perceptions of Native American students regarding effective practices of non-Native teachers. A survey of students in grades 3-12 in 3 rural school districts on the Navajo Reservation (Arizona) questioned 148 Navajo students and 10 non-Native students. The sample included 28 special needs students (17.7 percent). The survey consisted of open-ended questions regarding what kind of teacher students learned the most from; what students would do in the classroom if they were teachers; qualities of ideal teachers; what teachers do in the classroom that discourages learning; student preferences for English-only or bilingual teachers; and the degree to which teachers should be aware of students' cultural background. Results reveal that students learn more from hands-on projects and teachers who encourage varied means of learning. Students also stressed that it was important for teachers to treat students with respect and to teach responsibility. Students indicated that if they were teachers they would teach patience and honesty, tolerance, and the golden rule. Students felt that the most important teacher qualities were respect, kindness, positive attitude, patience, and sense of humor, and that teachers should avoid talking too fast, making fun of Native culture, and giving boring lectures. Although many students felt that a bilingual teacher was not necessary, many others desired to learn more about their Native language. An overwhelming number of students felt that teachers needed to be more sensitive to Native culture.

Reyhner, J. (1991). The challenge of teaching minority students: An American Indian example. *Teaching Education, 4*(1), 103-111.

Current teacher education programs do not provide appropriate knowledge for teaching minority students. The article focuses on American Indian students as an example. It discusses the value of using students' home language and culture at school, particularly in the early years, and stresses the value of responsive teaching methods.

Sorkness, H. L., & Kelting-Gibson, L. (2007). Effective teaching strategies for engaging Native American students. *Journal of Intercultural Disciplines,* 7, 108. (See abstract earlier in this section.)

Villegas, A. M. (1991). *Culturally responsive pedagogy for the 1990s and beyond*. (Trends and Issues Paper No. 6.). Washington, DC: ERIC Clearinghouse on Teacher Education.
The purpose of this trends and issues paper is to advance the search for creative solutions to the difficulties experienced by minority students and to draw attention to what teachers need to know and do in order to work effectively with a culturally heterogeneous population. Attention is given to the schooling of minority students in general, with an emphasis on the experiences of African Americans, Hispanics, and American Indians. The paper is divided into three major sections: (1) a review of themes that emerged from the literature (explanations for the differential achievement of minority students and culturally responsive pedagogy); (2) implications from the research for the assessment of beginning teachers; and (3) concluding remarks. The empirical and theoretical literature examined is highly critical of the educational system with regard to the teaching of minority children. This element is balanced by an equally strong commitment to instructional practices that will afford these children a fair chance to prove their talent. The literature also confirms that teachers can have a positive impact on the academic growth of minority students if they are sensitive to the cultural characteristics of the learners, and have the skills needed to accommodate these characteristics in the classroom.

### Evidence for the efficacy of culturally sensitive instruction

Jackson, K., & Hodge, D. (2010). Native American youth and culturally sensitive interventions: A systematic review. *Research on Social Work Practice*, *20*(3), 260-270.
Objective: A systematic evaluation of the effectiveness of culturally sensitive interventions (CSIs) with Native American youth was conducted. Method: Electronic bibliographic databases, Web sites, and manual searches were used to identify 11 outcome studies that examined CSI effectiveness with Native American youth. Results: This review found general improvement in the employment of rigorous evaluative methods in CSI research with Native American youth. Conclusion: Despite recent progress, CSI research remains in its infancy and more rigorous outcome studies are needed in order to determine if CSIs are more effective than standard treatments with Native American youth. Such research is necessary for professional competent practice with Native American youth and families.

## STANDARDS-BASED INSTRUCTION

### Working Definition

The relation between standards-based education and teaching American Indian students appears occasionally in the abstract literature. It includes seven citations in three subtopics: a) standards and activity-based or constructivist instruction (1); b) the need for culturally relevant standards (3); and c) standards and high expectations for students (3).

## Abstracts

### Standards and activity-based or constructivist instruction

Akiba, M., Chiu, Y., Zhuang, Y., & Mueller, H. (2008). Standards-based mathematics reforms and mathematics achievement of American Indian/Alaska Native eighth-graders. *Education Policy Analysis Archives, 16*(20), 1-31.
Using the NAEP nationally-representative data collected from eighth-graders, we investigated the relative exposure of American Indian/Alaska Native (AIAN) students to mathematics teachers who are knowledgeable about standards, participate in standards-based professional development, and practice standards-based instruction; American Indian/Alaska Native student reports of standards-based classroom activities; and how student reports of classroom activities and teacher reports of their knowledge, professional development, and practices are associated with mathematics achievement of American Indian/Alaska Native students. We found that AIAN students had among the lowest exposure to teachers who reported they were knowledgeable about standards, who participated in standards-based professional development, and who practiced standards-based instruction. In addition, AIAN students were less likely than African American and Latino students to report that they experienced standards-based classroom activities. Our data showed that teacher reports of standards-based knowledge and practice of standards-based instruction were not significantly associated with mathematics achievement of AIAN students. However, student reports of classroom activities characterizing standards-based instruction was associated with higher mathematics achievement of AIAN students.

### The need for culturally-relevant standards

Benham, M. (2006). A challenge to Native Hawaiian and Pacific Islander scholars: What the research literature teaches us about our work. *Race, Ethnicity & Education, 9*(1), 29-50.
What do we currently know, in light of conceptual, empirical, and applied studies, about the status of educational research on Native Hawaiians and Pacific Islanders? And why is this knowing important? This article proposes that illuminating the themes of what has already been examined might help policymakers, researchers, educational leaders and teachers to better negotiate the tensions of school context, content, and culture. Hence, it examines current research literature, which leads to questions about academic disparity, challenges of methodological support, and areas for further teaching and learning scholarship.

Demmert, W. G., Jr. (2001). *Improving academic performance among Native American students: A review of the research literature*. Charleston, WV: ERIC Clearinghouse and Rural Education and Small Schools. (ERIC Document Reproduction Service No. ED474128).
This literature review examines research-based information on educational approaches and programs associated with improving the academic performance of Native American students. A search reviewed ERIC's over 8,000 documents on American Indian education, as well as master's and doctoral dissertations and other sources of research on the education of Native Americans. Selected research reports and articles were organized into

the following categories: early childhood environment and experiences; Native language and cultural programs; teachers, instruction, and curriculum; community and parental influences on academic performance; student characteristics; economic and social factors; and factors leading to success in college or college completion. The status of research and major research findings are reviewed for each of these categories; brief summaries of research findings with citations are included following the review of each category. Also included are an annotated bibliography of more than 100 research reports, journal articles, and dissertations, most published after 1985; and a bibliography of 23 additional references to other literature reviews and non-Native studies.

Glau, G. R. (1990). Returning power: Native American classroom (dis)comfort and effective communication. *Writing Instructor, 10*(1), 51-58.
Suggests giving some power back to Native American students by using small groups, acting more as a coach than as an instructor, and using culturally relevant and interesting materials. Notes that these suggestions increase teaching effectiveness with Native American students.

### High expectations for American Indian students

Dalton, S. S., & Youpa, D. G. (1998). Standards-based teaching reform in Zuni Pueblo middle and high schools. *Equity & Excellence in Education, 31*(1), 55-68.
Describes a school reform project of the National Center for Research on Education, Diversity, and Excellence that studies teaching approaches and supporting activities for Zuni middle and high schools to encourage high expectations for all students. Principles of effective teaching for Native Americans are explored.

Hilberg, R. S., Tharp, R. G., & DeGeest, L. (2000). The efficacy of CREDE's standards-based instruction in American Indian mathematics classes. *Equity & Excellence in Education, 33*(2), 32-40.
Examined the impact of a standards-based instructional method, designed by the Center for Research on Education, Diversity & Excellence (CREDE), on the achievement of at-risk American Indian 8th graders studying mathematics. Results indicated that students instructed in a manner consistent with CREDE's standards had greater achievement than students instructed with traditional methods (though results merely approached statistical significance).

Hollowell, M., & Jeffries, R. (2004). Worldviews of urban Iroquois faculty: A case study of a Native American resource program. *American Indian Quarterly, 28*(3), 764-785.
This article highlights the Native American Magnet School, also known as P.S. #19, in Buffalo, NY, a unique public school for kindergarten through eighth-grade students. The school's Native American population constitutes one-third of the entire student body and comes from the six Iroquois tribes: Oneida, Seneca, Mohawk, Cayuga, Onondaga, and Tuscarora, with the majority being Seneca and Mohawk. Positive, high expectations by Iroquois faculty are viewed as key factors for student success.

## References

The following references were used to support sections of the paper including the Introduction and the Methods section in the appendix. These references were not necessarily used as relevant sources in the five topic areas.


Agbo, S. A. (2001). Enhancing success in American Indian students: Participatory research at Akwesasne as part of the development of a culturally relevant curriculum. *Journal of American Indian Education, 40*(1). Retrieved from http://jaie.asu.edu/v40/V40I1A2.pdf

Buly, M. R., & Ohana, C. (2004). Back to heritage: A different kind of school for American Indian adolescents. *Multicultural Education, 12*(1), 30-32. (ERIC Document Reproduction Service No. EJ781911) Retrieved from http://www.eric.ed.gov/PDFS/EJ781911.pdf

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. Retrieved from http://www.qsa.qld.edu.au/downloads/approach/indigenous_schooling_brayboy.pdf

Cleary, L. M., & Peacock, T. D. (1998). *Collected wisdom: American Indian education*. Boston: Allyn and Bacon.

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# Appendix: Methods

## Research Question

What instructional practices have been identified in the literature as being effective for the teaching of American Indian students?

## Literature Search Process

### Databases

REL Central's researchers conducted multiple searches to identify relevant literature for each of the six topics. REL Central consulted bibliographic databases, including the Educational Resources Information Center (ERIC), PsycINFO, and WorldCat.

### Keywords

The following teaching identifier search terms were used: teaching, effective teaching, effective teachers, teacher effectiveness, instructional effectiveness, instruction, teaching strategies, and teaching methods. These broad topics were narrowed by using the following sub-group identifier search terms: American Indian, Native American, Indian, native, aboriginal, or indigenous[4]. Grade level identifiers included: K-12, elementary education, elementary secondary education, secondary education, intermediate grades, middle schools, junior high schools, and high schools. To further limit the results to literature pertaining to American Indian, Alaskan Native, and Hawaiian Native students, the following search terms were excluded: Canada, Australia, New Zealand, and India. Searches were conducted for literature published between 1990 and 2011.

## Search and Selection Process

### Search Methods

REL Central researchers first conducted a comprehensive abstract search and selection process. Relevant abstracts were identified using the databases and keywords identified above. During the abstract search researchers documented the search procedures in a log with information on databases searched, the host through which they were accessed (e.g., WorldCat), the date of the search, the years covered by the search, and the search terms used. The project team also documented abstracts located through other means, such as through the reference sections of other reviews and articles. This prevented members of the project team from overlapping and duplicating their efforts and will allow other researchers to replicate the search. All retained abstracts have been kept in a database for later use.

### Selection Criteria

The literature search identified abstracts that met these preliminary selection criteria. Abstracts indicated that the study: (a) was systematic research (e.g., experimental including meta-analyses, quasi-experimental, and observational including case studies, single case analyses, and descriptive studies) or was not a study but included relevant thinking on the topic; (b) included American Indian students in the United States in kindergarten through twelfth grades; (c) addressed teaching

[4] Neither Hawaiian nor Alaskan Native was used by itself in this process. Therefore some articles could have been missed. An Addendum to the Compilation includes additional Hawaiian Native abstracts.

effectiveness according to approved conceptual definitions; (d) was one of these publication types (e.g. peer-reviewed journal, governmental source, peer-reviewed conference paper)[5] and 'fugitive' (unpublished) literature; (e) evaluations using rigorous methods; and (f) was published by 1990.

Following a cursory review of the abstracts, abstracts were removed that did not meet the selection criteria; the rest were retained for export to a database (e.g., EndNote). Next, REL Central researchers reviewed and coded each of the retained abstracts according to their primary topic(s), and relevance to the research question.

### Revising the Search and Selection Process

While abstracts were being read and coded, researchers consulted the list of keywords or subject descriptors in retained abstract listings to identify other useful search terms, refine search and selection criteria, and conduct searches on authors of retrieved abstracts in order to locate their other relevant publications. Researchers sought articles referenced in related syntheses or reviews. Article abstracts obtained through these sources were also entered into the log and database.

### Topics

In an attempt to narrow the field of possible topics on the effective teaching of American Indian students, the conceptual framework for the compilation of abstracts was organized around an emergent and iteratively developed list of topics. During the process, researchers developed and revised this list of topics. The topics were selected for their research basis, relevance to cultural context, relevance to American Indian education in the Central Region, and potential to inform the effective teaching of American Indian students.

### Reviewing, Coding, and Sorting Articles

The research team read and coded all of the retrieved abstracts. No articles were eliminated at this point, except for those that did not address teaching of American Indian students as previously defined. Articles that did not address the teaching of American Indian students were eliminated by consensus of the project team, with eliminations documented in the EndNote database. Next, the team prepared a listing of abstracts for each section of the report.

### Product

A draft of the compilation was developed and revised following feedback from an internal quality assurance process. The review includes an overview, introduction, methods for the literature abstract research process, and citations and abstracts organized by topic.

## Project Challenges and Problems

The research team recognized that a key challenge associated with this project was the adequate preparation of the literature for a subsequent systematic review that will report on the research base on effective teaching practice given the limitations of time, resources, and the literature. The research question helped focus our efforts. Potential problems included a lack of access to

[5] Using only published research could lead to a bias toward significant results or studies that conform to currently prevailing beliefs (Higgins & Green, 2009; Cooper, 1998). Therefore, including conference papers and research reports from government sources increased the diversity of our sample. In addition, using conference papers allowed us to consider very recent research that has not yet appeared in journals due to the lengthy academic publishing process.

literature that may be important for understanding the effective teaching of American Indian students.

## Project Limitations

We acknowledged certain limitations, beyond the research team's control, that prevented the research team from locating rigorous research or providing reliable answers to the research question. First, while we made every effort to locate appropriate literature abstracts on the effective teaching of American Indian students, we recognized that some of what is known on this topic may not be documented in the literature.

Second, we anticipated that the scope of literature may be limited with respect to systematic research studies. The small and geographically diverse (and often isolated) population of American Indian students means that they are frequently excluded from rigorous studies and statistical reporting and/or are grouped with other minorities in such studies. Studies involving American Indian students usually lack a control group and have small sample sizes–too small to show statistically significant results.

Finally, abstracts vary in length and detail and the aspects of the work that they describe. We may find when we retrieve and review the entire articles that articles fall in different topic areas than where they are now placed and that some subtopics may disappear and new ones emerge.

# ADDENDUM

This addendum was prepared by Kauhale Kīpaipai, of the Kamehameha Schools. While the original search process to obtain articles for this compilation did not omit Hawaiian articles neither did it include specifically the search term Hawaiian. The following abstracts were not obtained in the original search process.

## LANGUAGE NEEDS OF NATIVE SPEAKERS

### Working Definition

This topic deals with the instructional role of native and English languages for Native Hawaiian students.

### The role of the students' native language in the classroom

Kawai'ae'a, K.C., Housman, A.K., Alencastre, M. (2007). Pū ā i ka Ōlelo, Ola ka Ohana: Three Generations of Hawaiian Language Revitalization. *Hūlili: Multidisciplinary Research on Hawaiian Well-Being, 4 (1),* 183-237.

In the early 1980s, the Hawaiian language had reached its low point with fewer than 50 native speakers of Hawaiian under the age of 18. Outside of the Niʻihau community, a small group of families in Honolulu and Hilo were raising their children through Hawaiian. This article shares the perspectives of three pioneering families of the Hawaiian language revitalization movement over one generation of growth, change, and transformation. Our living case study stands as a testament for other Hawaiian language families who have endured the challenges of revitalizing the Hawaiian language as the living language of the home, school, and community. The article also celebrates the legacy of the Hawaiian language movement upon the 20th-year anniversary of Hawaiian-medium education within the public sector.

Luning, R.J.I. and Yamauchi, L. (2010). The Influences of Indigenous Heritage Language Education on Students and Families in a Hawaiian Language Immersion Program. *Heritage Language Journal, 7(2),* 46-74.

Papahana Kaiapuni is a K-12 public school program in which the Hawaiian language is the medium of instruction. In 1987, parents and language activists started the program in response to the dwindling number of speakers that resulted from a nearly century-long ban on the indigenous language. This study examined how participation in this indigenous heritage language program influenced students and their families. Data included interviews with 12 adolescent students and their family members. Results suggested that the program promoted students‟ learning about and practicing traditional Hawaiian values, and influenced cultural pride among family members. Participation in the program also encouraged youths and their family members to become politically active around Hawaiian cultural issues. Unlike the more typical process in which culture is passed down from the

older to the younger generations, participants viewed Kaiapuni students as the carriers of the culture and language, teaching older family members about these topics. Informants also reported that Kaiapuni promoted positive community views about both Hawaiian language and culture revitalization efforts.

Reyhner, J. (2010). Indigenous Language Immersion Schools for Strong Indigenous Identities. *Heritage Language Journal, 7(2)*, 138-152.
Drawing on evidence from indigenous language immersion programs in the United States, this article makes the case that these immersion programs are vital to healing the negative effects of colonialism and assimilationist schooling that have disrupted many indigenous homes and communities. It describes how these programs are furthering efforts to decolonize indigenous education and helping further United Nations policies supporting the rights of indigenous peoples. The fit between place-, community-, and culture-based education and immersion language programs is described with examples from Apache, Ojibwe, Diné (Navajo), Hawaiian, and Blackfeet language programs, illustrating how traditional indigenous values are infused into language programs to help build strong positive identities in indigenous students and their communities.

Reyhner, J. (2003). Native Language Immersion. In J. Reyhner, O. Trujillo, R.L. Carrasco and L. Lockard, eds. *Nurturing Native Languages*. Flagstaff: Northern Arizona University.
This paper describes the benefits of indigenous mother tongue immersion programs, examining the Total Physical Response approach to immersion for beginning learners and focusing on the development of Maori and Hawaiian mother tongue language immersion programs. The paper discusses the importance of immersing students in a language-risk environment, noting that an effective natural approach to immersion is based on four principles: comprehension precedes production, students learn new language in stages, the objective of language learning is to be able to carry out a conversation in that language, and classroom activities need to lessen student anxiety. It cautions that it is very important to introduce English early on in bilingual programs in the United States and that the idea of never speaking English can be overdone. It also questions delaying English instruction for a considerable period, suggesting that bilingual programs should be fully bilingual with a strong English language arts program.

### Bilingual instruction in the native language and in English

Wilson, W. and Kamanā, K. (2009). Indigenous Youth Bilingualism from a Hawaiian Activist Perspective. Journal of Language, Identity, and Education, 8(5), 369-375.
Hawai'i's massive language shift began a century ago. In the late 1800s, everyone spoke Hawaiian, but being monolingual in Hawaiian marked one as unsophisticated. Then Hawaiian medium schools were banned, resulting in young people speaking Hawaiian with adults and Hawai'i Creole English with peers. The next generation could understand, but not speak Hawaiian. Finally, the generation born in the 1940s through 1960s sometimes heard elders speaking Hawaiian but knew very little of it beyond a few words and phrases. Yet, today, as the result of a language revitalization movement

that began in the 1970s and 1980s, many young people speak Hawaiian fluently. Increasing numbers are raising their children with Hawaiian as the first language of the home. In this commentary, the authors describe how youth who learn Hawaiian become socialized into speaking it as their peer language. They begin by discussing 4 major themes: (1) Diversity in linguistically healthy and unhealthy indigenous communities; (2) Cultural identity and indigenous languages; (3) Maintaining bonds between person, location, and language; and (4) The role of schools in language life and death.

### Total immersion in the native language

Iokepa-Guerrero, N. (2008). Raising a Child in the Punana Leo: Everyone (Men and Women) Play an Important Role. *Exchange: The Early Childhood Leaders' Magazine Since 1978*, 181, p30-32.

Established in 1983 by a group of parents and teachers, the 'Aha Punana Leo ('APL) was formed. A grassroots organization, 'APL was established to respond to the dismal plight of the Hawaiian language. Just a mere 25 years ago, the Hawaiian language was on the verge of being lost forever. Through the dedicated efforts of a small group of friends with the vision, "E ola ka 'olelo Hawai'i," that the Hawaiian language shall live and take its rightful place among the languages of the world and more so as the prominent language of Hawai'i, the 'Aha Punana Leo was born. As a first step in bringing the language back into the lives of Hawai'i's people, the Punana Leo Hawaiian medium education total immersion preschool was established. As a few generations had passed in which the language was not passed directly from parent to child, and understanding the future of the people rests in the strength of the children, the 'Aha Punana Leo embarked on creating Hawaiian language "honua," environments in preschool settings. In this lay the hope and now the reality that thelanguage would expand into the home and eventually into the broader community. At the Punana Leo everyone, "'Anakala," uncle–a male teacher, "'Anake," aunty–a female teacher, and the "keiki," children all play important roles in the educational program of the school. Each and all are responsible for the learning that takes place and the success of the program. In this article, the author presents examples from the Punana Leo program that contradicts the stereotypes, debunks the myths, and shows the world the importance of men in the lives of young children.

Wilson, W. and K. Kamanā (2006). "For the Interest of the Hawaiians Themselves": Reclaiming the Benefits of Hawaiian-Medium Education. *Hūlili: Multidisciplinary Research on Hawaiian Well-Being, 3 (1),* 153-181.

Those who overthrew the Hawaiian monarchy understood that banning Hawaiian as the language of public and private schooling would exterminate the language. They also believed that replacing Hawaiian with English was "for the interest of the Hawaiians themselves." This article challenges that belief by presenting five areas of importance in academics and core values where Hawaiian medium education, in fact, demonstrates significant advantages over English-medium education. The information presented here should be useful in spreading autochthonous language medium education in Hawai'i to the extent seen in New Zealand, Wales, and other areas. A major obstacle to overcome in

spreading the model is the continued exclusion of Hawaiian-medium education from the state's private schools, including Kamehameha Schools.

Wilson, W. and K. Kawai'ae'a (2007). I Kumu; I Lala: "Let There Be Sources; Let There Be Branches"~Teacher Education in the College of Hawaiian Language. *Journal of American Indian Education, 46(3),* 37-53.
This article focuses on the historical development of Kahuawaiola Indigenous Teacher Education Program, the first teacher education program specifically addressing the needs of Hawaiian medium education. The authors distinguish a P-12 language revitalization education approach from those of transitional bilingual and foreign language immersion education. Conceptualizing Hawaiian medium education as a set of structures using Hawaiian rather than methodologies to teach Hawaiian, the authors describe teacher preparation structures nested within prerequisite fluency developing structures of the College of Hawaiian Language. Features of the program are described in detail and information on the program's philosophy, future direction, and national and international connections is provided.

### Specific English Language Learner (ELL) instruction

Kawai'ae'a, K.C., Housman, A.K., Alencastre, M. (2007). Pū'ā i ka 'Ōlelo, Ola ka 'Ohana: Three Generations of Hawaiian Language Revitalization. *Hūlili: Multidisciplinary Research on Hawaiian Well-Being, 4 (1),* 183-237. (See abstract earlier in this section.)

Luning, R.J.I. and Yamauchi, L. (2010). The Influences of Indigenous Heritage Language Education on Students and Families in a Hawaiian Language Immersion Program. *Heritage Language Journal, 7(2),* 46-74. (See abstract earlier in this section.)

Naone, C.K. (2008). O ka Āina, ka Ōlelo, a me ke Kaiāulu. *Hūlili: Multidisciplinary Research on Hawaiian Well-Being, 5 (1),* 315-339.
As Hawaiians, we have an intimate relationship to place. This connection is informed to a large extent by knowledge and interaction with 'āina [land], 'ōlelo makuahine [Hawaiian Language], and kaiāulu [community]. While these relationships sustain us as a people, our connection to place must be continually fed in order to thrive. In this article, I describe Hawaiian cultural practices and beliefs related to land, language, and community. My research addresses the following questions: Why does place matter so much to Hawaiians and other indigenous peoples? What are some historic examples of the intimate connection Hawaiians have to their place(s)? How does the relationship between people and place persist despite colonization and development? Because place-making is so closely tied to personal and collective identity, I argue 'āina, 'ōlelo [language], and kaiāulu can be sites of reclamation for the increased well-being of our people.

Reyhner, J. (2010). Indigenous Language Immersion Schools for Strong Indigenous Identities. *Heritage Language Journal, 7(2),* 138-152. (See abstract earlier in this section.)

# The Effect of Family & Community Involvement

## Working Definition

This topic refers to the effect that family and community influence have on schools with large Native Hawaiian enrollment.

### Including the importance of support at home

Kawakami, A.J. (1999). Sense of Place, Community, and Identity: Bridging the Gap between Home and School for Hawaiian Students. *Education and Urban Society, 32(1),* 18-40.
Examines issues inherent to the gap between the home and school cultures of Native Hawaiian students, focusing on: developing an understanding of present dilemmas in Hawaiian education; reviewing related research; describing initiatives in K-12 curriculum development and teacher training; and identifying implications for policy and reform issues in the future.

Yamauchi, L.A., T.R. Wyatt, A.H. Taum (2005). Making Meaning: Connecting School to Hawaiian Students' Lives. *Hūlili: Multidisciplinary Research on Hawaiian Well-Being, 2 (1),* 171-188.
Hawaiian students are more likely than their peers to have negative educational outcomes. This may result from a mismatch between students' expectations and interests and those of school personnel. Educators can improve this situation by contextualizing instruction—connecting new information with what students already know from prior home, school, and community experiences. The Hawaiian Studies Program (HSP) is an academic program that incorporates Hawaiian culture with more typical secondary curriculum for students in Grades 10-12. This investigation explored whether participation in a 3-year study group influenced HSP teachers' contextualized instruction. Analysis of teachers' instruction indicated that contextualized instruction increased over 2 years and declined slightly in the 3rd year. Study group transcripts and teacher interviews suggested that over the 3 years, teachers talked more about how they were implementing contextualized instruction and could increase its application.

### The input of parents into the classroom or school

Iokepa-Guerrero, N. (2008). Raising a Child in the Punana Leo: Everyone (Men and Women) Play an Important Role. *Exchange: The Early Childhood Leaders' Magazine Since 1978*, 181, p30-32.
Established in 1983 by a group of parents and teachers, the 'Aha Punana Leo ('APL) was formed. A grassroots organization, 'APL was established to respond to the dismal plight of the Hawaiian language. Just a mere 25 years ago, the Hawaiian language was on the verge of being lost forever. Through the dedicated efforts of a small group of friends with the vision, "E ola ka 'olelo Hawai'i," that the Hawaiian language shall live and take its rightful place among the languages of the world and more so as the prominent language of Hawai'i, the 'Aha Punana Leo was born. As a first step in bringing the language back into the lives

of Hawai'i's people, the Punana Leo Hawaiian medium education total immersion preschool was established. As a few generations had passed in which the language was not passed directly from parent to child, and understanding the future of the people rests in the strength of the children, the 'Aha Punana Leo embarked on creating Hawaiian language "honua," environments in preschool settings. In this lay the hope and now the reality that thelanguage would expand into the home and eventually into the broader community. At the Punana Leo everyone, "'Anakala," uncle-a male teacher, "'Anake," aunty-a female teacher, and the "keiki," children all play important roles in the educational program of the school. Each and all are responsible for the learning that takes place and the success of the program. In this article, the author presents examples from the Punana Leo program that contradicts the stereotypes, debunks the myths, and shows the world the importance of men in the lives of young children.

Yamauchi, L.A., Lau-Smith, J., Luning, R.J.I (2008). Family Involvement in a Hawaiian Language Immersion Program. *School Community Journal, 18(1)*, 39-60.
This study investigated the ways in which family members of students in a Hawaiian language immersion program were involved in their children's education and identified the effects of and barriers to involvement. A sociocultural theoretical approach and Epstein's framework of different types of involvement were applied. Participants included 35 families whose children were enrolled in Papahana Kaiapuni, a K-12 public school program in Hawai'i. The program uses the Hawaiian language as the medium of instruction. Semi-structured interviews were conducted with participants about their program experiences. Kaiapuni family involvement practices were consistent with Epstein's typology. Consistent with previous research on family involvement in other contexts, Type 2 (school-home communications) and Type 3 (voluntary involvement) were prevalent. However, different from previous reports, participants were more involved in school decision making (Type 5). Families felt that their involvement promoted (a) the development of children's values, (b) family and community bonding, (c) children's English language learning, and (d) family members' learning about Hawaiian language and culture. The most frequently mentioned barrier to involvement was a lack of proficiency in the Hawaiian language.

## The input of the community into the classroom or school

Goodyear-Ka'ōpua, Jennifer Noelani (2005). *Kū i ka Māna: building community and nation through contemporary Hawaiian schooling.* PhD diss. University of California, Santa Cruz.
Since the 1970s, Kanaka Maoli have seen schools as potential sites for enacting cultural revitalization, social transformation, and political liberation. Utilizing notions of articulation, hegemony, and genealogy, this dissertation makes two primary contributions to discussions about 'the Hawaiian movement' and to wider conversations about the politics and cultures of education. At one level, I examine emergent efforts of educators at Kamehameha Schools and Hālau Kū Māna charter school to disarticulate schooling from its (neo) colonial history and rearticulate schools within growing movements for Kanaka Maoli self-determination and well-being. I argue that these cultural revitalization efforts are not isolationist retreats but practices of a critical traditionalism that move beyond the

ethnocentrism and nationalism of the US frame. At a second level, I posit an interdisciplinary Hawaiian Studies approach to academic research and writing. Employing Hawaiian concepts including lāhui, ea, pono, kumu, kuleana, and mo'okū'auhau, I outline central ethical, theoretical, and methodological issues and frames within the field of Hawaiian Studies. My practice of interdisciplinary scholarship blends ethnographic, historiographic, and archival research, drawing on interviews conducted with more than forty educators affiliated with Kamehameha and/or Hālau Kū Māna, as well five years of field work with HKM. This dissertation also follows an experimental, organizational format as I aim to produce a field of voices in tension rather than the kind of homogenous, authoritative voice standard in dissertations. The first chapter introduces the field of Hawaiian Studies and schooling, highlighting self-determination as an organizing force. Chapter two provides historical context by recounting a genealogy of schooling in Hawaii, while chapters three and four take-up teachers' struggles to assert counter-hegemonic Hawaiian schooling practices in the last decade. Between the chapters, I insert shorter reflective essays on Hawaiian Studies methodologies utilized in and emerging out of this dissertation process. This format suggests Hawaiian Studies should take seriously the notion of method as practice, rather than as prescriptive model. As part of a living practice of ea (sovereignty), Hawaiian Studies and schooling projects must be able to shift between contexts and rhetorics, making multiple interventions simultaneously, both within our communities and outside them.

Yamauchi, L. and A.K. Purcell (2009). Community Involvement in a Place-Based Program for Hawaiian High School Students. *Journal of Education for Students Placed at Risk (JESPAR), 14(2),* 170-188.

This study examined the development of community involvement in a place-based high school program for at-risk youth. Teachers and community members founded the program to address concerns about low achievement and high dropout rates among Native Hawaiians. In addition to funding, community members provided program development, supervision of students' service-learning, cultural consultation, political support, and teacher and curriculum development. Collaborations were sustained by open communication, the development of a common set of values among a diverse group of people, and flexibility of community members' schedules. Challenges to community involvement included a lack of support from school leadership, teacher burnout, and occasional interpersonal conflicts.

## Alternative Instructional Techniques

### Working Definition

Alternative instructional techniques are practical classroom applications of the particular educational needs of Native Hawaiian students.

#### Content - Native cultural epistemology

Benham, M.K.P.A.N. and R.H. Heck (1998). *Culture and Educational Policy in Hawai'i: The Silencing of Native Voices. Sociocultural, Political, and Historical Studies in Education*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc., Publishers.
This book provides a critical assessment of Native Hawaiian education. It focuses on the historical, political, and cultural contexts producing institutionalized structures that kept Hawaiians marginalized in the schools and wider society. It also looks at current attempts of Native Hawaiians to reclaim a part of their lands and self-determination through political sovereignty and Hawaiian immersion education. The Hawaiian experience can help in the development of multicultural educational policies. Part 1 examines how education socializes children to the dominant political interests of the times; how this played out in America's westward expansion in general, and in Hawaii in particular; and the implications for implementing multicultural educational policies. Part 2 presents case histories in four periods of Hawaiian history: the arrival of American missionaries in the 1820s; the overthrow of Hawaiian government; the Americanization of Native Hawaiians, 1930s-1960s; and the present-day renewal of interest in Hawaiian sovereignty. The last part expands the discussion of how Western cultural values and American policies were institutionalized in Hawaiian schools; how the relationship between Native peoples and government has shifted during the past two decades; efforts to preserve Hawaiian culture and language; and major issues that need to be resolved politically, educationally, and socially with respect to Native Hawaiians. Three appendices present Hawaii's monarchy, territorial governors, and the distribution of values among school policy mechanisms.

Meyer, M. (2003). Ho'oulu: Our Time of Becoming, Hawaiian epistemology and early writings. Honolulu: Ai Pōhaku Press. (Abstract not available)

Meyer, M. (1998). Native Hawaiian Epistemology: Exploring Hawaiian Views of Knowledge. *Cultural Survival Quarterly, 22(1),* 38-40.
Empiricism is culturally defined in that culture shapes sensory knowledge. Hawaiians recognize senses beyond the five that Western culture recognizes. Hawaiians are not unempirical; they draw conclusions of their own from their empirical experiences. It is time to validate other ways of knowing, long suppressed in the U.S. educational system.

Meyer, M. (1998). *Native Hawaiian epistemology: Contemporary narratives*. Doctoral Dissertation, Harvard University.
This thesis presents a discussion of Hawaiian epistemology. Hawaiian values and beliefs, as they influence Hawaiian "ways of knowing" are first placed in a political context, then reviewed in a historical context via literature, and finally, current opinions on the topic are noted through the voices and lives of twenty Hawaiian educational/cultural leaders. This qualitative research study has utilized historic and contemporary Hawaiian voices to illustrate cultural mores, identity, and cosmologies. Ontological priorities and values, relevant to Hawaiian knowledge production and exchange, are also used to provide a philosophical framework for effective education.

Epistemological themes surfaced from a preliminary Pilot Study and literature research. The major themes are: (1) Spirituality and Knowledge~Cultural contexts of knowledge; (2) That Which Feeds~Physical place and knowing; (3) Cultural Nature of the Senses~Expanding notions of empiricism; (4) Relationship and Knowledge~Notion of self through other; (5) Utility and Knowledge~Ideas of wealth and usefulness; (6) Words and Knowledge~Causality in language; (7) The Body/Mind Question~The illusion of separation.

Five more philosophic threads wove throughout all thesis interviews and are discussed in the Findings chapter. These cultural sinews tighten the weave of philosophy presented within this work. Although some threads and epistemological themes are similar, the five threads as a whole offer a more tangible, real-life way to begin the more "broadly drawn" discussion of Hawaiian epistemology. The five threads are: (1) Role of place, history and genealogy in knowledge exchange; (2) Culture restores culture; (3) Duality of educational systems; (4) Experience, practice and repetition~key components to knowledge; (5) Role of morality in knowledge acquisition.

Hawaiian informants shed light on many topics. For example, body-centric empiricism, cultural objectivity, effective teaching, emotions and intellect, the role of students, proper practice, and larger issues of morality with regard to knowledge were woven into informants' life stories and descriptions of how they experienced information and thus created knowledge. Mentors also placed their ideas within a political time that underscored the on-going struggle of Hawaiian identity. Finally, this thesis asks the question: "Can Hawaiian identity, intellect, and culture be restored and strengthened within a non-Hawaiian epistemological system?"

### American Indian global and holistic world views and values

Ah Nee-Benham, M.K.P., Ed. (2000). *Indigenous educational models for contemporary practice: In our mother's voice (Vo. 1).* Mahway, NJ: Lawrence Erlbaum Associates.
This book presents a collection of papers on the rights of indigenous students to an equal education. The 15 chapters include: (1) "Gathering Together To Travel to the Source: A Vision for a Language and Culture-Based Educational Model" (Maenette Kape'ahiokalani Padeken Ah Nee-Benham and Joanne Elizabeth Cooper); (2) "Building a Child-Centered Model: 'An Indigenous Model Must Look to the Future'" (Kate Cherrington); (3) "A Holistic Education, Teachings from the Dance-House: 'We Cannot Afford To Lose One Native Child'" (Jeannette Armstrong); (4) "Grounding Vision on the Three Baskets of Knowledge: 'Kia ora ai te iwi Maori'" (Linda Aranga-Low); (5) "Advocating for a Stimulating and Language-Based Education: 'If You Don't Learn Your Language Where Can You Go Home To?'" (Sarah Keahi); (6) "A Commitment to Language-Based Education: 'Among the Gifts We Can Give OurChildren Is Our Cultural Traditions'" (Darrell Kipp); (7) "Revitalizing Culture and Language: 'Returning to the Aina': (Kalena Silva); (8) "Building an Indigenous Language Center: 'The Children Have the Right To Learn Their Language'" (Gail Kiernan); (9) "Linking Native People around the Spirituality of All Life: 'The Gifts of Our Grandmothers and Grandfathers'" (Sam Suina); (10) "Creating a Ceremony:

'Nature's Model from the Longhouse People'" (Genevieve Gollnick); (11) "Building Linkages across the Community: 'To Take Action, Takes Great Courage and Strength'" (L.A. Napier); (12) "Envisioning a Community-Centered Education: 'We Do Not Own Our Children, We Must Honor Them in All Ways'" (Paul Johnson); (13) "The Circle We Call Community: 'As a Community, You All Have To Pull Together'" (Miranda Wright); (14) "Educational Empowerment for Maori People: 'We Are on the Right Path. We Are On the Right Dreaming'" (Susan Wetere-Bryant); and (15) "Locating Global Learning Centers: 'With the United Forces of Us All'" (Rosalie Medcraft). The two appendixes are: "Exemplary NativeEducational Programs in the United States" (Jeremy Garcia) and resources for native educators.

Sing, N.N. (2009). *Na alaka'i na'auao: A study on principal leadership and Hawaiian cultural values*. Doctoral Dissertation, Union Institute and University.

As school principals strive to meet the demands of an educational system and society in flux, maintaining core values becomes paramount to leadership practices and decision-making. This dissertation addressed the issues facing elementary school principals in Hawai'i today, effective practices to promote leadership sustainability, and implications for principal leadership in the 21st century. Through an interdisciplinary approach focused on educational leadership and Native Hawaiian cultural values, this dissertation presented a comprehensive approach to improve school leadership. To capture the "voice" of principals, a mixed-methods approach was employed for this research study which incorporated qualitative and quantitative measures. Focus groups conducted on the island of Hawai'i revealed principals' perspectives on leadership practices and values. From these focus groups emerged five themes depicting the essence of principal leadership which include: (a) caring relationships are the essence of principal leadership; (b) principals are role models of instructional leadership; (c) professional learning communities emerge when value systems are in place; (d) principal leadership practices promote collegiality; and (e) Hawaiian cultural values underlie elementary school leadership. These themes provided the contextual framework to develop questions on the School Leadership Survey administered statewide to 165 elementary principals. Highlights from the survey indicated several significant findings: (a) principals promoted Hawaiian cultural values in schools and fostered caring and safe school environments; (b) principals raised with Hawaiian cultural values or with strong family values and role models, integrated those values in their leadership practices; and (c) principals of Hawaiian descent or who attended school in Hawai'i, were more likely to implement Hawaiian cultural values in school activities and programs. While research on school leadership recognizes the role and influence of the principal, core values define the enduring characteristics of a school that remain constant over time and provide the principal, students, and school personnel with guidelines for making decisions and setting priorities. Culture provides cognitive and behavioral guidelines for functioning and a sense of belonging or unity that every human being needs. This dissertation revealed that integrating Native Hawaiian cultural values into educational practices was essential to principal leadership, behaviors, and decision-making.

## Comparative and cross-cultural instruction

Benham, M.K.P.A.N. and R.H. Heck (1998). *Culture and Educational Policy in Hawai'i: The Silencing of Native Voices. Sociocultural, Political, and Historical Studies in Education*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc., Publishers. **(See abstract earlier in this section.)**

### Practical relevance of instruction and curriculum

Chun, M. N. (2006). *A'o, educational traditions* (Vol. 3). Honolulu, HI: Curriculum Research & Development Group, University of Hawaii. **(Abstract not available)**

### Students' traditional methods of acquiring and using knowledge and skills

Martin, D.E. (1996). *Towards an understanding of the Native Hawaiian Concept and Manifestation of Giftedness*. PhD Dissertation. University of Georgia. (Abstract not available)

Sing, D. (2008) Ike Pono: Promoting learning from a Native Hawaiian Perspective. In U. Wiethaus (Ed.) *Foundations of First Peoples' Sovereignty: History, Education & Culture* (pp. 149-157). New York: Peter Lang Publishing.
Foundations of First Peoples' Sovereignty is an innovative collection of essays offering interdisciplinary perspectives on the topic of sovereignty for Indigenous nations. Presenting contemporary initiatives and scholarship in the humanities on behalf of First Peoples, the volume affirms and explores the dynamic interplay between tribal community action and reflection, academic work, and the commonalities shared by Indigenous nations globally.

### Students' general cultural characteristics

Kawakami, A.J. and K. Aton (2001). Ke a'o Hawai'i (Critical elements for Hawaiian learning: Perceptions of successful Hawaiian educators. *Pacific Educational Research Journal, 11*(1), 53-66. (Abstract not available)

Kawakami, A. J., Aton, K., Glendon, C., & Stewart, R. (1999). *Curriculum guidelines native Hawaiian curriculum development project*. Hilo, HI: Center for Gifted and Talented Native Hawaiian Children, University of Hawai'i at Hilo.
The Na'imiloa (seeker of knowledge) program provides educational enrichment opportunities to gifted underachieving Native Hawaiian high school students. Developed by the University of Hawaii at Hilo and selected high schools, the program was designed to build upon students' talents, develop their self-esteem, and develop an awareness and appreciation of the Hawaiian culture in order to support overall positive achievement at school. Students selected for the program start in their sophomore year. The Na'imiloa classes fall under varying academic disciplines as determined by the individual schools. The foundation of the curriculum is the values embraced by Hawaiians. The curriculum concepts--identity, social interactions, physical environment, and artifacts--provide focus for the development of these values within specific educational activity settings. These concepts may be developed for performance in a spectrum of informal to formal relationships and situations. The culminating activity of the fall semester is a Makahiki celebration where all school sites gather to recreate a multifaceted Hawaiian community

and display their mastery of the curriculum concepts. Evaluation combines informal, performance-based methods relevant to the Hawaiian experience and formal, Western-style methods. Curriculum planning forms and a glossary are included.

Tibbetts, K., Kahakalau, K., & Johnson, Z. (2007). Education with aloha and student assets. *Hūlili: Multidisciplinary research on Hawaiian well-being, 4*(1), 147-182.
This study adopts a strengths-based perspective to explore how a culturally grounded approach to education, Education with Aloha, supports and nurtures positive development among Native Hawaiian charter school students. Despite the high level of risk factors among Nā Lei Na'auao–Native Hawaiian Charter School Alliance students, the overall prevalence of assets among students compares favorably with that found in the national benchmark group. Differences in patterns of assets between Nā Lei Na'auao and the national benchmark group are generally consistent with the tenets of Education with Aloha and are hypothesized to be either a result of this educational approach or based on cultural differences. The data are descriptive only, and further research using a more culturally specific instrument designed for longitudinal studies is needed to test this hypothesis. If a link between Education with Aloha and the strengthening of student assets can be established, this provides another reason to support Hawaiian culturally based education.

### Evidence for the efficacy of culturally sensitive instruction

Kahumoku III, W. and W. Kekahio and the Ka'ū, Kea'au, and Pāhoa Complex Area Core Planning Team (2010). The Kahua Induction Program: Systemically Supporting New Teachers Through Culturally Relevant, Place-Based, and Community Mentor Strategies. *Hūlili: Multidisciplinary Research on Hawaiian Well-Being 6(1),* 213-236.
The Hawai'i Department of Education (HDOE) has dealt with the issue of significant teacher attrition for decades. In response, the HDOE, Kamehameha Schools, and several other community organizations collaboratively developed a pilot program named the Kahua Induction Program. Designed to provide "new" teachers in the Ka'ū, Kea'au, and Pāhoa complex area with a strong foundation for their first year in the teaching profession, Kahua (foundation) provided 36 new teachers with mentor, academic, social-emotional, and place-focused support. This article presents the pilot year's evaluation findings and examines the critical need for teacher induction that provides place-based, culturally relevant strategies to improve the chance of new teacher acclimation to their schools and communities.

Kana'iaupuni, S.M. and K. Kawai'ae'a in collaboration with the HCIE study collaborative group (2008). E Lauhoe Mai Nā Wa'a: Toward a Hawaiian Indigenous Education Teaching Framework. *Hūlili: Multidisciplinary Research on Hawaiian Well-Being 5(1),* 67-.
The desire to improve educational delivery and outcomes has prompted significant advancements in culture-based education as a foundation for community-driven, place-based, relevant educational approaches that more effectively engage children and their families in lifelong learning and leadership. This article shares the early process and tools of a large-scale, community-participatory project developed to understand the use of culture-based teaching strategies in Hawai'i and associated outcomes for students (7th–10th

grade). Specifically, this work documents the initial planning and theoretical development that resulted in a Hawaiian Indigenous Education Rubric (HIER) from a teaching perspective. The HIER tool provides a building block in our efforts to understand what indigenous education looks like in the teaching environment and is shared here to encourage further research and development. Future publications will document the results of the broader project based on teacher and student data.