

Improving Academic Performance Among American Indian, Alaska Native, & Native Hawaiian Students: Assessment & Identification of Learning & Learning Disabilities

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Workshop Summary

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IMPROVING ACADEMIC PERFORMANCE AMONG AMERICAN INDIAN, ALASKA
NATIVE, & NATIVE HAWAIIAN STUDENTS:
ASSESSMENT & IDENTIFICATION OF LEARNING & LEARNING DISABILITIES

On March 16-18, 2005, several federal agencies, professional organizations, and associations (see acknowledgements) joined forces to hold a national colloquium to address the educational needs of Native American students. *Native American was defined for this meeting as including: American Indian, Alaskan Native, and Native Hawaiian. Also invited were representatives of the Circumpolar North, a group of concerned educators, government officials, and researchers who represent indigenous peoples in that region of the world interested in identity, language, cultural, and educational issues.* Researchers and educational practitioners met for three days at the Indian School in Santa Fe to discuss the key issues and challenges for improving educational performance among Native American students, and to begin a *creating a* blueprint for research and practice. This document represents a summary of the presentations and discussions of that gathering. The Blueprint at the end of this document is under discussion and refinement, as additional input is gathered. In addition, two issues of the *Journal of American Indian Education* are under preparation that will present much greater detail on the presentations and an updated version of the Blueprint in 2006.

The colloquium began with a prayer offered by Gilbert Pena of the Santa Fe Indian School, the host institution, followed by a Passing of the Drum ceremony performed by Feodoya Gabysheva and Olga Chorosova, members of the Circumpolar North Group from the Sakha Republic.

Who and Where are the Children?

Victoria Vasques, Assistant Deputy Secretary, Office of Education, US Department of Education, presented background on the Indian students served by the U.S. Department of Education, as well as the programs funded by the Department. In particular, she shared the purpose of the Office of Indian Education Programs (OIEP) within the Department of Education, to address and blend the unique educational and culturally related needs of Indian students. She also said that they serve students both on and off reservation, since 92 percent of Indian students attend public schools. She explained the Office of Indian Education has a broader definition of Indian than does the Bureau of Indian Affairs (BIA), so as to include those students not served by the BIA.

Vasques then listed various programs falling under the categories of student demonstration and professional development, funded by the Department of Education OIEP with priority being given to Indian schools, tribes and organizations. She commented that economic success in the 21st century depends on education, and described the Executive Order signed by President Bush to assist American Indian and Alaska Native students in meeting the standards of No Child Left Behind. Vasques said that 1.5 billion dollars would be going into a new high school initiative to ensure that all students, including Indian students, graduate prepared to go out into the higher education community or into the workforce. In addition, 1 billion dollars is available for direct support for American Indian and Alaska Native students, and significant funds are provided to Indian students who receive services through programs such as Title I.

Vasques was asked if, with regard to the No Child Left Behind Act, there would be any flexibility in terms of the assessment of children in English after three years, her concern that children may be driven out of Native language instruction. Ms. Vasques replied that the Executive Order would protect Native language instruction, and that the Department of Education does not dictate how assessments should be performed. She added that those with such concerns could make recommendations to Ms. Vasques' committee on implementation of the executive order regarding assessment flexibility.

Sherry Allison and **Robin Butterfield**, Office of Indian Education Programs (OIEP), Bureau of Indian Affairs (BIA), Department of the Interior, described the mission and programs of the BIA OIEP. Allison began by stating that approximately 10 percent of Indian students attend schools that are funded by the Bureau of Indian Affairs, and that the BIA exists because of treaty rights. The vision of the OIEP is to promote healthy Indian communities through life long learning. She listed recent changes in the OIEP Administration, and explained that OIEP budget represents 46 percent of the entire BIA budget. She listed types of OIEP programs, including early childhood programs, title programs, HIV/AIDS homeless programs, 21st century programs, supplemental programs, special education and professional development programs. Allison also listed OIEP goals, including improvement of academic proficiency, attendance rates, high school graduation rates, and integration of languages and cultures.

Butterfield discussed various BIA challenges or initiatives, including academic performance, effective use of personnel, education, and resource allocation. In terms of academic performance, she stated that only 45 schools out of 184 made adequate yearly progress (AYP) last year according to No Child Left Behind. To address lack of AYP, Butterfield said a great deal of training is being done, although there is a need for a central plan for professional development. She described BIA sponsorship of a week-long summer institute to improve administration, and efforts to improve the data collection system, including the Native American Student Information System.

Joan Mele-McCarthy, Office of Special Education and Rehabilitation Services (OSERS), (in absentia, in remarks presented by Peggy McCardle), reported that, according to the 2000 census, 4.1 million people report being Native American or Alaskan Native, and that Native American and Alaskan Native students represent about .9 percent of the U.S. total. In terms of special education, 79,000 students out of a national total of 500,000 American Indian and Alaskan Native students were identified in the 2000/01 school year for special education programs. In sharing this statistic, McCardle also pointed out the difficulty that teachers experience in determining whether or not these students are disabled, since they are unable to assess them in their Native languages. Several major issues were identified, including over-referral for special education, difficulties in recruiting and retaining teachers, high school drop-out rates, and poor educational achievement. Recommendations for addressing these issues include supporting research that will identify practices that work for the diverse group of Native American students in these various populations, facilitating parent involvement and helping teachers to facilitate this involvement, and facilitating interagency collaboration.

Culture, Language and Literacy.

Diane August, Senior Research Associate, Center for Applied Linguistics, began by describing how she had searched a major database which had been developed to synthesize literature on language minority students, to find studies that dealt with how language minority Native American children develop literacy, with the hope of describing the influence of various aspects of culture, including discourse and interaction characteristics, on academic engagement in performance.

In terms of key studies relating to discourse and interactional differences, she cited work done at the Kamehameha Early Education Project in Hawaii. One of these studies was conducted by Cathy Au, and involved the analysis of a sample reading lesson in a second grade classroom focusing on interactions between the teacher and four children. In this study, Au located 9 different participation structures that could be placed on a continuum ranging from those that resembled conventional classroom recitation to those that resembled the Hawaiian talk story. She found a high degree of joint participation in both the talk story and the lesson, and that the teacher struck a balance between culturally similar practices and practices that were important in the school environment. August also described another study conducted by Au, which found that children demonstrated much higher levels of engagement when classroom instructional interaction was compatible with the interaction patterns in Hawaiian children's Native culture.

August next described a study conducted by McCarty on interactional differences for American Indians. Based on the implementation of an inquiry curriculum for Navajo students developed around concepts of kinship, clanship and right relations with others and with nature, this study indicated that Native American students responded well to questioning during the lesson, even in English.

The studies suggest that Native American children benefit from explicit phonics instruction (Anderson and Watts, 1996; Tharp, 1982) when it occurs in the context of meaningful material. Other attributes of the effective programs include: the importance of keeping close track of student progress and using assessments aligned with the curriculum to guide instruction (Tharp, 1982; Au & Carroll, 1997; McCarty, 1991); instruction in small homogeneous ability groups (Tharp, 1982; Au & Carroll, 1997); active instruction of comprehension (Tharp, 1982); questioning that includes recall as well as requests for higher order thinking such as inference (Tharp, 1982; McCarty, 1993); a process approach to reading and writing (Au & Carroll, 1997; McCarty, 1993; Fayden, 1997); positive reinforcement to maintain child motivation (Tharp, 1982); and a system to monitor teaching and learning and make adjustments as necessary (Tharp, 1982; Au & Carroll, 1997).

Many the programs have components that try to create a bridge between the school and community culture through the use of Native American mentors (Anderson & Watts, 1996); culturally familiar text (McCarty, 1993); culturally-appropriate instructional strategies such as an "informal participation structure containing overlapping speech, mutual participation of students and teacher, co-narration, volunteered speech, instant feedback and lack of penalty for wrong answers" (Tharp, 1982: 519; Au & Carroll, 1997; McCarty, 1993), and use of the native language (McCarty, 1993; Doebler & Mardis, 1980-1981; Bacon, Kidd & Seaberg, 1982; Rossier & Holm, 1980).

As with all effective schools research, most of the programs evaluated here combine many elements and it is difficult to determine exactly what it is about the programs that made

them effective. For example, what we can conclude from Au and Mason (1981) and Tharp (1982), taken together, is that (1) instructional interactions that were part of the KEEP program contributed to higher levels (quantitatively and qualitatively) of student academic engagement, and (2) the program overall contributed to somewhat higher levels of measured student reading achievement. However, we do not know the degree to which instruction that accommodated children's native interaction styles made a direct, or even indirect, contribution to their literacy attainment. This therefore remains only a plausible hypothesis.

With regard to culturally-appropriate instructional strategies such as small group instruction, it is plausible that the programs are more effective *in general* and that children will respond more enthusiastically to the give-and-take nature of its reading comprehension lessons regardless of natal interaction patterns. For example, Saunders and Goldenberg (1999) found that the instructional conversation-only and instructional conversations and writing groups composed of Latino language minority students outperformed both the writing-only and control groups on factual and interpretive comprehension of the story. Thus, students who engaged in instructional conversations had better comprehension than those who only read or who read and wrote. What is lacking is a study examining hypothesized culturally accommodating instructional interactions with regard to their effects on distinct groups of students—those whose culture aligns with the intervention and others whose culture does not.

The research also indicates the difficulty of implementing new approaches to teaching, particularly those that are not scripted. For example, McCarty et al. (1991) document the reluctance of teachers and aides to “try a very different, open-ended questioning strategies and literature used in the inquiry curriculum [the researchers had developed]. “Their class schedules already filled by basic skills, many teachers resisted the intrusion of a new, unproven approach, insisting that ‘Navajo students won’t respond to questioning anyway’ ” (p. 48). The authors report that few teachers made use of the materials until they observed a demonstration lesson in which students responded actively. The KEEP experience highlighted the importance of supporting teacher change and the need for systems that are intensive, elaborate, and enduring to accomplish this. Two critical tools in supporting teacher change were the classroom implementation checklist and grade-appropriate benchmarks used to assess student progress.

What Do We Know and Need to Know?

David Grissmer, RAND Corporation, and **William Demmert**, Western Washington University, presented work that was part of a nation study in three phases being conducted in partnership with the Northwest Regional Education Laboratory, RAND and the Center for Research on Education, Diversity, and Excellence (CREDE): Phase I, literature search; Phase II, feasibility; and Phase III, assembly of ideas for research methodology and structure for a major study.

Demmert presented three theories of education developed in a report from the Northwest Regional Laboratory: cultural compatibility theory, cognitive theory, and cultural historical activity theory. He explained that some work for the national study would be based on these theories. He also listed six criteria for culturally-based education programs: recognition and use of Native American, American Indian and Alaska Native and Native Hawaiian languages as the language of instruction as a bilingual approach to learning or as a first or second language; a pedagogy that stresses traditional culture characteristic and adult/child interactions as the starting place for one's education; a pedagogy in which teaching strategies are congruent with the

traditional culture as well as contemporary ways of knowing and learning; curriculum that is based on traditional cultures which recognizes the importance of Native spirituality and places; strong Native community participation including partnering with parents, elders, and other community resources in educating children; and knowledge and use of the social and political mores of the community.

Grissmer outlined two major problems in studying Native American achievement: the smallness of sample sizes and the difficulty of defining Native American. He discussed data collected by the Early Childhood Longitudinal Survey (ECLS), which includes 400 Native American children. He presented data indicating that Native Americans generally have the largest gap with white students at the beginning of kindergarten, but that this gap decreases as schooling progresses. He explained how this initial gap could be accounted for by two sets of characteristics: family characteristics and community characteristics, and how family characteristics account for approximately half of the gap for Native American students, while for Black students, the entire gap can be accounted for by family characteristics. While community characteristics appear to have little impact on the scores of Blacks or Hispanics, they do have an impact on Native American scores. He broke down the family characteristics affecting Native Americans in greater detail, to include parent education, the learning environment in the home, and number of siblings. He also explained how the gap with whites is relatively small for Native Americans living in urban or suburban areas, but larger for those living in rural areas, and, although this is the case for all racial ethnic groups, the fact that 65 to 76 percent of Native Americans live in rural areas means that the overall score gap is large.

Grissmer cited two reports on NAEP, a student report and a school report, which are very different in their manner of identifying Native Americans. He concluded that data on Native Americans was improving, and cited two RAND reports, "Native American Children: The Gap in Research and Achievement," and "An Analysis of the Gap in Reading and Math Skills at Kindergarten Entrance for Native Americans." He was asked to address readiness measures and assessments that were used in the ECLS, particularly with regard to fine motor coordination. Grissmer replied that the reading and math test was a national test based on current reading theory, and that for fine motor skills the children were asked to copy drawings. He indicated that to his knowledge no data had been collected on the areas of talented and gifted students.

Substance Abuse Among Native Youth.

Joseph Trimble and **Gerald Mohatt** presented findings from their research on Native American youth. By way of introduction, Trimble offered several quotes: the first stated that one should never look for a psychological explanation without first trying to find a cultural one, and the second that school cannot be blamed for all social problems. He stressed the importance of taking into consideration what occurs when children are not in school, and pointed out how little research has addressed this subject.

Trimble identified positive out-of-classroom experiences as a factor that increases graduation rates, critical thinking scores and skills, and grade point averages. He presented statistics on drug and alcohol abuse among American Indian and Alaska Native populations, which indicate that alcohol is by far the substance most abused, and that Native youth abuse it more severely than any other group in the United States. The major factor contributing to this

abuse is peer influence; although families may discourage drinking, this influence is overwhelmed by the influence of peers. The same patterns exist for the abuse of other drugs among Native youth, and these youths admit that drinking has negative effects on academic performance. He also found that extracurricular activities do not help to prevent alcohol abuse by Native youths.

Mohatt began by talking about a research project suggested to him by a group of Alaska Natives, regarding why certain Alaska Natives do not abuse alcohol. He explained how they had addressed this question using life history methodology, and summarized the relevant variables. Family characteristics included having a safe and secure relationship with father and mother, having a significant other, receiving affection, and having limits and boundaries established by adults. Community characteristics included the existence of role models, a consensus with regard to limits, and places of safety. Other variables included a desire to become a role model and a sense of awareness of one's surroundings. The major risk factor for alcohol abuse was trauma, including trans-generational or historical trauma; Mohatt suggested culturally-based therapy and multidimensional curricula as possible solutions. He concluded by stressing the importance of out-of-school variables in conducting future research and interventions.

During the discussion, it was suggested that these findings be translated into Native languages. Another comment was peer groups are important in issues of language and culture, since children speak the language of their peers.

Neuroimaging in the Study of Reading, Native Language and Education.

Elise Temple and **Ken Pugh** discussed the use of functional Magnetic Resonance Imaging (fMRI) in the study of language and learning activities. Temple provided background information on fMRI techniques, explaining how MRI allows one to see soft tissues, such as the brain, by detecting increases in oxygen flow. She outlined the advantages of MRI, such as its non-invasiveness, as well as its limitations, such as the fact that one has to remain very still. This technique is one being used to investigate brain functions required for reading to develop as well as the neurobiological basis of reading disability or dyslexia. Temple indicated that there is a growing consensus that poor readers have the greatest difficulty in phonological processing, and that fMRI has shown decreased activity in the left tempo-parietal cortex. Researchers have begun to examine whether this disruptive brain response, initially found in adults, is also present in children. Temple and colleagues found results similar to those found in adults with reading disabilities. She described use of an intervention in children, FastForWord Language, and indicated children with reading difficulty, tested before and after the use of this program, demonstrated significant improvement in reading and language and an altered brain response as seen in fMRI. She cautioned that, since other training programs had not been used, it was uncertain which effects were due to the specific program. In addition, further work is needed to examine individual differences in students in response to the training.

Ken Pugh began his portion of the presentation by telling the group that one breakout group had met to discuss putting together a taxonomy of the different languages presented at the Colloquium in terms of their syntactic, morphological and phonological properties, with the aim of enhancing the development of training tools and optimizing print exposure in ways that are culturally bound and relevant.

Pugh then discussed the relevance of neurobiological tools for two goals: separating

reading disability of a congenital sort from reading disability of an environmental sort in populations of children where there is a tendency to over-diagnose or to misdiagnose, and developing programs of instruction or remediation to help children progress from reading accuracy to reading fluency. He explained how the brain must reshape processes in the visual and association regions in order to read; while the brain has specialized systems for speech, it has no such systems for reading. Thus, reading is a challenge that makes use of brain plasticity. In his and colleagues' research, they explored the underlying neurobiological mechanisms associated with the development of skilled and fluent reading, as well as neurobiological signatures of reading disability, and the normalizing effects of specific approaches to intervention and training on these signatures. He showed results of an fMRI study comparing the processing of spoken and printed language in skilled, non-impaired adult readers, concluding that when one learns to read successfully, a large portion of the cortex becomes trained in print-to-speech translation. Further, print and speech become integrated in the skilled reader, as evidenced by the close proximity of print and speech regions in the brain.

Pugh explained how, in the absence of having built these specialized reading circuits, reading-impaired children essentially develop an altered circuit, illustrated in a cross-sectional study of 7- to 17-year-old readers. As normally developing children grow older and become more proficient readers, they show increased activity in the left ventral cortex, and decreased activity in the right hemisphere and the frontal lobe. The children with reading disability, however, show increased activity throughout the brain.

In addressing the normalizing effect of intervention, Pugh showed data from an intervention by Benita Blachman which demonstrated that one year after treatment, large gains had been made in the treatment group relative to the control group; two years later, compensatory activity in the right hemisphere was decreasing in the treatment group. Pugh then illustrated how the identification of a neurobiological signature of successful remediation for a given population of children allows one to discriminate between better and worse approaches, and addressed the relevance of fMRI brain mapping to multi-lingual populations. Since skilled readers in all languages develop the same neuronal pathways through the ventral cortex, the neurobiological signatures of reading disability should be demonstrable in any population. He concluded with the statement that more longitudinal studies are needed addressing reading disability in different populations, in order to understand the neurobiological trajectories and determine whether they are similar or different in their timing and their sequence in different populations, to determine whether this neurobiological trajectory depends on factors that are specific to any given language, and to contrast multiple approaches to instruction using these neurobiological markers as a tool.

In the discussion that followed, Temple and Pugh were asked whether they interpreted their findings as an indication that reading disability is caused by environmental factors. Pugh replied that there is a connection to genetics and brain-building mechanisms, but that genetics and the environment also interact in such a way that an optimal environment can have a positive effect. Another participant pointed out that research has demonstrated that intensive treatment programs have the greatest impact on children with reading disability. Temple responded that animal research has shown that intensity does, in fact, best drive plasticity, and Pugh commented on the issue of dose-dependency with regard to intensity. In response to a question regarding critical period and plasticity, Temple stated that, if there are critical periods for reading, they are not as hard and fast as one might have been led to believe. In response to a question on definition

of reading disability, Pugh stated that a reading disability implies a struggle of an internal sort as opposed to a struggle of a cognitive or environmental sort. Another participant commented on how she was encouraged by the possibility of demonstrating that, if the regions of the brain involved in reading are well-developed, then children can easily learn to read in another language, even English.

Cultural Pedagogy and Educational Policy

Roland Tharp began his presentation with the comment that current educational policy levies a heavy burden for evidence, which is difficult for the implementation of culture-based education programs. He shared his view that the level of failure of standard educational programs with Native American students was so persistent that they are the ones that ought to be justified on the basis of experimental field trials, rather than the cultural-based programs.

Tharp then compared the relative effectiveness of Euro-American and Native American pedagogies in the processes of socializing and educating from a historical standpoint, showing how Native American pedagogy was the more effective. In particular, he pointed out the fast acquisition of literacy by the Cherokees, and the almost universal ability of Native Tribes to incorporate white prisoners into their cultures. The strategies used in both of these cases involved joint activity of meaningful association of the development of common language and symbol, or the application of traditional pedagogy and socialization, processes that were the same as those associated with contemporary research on effective pedagogy for Native American classrooms.

Tharp described Native American pedagogy from a contemporary research perspective, outlining work initially done in the 1960s and '70s to determine how to adapt schools to specific cultures. In the 1980s, variables among cultures and programs were examined for consistency or variability; in the 1990s, more work was done to determine if there were any universal principles across cultures; and currently pedagogical programs are in the process of being created and evaluated. He listed CREDE's standards for effective pedagogy: joint productive activity, language and literacy development, contextualization and making meaning, teaching complex thinking, and the use of instructional conversation. He added two standards specific to Native American populations: modeling and demonstration, and student-directed activity to encourage student initiative. When these standards were formally examined, Tharp said they were associated with higher student achievement, engagement and satisfaction. He concluded with the statement that the pedagogical processes used within Native communities are deeply tied to the basic definition of being human, and need to be restored into formal education.

In the discussion that followed, Tharp was asked if there were any models for using this way of teaching in non-Native American programs that have shown success. Tharp replied that most of their published research had been done with Latino groups, but there is also evidence with African-Americans and poor students in Appalachia. He commented that the study of Native Americans, being the nearest surviving example of the true expression of our biological nature, allows for the discovery of ideas that are applicable to other groups. He cited a book, *Teaching Transformed* (R. G. Tharp, P. Estrada, S. Stoll Dalton, L. A. Yamauchi, 2000) that outlines these techniques, and expressed his hope that the next research agenda would require a more rigorous professional development component. Some discussion also focused on the importance of using the same standards to train teachers as to train children; for these methods to

be successfully implemented, this will be crucial.

Biology, Environment and Culture

Robin Morris pointed out that reading is a useful model for examining the interactions between biology, environment and culture, and emphasized how the socialized educational system changes the way that language and literacy are learned. It is difficult to distinguish between biological and instructional casualties until adequate instruction has been implemented. Longitudinal data have shown that many children with reading disabilities never catch up, and that the longer one waits, the more difficult it is to make those changes happen. Many factors influence reading ability, including motivation, neural and biological factors, economic disadvantage, cultural and linguistic diversity. He reported a study in which he and colleagues examined the additional complexities presented by bi- and multi-lingualism, including issues of language proficiency and preference. This study focused on the impact on learning for children going to either an all-English or an all-Tagalog school in the Philippines; nearly all of these children speak both languages at home. The study examined word recognition, fluency in reading, and comprehension in both languages. He commented on some of the difficulties involved in developing measurements for bilingual research. In their study, Morris and colleagues found that, while reading decoding was based on phonological awareness, reading comprehension skills were better predicted by language preference. Importantly, Filipino instruction did not have a negative impact on the development of English reading skills. Morris encouraged others to conduct similar studies in other languages, in order to better distinguish between the effects of language differences and reading differences.

Morris also described a series of intervention studies examining the influence of socio-economic factors on reading outcomes in second graders. The result of one study was that, while socio-economic status impacts starting points in children, it does not impact instructional effectiveness or remediation effects over time. He concluded that, with regard to the many factors that may influence reading development, all children are different, and the factors are more complex than we think. Therefore, a systematic approach must be taken in studying them.

In the discussion stimulated by this presentation, questions were asked about research on the performance of bilingual children in 4th, 5th and 6th grades; it was commented that Diane August had found that native Spanish speakers are able to transfer their knowledge of Spanish reading to the English language, in much the same way that Tagalog speakers are able to transfer their skills to English literacy. Comments were also made regarding the importance of connecting culture to literacy in maintaining student motivation and in maintaining student-community connections and identity, and suggested several means of maintaining and developing other languages outside of the classroom. It was agreed in discussion that one of the major problems in teaching reading has to do with the initial gaps, and that programs needed to be developed to compensate for these gaps. There is a need to address pedagogy issues, perhaps even before addressing language issues. A research program is taking place in Greenland on indigenous pedagogy and Greenlandic values, which US researchers may want to follow. Ms. Fox, from the National Indian School Board Association, mentioned the development of a program in which Indian literature was infused into the reading programs; this program positively affected the teaching of reading and learning for special education students at the 16 schools where it had been tested; she hoped that this work would be made more available.

Innovative Programs

Window Rock Unified School District. **Florian Johnson** and **Jennifer Wilson**, described an immersion school which uses Navajo as the language of instruction, started in response to community feedback saying that Native language and culture should be made a part of Navajo children's education. Johnson gave an overview of data showing the language shift over a ten year period. In one location on the reservation, Fort Defiance, initially about 89 percent of kindergarteners spoke Navajo, while only 11 percent spoke only English. Ten years later, only 3 percent spoke Navajo, while 97 percent spoke only English. In other areas served by the District, families had not spoken Navajo for several generations; attempts are being made to revitalize the language in these families.

Johnson explained how, in a language immersion program, Navajo was being taught through context rather than through direct study of the language, so that Navajo becomes the basis for academic learning. Language and culture cannot be separated; cultural components must be integrated in the language learning, and the immersion program makes learning relevant to the students by reflecting on their life experiences.

Wilson explained how the larger district of Window Rock was currently working on alignment. The written curriculum contains two components: the Arizona Academic Standards and the Navajo Nation's Cultural Content Standards. This means that all standard areas are taught in a culturally relevant way through concepts that the students understand from their background. She emphasized the high retention rate of teachers at the immersion schools. In place of the benchmark testing used in the rest of the district, the immersion school had developed curriculum-based measures for oral reading fluency in both Navajo and English. The purpose of these curriculum-based measures is both for benchmarking and for monitoring student progress. The school is trying to create a learning climate and to set clear learning expectations. By sixth grade, students at the immersion school are proficient in both Navajo and English, and no student who started in immersion has failed to graduate.

Johnson described how immersion had begun in Window Rock in individual classrooms, but the program had later been condensed into one building to create a more Navajo-language-rich environment. He also described several ways in which the immersion school encourages parents to learn along with their children. He ended by giving statistics that indicated that immersion students meet or exceed standards better than do mainstream students.

In response to a question about the criteria for entering the immersion program, Johnson replied that it was based entirely on parental choice. The immersion program is a federally program.

Santa Fe Indian School. **Joe Abeyta**, Director of the Santa Fe Indian School, stressed the importance of having a culturally-based education program at the school, but also commented that this could be challenging at times, since such programs do not always fit the law. He also emphasized the need for more value to be placed on the educational experiences that have existed in Native communities for centuries, and for these experiences to be made available to children in the classroom. Although the school is not old enough to have the benefit of research, he personally vouched for the good results that come from sharing a learning experience with children that is from a perspective with which they are familiar. Abeyta spoke of the importance

of having Native teachers with whom the students could communicate. He gave a specific example of culturally-based education at the school, which he referred to as community-based education; the school used the Cochiti dam as a special project, having students actively engage in identifying and solving a community problem while gaining skills in math and science. Abeyta urged administrators not to be intimidated by educational research and literature. He concluded by saying that, if you give children a fighting spirit, then they will fight for success.

Washington State. **Denny Hurtado** and **Magda Costantino** described their experiences implementing a curriculum currently being used in various Washington State schools. Hurtado listed the four discoveries that had been made upon the production of the document entitled “Reading and the Native American Learner:” there was very little research on Native Americans, the history of Native Americans affects how they view education in America today, Native American children enter school with underdeveloped communication skills and and there is a sociocultural and sociolinguistic discontinuity between the skills that many bring from their home culture and what is expected from them at school. He stated the belief that relationships were the key to addressing these problems, and that they had decided to develop a reading program, since reading is the gateway to success in today’s world. He explained how, as a result of the program, Native American students had made significant gains in reading over the past seven years.

The curriculum had been created as a result of input from cultural specialists, curriculum specialists, and members of the tribal community. In the end, they developed a curriculum aligned with state standards and acceptable to the tribal community. Hurtado has obtained agreement from seven tribes and seven school districts to focus on reading; the entire program has been put on CD ROM and a training videotape has been made to accompany the curriculum. In addition, a school in Olympia with no Indian students has started using the program, which is thus helping to develop a better general understanding of Native Americans as a people. He added that any culture could infuse their content into this interdisciplinary curriculum.

Costantino went into greater detail with regard to the development and content of the curriculum. The initial input given by tribal teachers and cultural specialists was transformed into a set of essential questions and a set of guiding questions that became the scope and sequence of the curriculum. They developed a set of activities around a central story through which they addressed the development of oral language skills, reading skills and reading strategies. Measures were taken to ensure the authenticity of the central story, and the community was further involved by having the children take questions to elders. She described the strategies of tell/retell and write/rewrite, as well as the strategy of comparing and contrasting traditional and contemporary cultural characteristics for the purpose of cognitive development. One teacher had described the curriculum as having ignited students’ passion for reading.

Piegan Institute, Nizipuhwahsin School. **Rosalyn LaPier** discussed the Piegan Institute, a private not-for-profit organization on the Blackfeet Reservation, and the Nizipuhwahsin School, a Kindergarten through grade 8 Blackfeet language immersion school on the reservation. The school is broken into three classrooms by age groups, and the entire curriculum in the lowest level classroom is in the Blackfeet language, while the middle classroom program is divided between English and Blackfeet, and the upper classroom, consisting principally of eighth graders, makes an intensive study of the Blackfeet language. She explained how they taught

formal Blackfeet at the school, as well as high-level Blackfeet to the eighth graders, which is a more ancient form of Blackfeet. The school has been in existence for nine years and has graduated several classes of eighth graders, all of whom are in public high school and doing well.

LaPier reviewed the six characteristics of CBE given by Demmert, and gave examples of how Nizipuhwahsin addressed each of them. Among these examples, she described constantly working within the community in which they lived, teaching children the social skills they needed, such as the skill of listening. She commented on how non-institutional the school is in terms of atmosphere, and how they teach science to incorporate traditional ecological knowledge with contemporary ways of knowledge. Further, they attempt to teach Blackfeet lifeways as something in the present rather than strictly from the past, and to incorporate contemporary activities. LaPier stressed the interdisciplinary nature of the curriculum, using the incorporation of summer research within the academic year as an example. She then spoke of the school's use of elders and parents as an example of strong Native community participation. Finally, she addressed the continuing education of teachers and administrators, which aids them in defending the school against its many critics.

Lower Kuskokwim School District. **Nita Rearden**, described how the Lower Kuskokwim School District (LSKD) has developed a Yup'ik language curriculum based on English standard education, taking what aspects they could and translating them into Yup'ik. LKSD provides education programs to 3,800 school children, 85 percent of which are part of the Yup'ik culture. She added that the Chup'ik language was a critical component of the district's curriculum and instructional program, and that both language programs had their own continual and phase level criteria. She explained how the Yup'ik and Chup'ik educational models focus on the development of literacy and math skills in the primary grades, and that materials for both subject areas have been published, including books by local authors. Rearden emphasized the importance of these materials in giving children something from their own environment with which to relate. Every child has a student assessment performance record and individual profile, and the comprehensive literacy program consists of reading, writing workshop and word study. They use Yup'ik Saxon Math. Rearden is responsible for the cultural orientation of new teachers coming to the area; she gave an overview of assessments given in Yup'ik.

Pünana Leo. **Kauanoë Kamana** explained that the primary goal of Pünana Leo is to effect social change in Hawaii, in particular to keep Hawaii Hawaiian. Since language is the binding cord of culture, the first step toward this is to revitalize the Hawaiian language. As a result, Pünana Leo was founded in 1983 with the goal of establishing Hawaiian language preschools and follow-up programs. She described the teachers, who are primarily second language learners of Hawaiian. Hawaiian is used exclusively at Pünana Leo with students, staff, and even in the business offices.

Kamana spoke of several traditional ideas, including the importance of being conscious of one's surroundings, knowing both how to lead and how to follow, learning by watching and listening, and understanding that the group is more important than the individual. She explained how these ideas are incorporated in learning at Pünana Leo, and described how traditional Hawaiian ideas were used in the organization and administration of school, including good listening.

Sakha College of Teachers, Russia. **Rosaliya Gerasimora** and **Olga Chorosova** discussed the social mood of teachers of general secondary education in the Sakha Republic. In general, they said, although social circumstances, work conditions and salaries of teachers are very poor, their motivation for innovation is high. The main goal of teachers in the Sakha Republic is to help children adapt to live in modern society.

The Changing Status of Yakutian Women. **Anastasia Okonesshnikova** discussed the changing values of Yakutian women throughout the last century, related to cultural and indigenous language in the Sakha Republic. The presentation was given in the form of photographs with accompanying explanations. Okonesshnikova showed photographs depicting Yakutian women around 1900, describing them as clever, calm, tolerant and wise. They held property and obeyed national traditions and customs. During the revolution, Yakutian women lost their dignity, property, and activism, but regained patriotism and social activism as a result of World War II. Some Yakutian women began to become more educated by Nikita Khrushchev's time; modern Yakutian women have high national consciousness, level of education, and have the right to own property. She ended her presentation by saying that, since the last century rested on the shoulders of Yakutian women, she hoped that the next one would rest of the shoulders of Yakutian men.

Comprehensive Summary of Culture-Based Education Programs.

David Beaulieu, Arizona State University, presented an assessment of culture-based education (CBE), drawn from a project to determine the feasibility of doing experimental research on CBE and its impact on the academic achievement of English students. He reported several comments that he had heard on the importance of supportive, traditional extended families in Indian American education, and explained how these comments had reminded him that learning is a sociolinguistic activity, which cannot be separated from culture. Thus, if CBE is to have any influence, it must be centered on social activity and teaching in schools.

Beaulieu continued by listing and describing the three federal laws that represent possibilities for culturally based education in the United States: Title VII of the Indian Education Act, The Native Languages Act, and the Union Religious Freedom Act. He described these statutes as being of two types: one educational in character, and the other expressing the Federal Government's protective responsibility to Native languages and cultures. The programs supported by these statutes include approximately 145 Native language preservation programs, which include grants to American Indian tribes, Alaska Natives and Native Hawaiians.

Beaulieu examined a sample of grant applications for the formula grants under Title VII; he found nine types of approaches used by schools in the country, five of which were culturally-based, and four of which were not culturally based. Over 60 percent of all Indian education and formula grants were not culturally based, and there was a very high correlation between Native student population density and the presence of culturally based education programs. He described the non-culturally based education programs as mostly involving additional instruction time, and listed the five types of culturally based education programs as follows: Culturally based instruction, Native language instruction, Native studies, Native cultural enrichment, and culturally relevant materials. Beaulieu concluded that CBE is not prevalent enough to be blamed for any of the bad statistics that are seen regarding Native education. As a solution, he suggested that more focus be placed on the integration of the social linguistic fabrics of communities into

the ways in which learning occurs in the schools.

Issues and Challenges

In breakout sessions, participants were asked to address a series of questions. First, in terms of education, culture and language, they were asked to outline the major educational issues facing Native American people, what solutions have been identified in addressing these and what others might be considered, which approaches appear to be the most appropriate for improving academic performance of Native American students, and implications for practice. Similarly, participants were asked to discuss the implications of health, social and psychological issues, whether there are specific instructional and/or interpersonal approaches that might optimally be used to enhance the development of Native American students, and what practices might be used to enhance academic performance and social and cultural maturity. Finally, participants were asked to consider research approaches, methods and their potential implications. One particular topic was the potential implications for and challenges to using neuroimaging research in Native American communities. More generally, they were asked to offer their thoughts on what research methodologies or specific approaches are appropriate for consideration in the Native American community.

Major Issues/ Needs

Colloquium participants identified the following major issues, which need to be addressed to move forward both in research and practice in education for Native American students:

- Theories that address the needs for Native student education, including the importance of motivation and its links to achievement, sense of self in students/ personal identity.
- Sensitivity to and thus avoidance of a deficit model; valuing and promoting biculturalism. This should include the use of the knowledge and cultural practices of communities in the schools and the need for systems-level thinking.
- A clear and consistent message about bilingual education. (It was noted that, while students need to have their language abilities valued, there is little support within the United States for bilingualism or bilingual education, and a need for research evidence to support positions that are taken regarding these issues.)
- Literature reviews/ syntheses of both quantitative and qualitative literature to learn, for example, what case studies can tell us regarding planning additional research, and what longitudinal and experimental studies have already been done which can be built upon.
- Additional research and research funding for work with Native populations, with a specific focus on the optimal methods for research on how to improve academic performance of Native peoples.
- Competence of all involved in the educational system, including issues of professional preparation and development, certification, supervision, recruitment, and retention, at all levels from the highest administrators to teachers and classroom aides.
- Links to information and activities from our international counterparts on how educational research and practices are proceeding among indigenous peoples in other parts of the world.
- How the imposition of a “western” approach to education impacts Native students, families and communities. Can there be an alignment of state and federal policy with the

unique expectations, requirements, and goals of Native-based education? Can a means be found to get states and federal entities to support tribal community beliefs and practices in a partnership/ collaborative relationship? There was a call at this meeting to involve the entire community and parents as an integral part of the education process, but with the community rather than the school as the center, where outcomes of activities in that center might not be same as you get in western structured school.

Challenges

These major issues cannot be addressed without overcoming several challenges, both in the research and in the practice domains.

Within the **research** area, the major challenges identified were as follows, some of which naturally overlap with practice, since an ultimate goal of research is to inform and guide practice:

- Coordination (integration) among different research approaches, to improve both the amount and quality of research.
- The development and validation of new measures and new interventions, which must be culturally appropriate; this should include recognition of language varieties within Native languages.
- Being able to distinguish among psychological, social, and cultural effects as they relate to student learning.
- Addressing over-representation of Native students in special education, accurate learning disability identification, and under-identification of gifted/talented students.
- Building collaborations among researchers and practitioners to design and conduct research; such collaborations should include not only schools but also parents and communities, and must address issues of trust among researchers, schools, and communities.
- Rural as well as urban and both on and off reservation students and schools must be involved in research and in practice innovation.
- The relation between in-school and out-of-school time and activities in learning and development must be taken into account.

Specifically within the area of **educational practice**, the following challenges were identified:

- The translation of research to both policy and practice.
- Building educational institutions and systems that are congruent with the daily lives of the students and community.
- Addressing over-representation of Native students in special education; accurate identification of special needs students, both in terms of language and culture – this is not only a language issue.
- Under-identification of special needs students (both in general and for specific problems such as emotional disturbance); limited resources for service provision for those special needs students (both with disabilities and special gifts or talents) who are identified, especially in small, under-funded schools; and the provision of appropriate accommodations for special needs students.

- Address how to provide services to those who need them (especially early intervention/prevention) without labeling since labels last a lifetime; a first level of educational intervention should address the unprepared student, and unprepared does not equal disability.
- Issues of control: Addressing the disconnect between schools and native communities, and whether local control is really local, since it is not clear whether in public schools mainly serving Native students, Native families and communities have a voice in control.
- Recognition of goals: Schools, state and federal governments and Native communities may have different goals or different instantiations/ interpretations of goals statements. A major issue is preparing students not only for life in the outside world, but also for life and leadership within their home communities. This includes the need for a complete educational system with the same goals and general strategies from pre-K through university.
- The low number of Native teachers; white teachers with low expectations of Native students, leads to lower self-confidence among students.
- Appropriate teaching methods and materials; these should incorporate the knowledge and wisdom of elders in the community. There is a need for an infusion of language and culture in the topics of study within curricula.
- Appropriate resources are needed for teachers and for teacher training.
- Appropriate diagnostic materials are needed in all subjects.
- Legal issues: the network of legal and bureaucratic constraints can strangle initiatives for culture and education, and limit creativity and innovation.
- Community involvement.

Solutions

Having identified challenges, participants were charged with brainstorming possible solutions. The solutions, like the challenges, addressed first research, then practice, albeit with some overlap. The following **research** solutions were suggested:

- Increase research on both big picture and more focused smaller studies, but seek a balance between the two.
- Increase number of Native researchers; establish partnerships between tribal colleges and major universities to foster the new generation of researchers.
- Conduct longitudinal studies to explore the long-term effects of immersion programs and language revitalization efforts on students, families and communities.
- Work collaboratively on how research questions are worded, since this can affect how they are investigated; research should attempt to incorporate a Native perspective.
- Increase communication among researchers, practitioners, policymakers and members of Native communities to decrease the mismatch between what various groups consider “evidence.”
- Develop a network of researchers nationally to communicate and collaborate, thereby strengthening research overall, and maximizing opportunities and potential for data comparison, replication and sharing.

Within the area of **educational practice**, the following potential solutions were offered:

- Focus on parental involvement; make schools welcoming places for parents and family, to bring together the expectations of family, community and school.
- Increase local control and involvement in schools and in curriculum development.
- Share and publicize information from successful, innovative programs; gather, analyze, and disseminate information on high-performing programs involving Native students.
- Develop and test programs that are effective without being prescriptive in ways that are not culturally appropriate for Native students.
- Develop a clear statement about the differences between “meaningful” and “effective” so that the two concepts can be unified in programs.
- Work toward more and better preschools, with parent education and involvement a priority and with high sensitivity to community, culture and language.
- Allow for variation in what constitutes success or failure on a local level, linking this to educational goals of the state, district, school and community.
- Allow for different educational trajectories. It is not unusual to have Native students drop out for a period, so allow for interruption of education to meet other goals or responsibilities, and facilitate re-entry.
- Develop a central resource center for materials for Native students and teachers. This could be a repository web site of grants/research projects, reports and gray literature, research findings and their applications.
- Develop, test and provide ongoing professional development that is based on and incorporates attention to teacher needs.
- Provide incentives to encourage well-qualified teachers to go to rural areas.
- Identify teachers who have learned their language and culture in the community vs. in the classroom, and link the two in positive ways to enhance the cultural knowledge and competence of all teachers.
- Develop and promote efforts to identify teachers within communities; develop innovative approaches to teacher accreditation for Native schools.
- Look at past programs that worked and replicate or draw from them for new ones (e.g. Teacher Corps; Greenland’s creation of a new college for teacher preparation that takes into account the social and economic constraints of those who would otherwise be good teacher candidates).

Blueprint for Research on Native American Students’ Educational Issues

Before presenting this research blueprint, which represents the suggestions of many individuals who participated in the two meetings that were held, or provided input via email on the draft version of this document, some caveats must be offered. It was noted repeatedly throughout both meetings that, while the overarching term Native American is used, it is clearly recognized that not all Native American groups are the same. Even within the subcategories of American Indian, Alaska Native, and Native Hawaiian, there are subgroups with distinct cultures, traditions, and languages. Any research would need to take this into account.

Necessary Conditions –

Colloquium participants indicated that, to move forward with research on this important area,

there are major needs that must be met.

1. Tribal approval of research projects involving a majority of Native American students or being done in Indian or Native American Schools (whether public or private) should be obtained.
2. Researchers need to become more knowledgeable about mixed-methodology research, and the field (both researchers and practitioners) must become aware and appreciative of all stages of research and what can be learned from them.
3. More and better research tools are needed; this includes not only the development of new and better measures, but also the development of innovative approaches to the integration of qualitative and quantitative research.
4. In order to test the efficacy of culture-based education instruction and interventions, there must be sufficient teacher preparation / professional development in place to reliably implement those instructional/ intervention programs, and sufficient expertise within the research teams to monitor and document fidelity of implementation.
5. Researchers must be able to think about Native student education at a systems level (where system could be, for example, the classroom, school, district, state, community, or family), and collaborations among tribal colleges and major research universities to conduct research and to increase researcher capacity within Native populations.

Types of Research Needed –

The following are some of the types of research that are needed. This is not an exclusive list, nor is it all-inclusive, but simply gives some examples of what is needed. There certainly are additional research needs, and each research team that is formed will surely have its own issues and questions of interest, and these will drive the methodology of any research plan. Given these caveats, we present types of research indicated as needed by colloquium participants and others commenting on the draft versions of this document:

1. Research is needed using varied methodologies. While experimental effectiveness studies are crucial, there is also a need for other types of research, including research using mixed methodologies.
 - a. Exploratory research that assesses the potential for using many of the unique circumstances and programs present in indigenous cultures for evaluating “natural experiments” and assessing tradeoffs between natural experiments and initiating random designs.
 - b. Research using data from the three national studies that have extant data bases (National Assessment of Educational Progress, Early Childhood Longitudinal Study [ECLS]- Kindergarten, and ECLS- Birth cohort) that have for the first time sufficient samples of Native Americans to do fairly sophisticated statistical analysis exploring the unique and common (across race/ethnicity) factors important to Native American educational outcomes from birth through at least eighth grade.
 - c. Policy case studies of other nations, examining how they define culture-based education, and how and why they use and support this approach.

2. There is also work needed on the development of or adaptation of research methodologies. This is as an overarching need for the study of educational issues for Native American students and their families, communities and schools.
 - a. Cultural-based methodologies to enable the study of effectiveness, indeed to define what will constitute acceptable and appropriate measures of effectiveness, to avoid cultural incongruence in designing and conducting the research and in reporting and interpreting the results.
 - b. Comparative studies of indigenous vs. social science methodologies to aid in defining programmatic domains. For example, is the social science process of interviewing and surveying adequate for specific cultural groups in understanding, defining and thus incorporating into both research and practice the various domains of early childhood development? If so, what adaptations may be needed?
3. A major focus is needed on measurement. Work should broadly include construct equivalence, measurement equivalence, and development of measures for assessing e.g., cognitive development, language development, academic achievement, for identifying those who need interventions, and for the monitoring of student progress.
 - a. New measures that are culturally (and where applicable linguistically appropriate, i.e. in Native languages). These could be researcher-developed or could be produced by test publishers; measures are specifically needed that would address culture-based education.
 - b. Adaptation of existing measures to be culturally or linguistically appropriate for use with Native students. Researchers were urged to take into account the degree of alignment between states' academic standards, classroom instruction, and assessments used with Native populations in selecting measures and in using data or interpreting results from school district or state level assessments.
 - c. Measures for identification of learning disabilities in Native students. Again, culture and language will be important factors to take into account in the development of such measures.
4. Studies are needed of the efficacy of culture-based education.
 - a. First, an operational definition of culture-based education must be developed, and used consistently within any study; ideally an agreed-upon definition could be used across studies to enhance comparability and /or integration of results.
 - b. The effectiveness of professional development programs for culture-based education, using experimental design, should be examined.
 - c. The effectiveness of cross-tribal studies of culture-based education localized in different ways for different tribes, in terms of student outcomes, will be important to understand similarities and differences, so that sharing of programs and materials can occur while preserving effective elements or adapting as necessary for specific groups of students.
 - d. Quasi-experimental studies are needed to analyze indigenous knowledge systems as they are incorporated into or affect instruction/ student learning in conjunction with schooling.

5. There is an overall need for concept definition and clarification, as noted above in defining and measuring culture-based education.
 - a. Defining the domains of childhood and adolescence using traditional methods would include understanding how cultural conceptions of child development and how these compare with or relate to conception of domains of child development in current developmental science. Comparative studies of the knowledge base produced by the two systems could be enlightening, and could ultimately form the basis for experimental or quasi-experimental studies.
 - b. Exploring and defining the views of indigenous culture toward traditional scientific research and how research might be shaped to be recognized as valid in these communities will be important to communication and to acceptance of research efforts.

6. Definitive research to explore the possible trade-offs, if any, of providing culture-based education (what type, for how many grades, etc.) and more traditional education geared toward economic success in the larger community. It may be that these are mutually reinforcing. There are a variety of studies, which can address this overall issue, at least some of which should employ experimental or quasi-experimental design.
 - a. Factors that determine the current attitudes and/or might shape future attitudes, preferences and implementation of parental choices for different types of schools.
 - b. The effect and impact of technology as it is being used or could be used in indigenous communities to support education, and of the potential for expanded use perhaps.
 - c. Neuroimaging research comparable to that done on reading, language, learning and learning disabilities in other populations.
 - d. Effectiveness of after-school activities, and the outside-of-school lives of children in the communities, and how these link to and impact education outcomes.
 - e. Ethnographic and mental health studies that communities can contribute to and participate in, that could help understand the interface between community and school in mental health issues, youth emotion development issues, risk factors, and young people's thinking and perceptions.
 - f. The overall value, impact and effectiveness of family and child education programs, and the circumstances under which they provide the most benefit.

7. Language, with its clear link to culture, is a major topic for research, which will require various types of research.
 - a. Studies of student outcomes in Native language-based education, in terms of at least Native language fluency, English language abilities, and reading. Several specific issues were raised regarding Native language instruction:
 - i. More needs to be known about the written forms of some Native languages, to ensure that the language is being taught as effectively as possible.
 - ii. Work is needed on determining the optimal age to switch from the Native language to English.

- iii. Neurobiologic studies including neuroimaging could be important in learning more about the various languages in comparison to one another and to English, and about the impact of instruction/ intervention in oral language and reading.
 - iv. Studies of community attitudes toward language immersion schools may indicate what aspects and/or outcomes can influence community attitude toward Native language instruction.
 - b. Studies of different approaches to teaching language to Native students, including both Native or Heritage language instruction and English instruction. This should include the effectiveness of these different approaches, which seem to work best for which students and under what circumstances (e.g. classroom situations, school and community context, and teacher abilities/ preparation), and should build upon existing research on Heritage Language programs.
 - c. Improved measures of oral language, with both sociolinguistic and anthropologic perspectives informing the assessment of language abilities.
- 8. There is a need for research on teacher preparation and ongoing professional development. Several questions were suggested for exploration under this topic.
 - a. How do we infuse into teacher education programs teaching the skills that will enable teachers to be culturally competent? This will of course require an operational definition of “cultural competence.”
 - b. What are the benchmarks for knowing institutions are able to teach or instill cultural competence in teachers, and how can this be measured in teachers or students seeking to be teachers? And how can this be incorporated into professional development for teachers?
 - c. How can technology be used more effectively to deliver high quality professional development for teachers?

Research Priorities:

While all of the suggestions for research included in this document are considered important, the input received from colloquium and workshop participants as well as others who emailed comments indicated that the following should be given high priority:

- Increasing the number of Native American researchers.
- Increasing the extent to which research on Native students is community-based, participatory research, and ensuring the inclusion of a variety (and where possible a combination) of research methodologies.
- Defining, examining, and addressing the achievement gap.
- Examining the effectiveness of culture-based education in comparison to existing instruction.
- Focusing on early childhood development.

Next Steps for Education:

While research is needed, there are also steps that can be taken in the classroom and in the educational context while we await such research results. Thus, the following suggestions for next steps in education are offered, again by the participants of the colloquium and from others commenting on the draft versions of this document:

1. Translate new knowledge created through research into educational practice, and integrate the Native communities' view of wisdom into the new knowledge base.
2. Recognize that all education no matter where it happens is culture-based. Which culture should predominate and who makes those decisions, especially in the face of globalization, is an important consideration for all educators. The research and practice on all educational programs should be considered and incorporated where appropriate and feasible in education practices.
3. Examine work on indigenous people's education more generally. Educational practice can benefit from a closer look at programs that exist nationally and internationally that involve indigenous populations or culturally distinct populations, how they were developed and how and why they are successful.
4. Examine existing approaches to program evaluation and incorporate evaluation in the planning and implementation of any new (or existing but unevaluated) programs. The fruits of any such program evaluations should be shared broadly, via a central clearinghouse, publications, or via any networks or list-serves that exist.
5. Develop more high quality pre-K programs, which include parent education. Such programs should incorporate what is known from research about such programs, and developed to be culturally appropriate.
6. Identify, describe and study programs which are actually closing the achievement gap for Native American students, and share that information broadly. Similarly, recognize programs that are increasing the gap for these students, and implement changes rapidly in such cases, using available research information where available and using promising practices that have been identified when research information is not available.
7. Make use of the cultural experiences and knowledge of Native teachers to both incorporate cultural practices into implementation of instruction and learning in the classroom and to train non-Native teachers in the area of cultural practices, beliefs and values.
8. Develop and evaluate professional development programs for culture-based education, including the development of a clear and operationalizable definition for culture-based education.
9. Confront racism and stereotypes by training students of all cultures to bridge between communities and cultures, to be multicultural.

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