

# A Review and Analysis of the Research on Native American Students

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## Improving the Education of Native American Children

The No Child Left Behind (NCLB) legislation enacted in 2002 places emphasis on improving student achievement, particularly the achievement of minority and disadvantaged students. The focus on minority and disadvantaged students arises because their scores traditionally lag behind the scores of white and/or advantaged students. Among minority and disadvantaged groups there is much research and achievement data that has focused on measuring and explaining the achievement of black and disadvantaged white students. Less research has been done on Hispanic students. In comparison to each of these groups, there has been very little research and data collected on measuring and explaining the achievement of Native American students.

The lack of emphasis on Native American achievement partly arises because the total student population is much smaller than the black, Hispanic or disadvantaged white populations. In 2000, about 1.5 percent of Americans described themselves as being wholly or partly Native American compared to 12.9 percent for black and 12.5 percent for Hispanic. The small population means that nationally collected achievement data and other data collected for educational research have small numbers of Native Americans. The situation is made worse because black and Hispanic populations are commonly over-sampled to increase their sample size, whereas Native American populations are rarely over-sampled. Black and Hispanic samples are usually 15 to 20 times larger than Native American samples. Small samples severely limit the types and complexity of analysis possible in trying to understand Native American achievement. This created a substantial gap in our knowledge about Native American achievement compared to our knowledge of the achievement of other racial/ethnic groups.

Other factors also limit the validity of research on Native Americans from nationally collected data sets. Problems have been present in some data collections in which the term "Native American" is misunderstood resulting in many non-Native Americans identifying themselves thusly.<sup>1</sup> Native Americans also appear to have the largest proportion of individuals from mixed racial/ethnic backgrounds compared to other racial/ethnic groups. On the 2000 Census, approximately 40

percent of individuals who identified themselves as wholly or partly Native American had mixed race/ethnicity. This mixture is an important characteristic to the extent that those of mixed heritage have different characteristics and performance compared to those of pure heritage. Only recently have major data collections assembled data on mixed race/ethnicity.<sup>2</sup> In addition, Native Americans are clustered geographically more than other racial/ethnic groups. Such clustering makes the standard errors larger for any analysis than for equivalent samples of less clustered racial/ethnic groups.

The absence of large samples of Native Americans on major research data collections together with more dense clustering, difficulty in identifying Native Americans and the historically constrained funding for Native American research has meant that the quality of much published research is problematic.

### **Overview of the Research Quality**

Empirical research on Native American achievement has mainly been small scale, non-experimental, non-longitudinal and methodologically problematic. This research rarely involves sample sizes larger than 500 and is usually confined to specific tribes or subgroups of Native Americans. These studies do not allow comparative analysis with other minority groups, or even within different tribes and Native American sub-groups. Only a few studies were experimental and/or longitudinal in design and many do not utilize the appropriate statistical methods of analysis.

A recent literature review (Demmert & Towner, 2002) yielded 109 studies primarily focused on Native American achievement and other outcome measures. The great majority of this research (76.4%) was descriptive, case study, ethnography, or after-the-fact comparison. Only 4.7% of the studies could be considered experimental or quasi-experimental. The balance of the literature (4.8%) was classified as position or opinion papers. In this review, a large number of the studies (45.3%) used outcome measures with unknown technical qualities; 17% of the studies included some standardized measure of achievement; and another 17% used no measures at all. Locally developed questionnaires were the primary outcome measures in 20.8% of the studies usually intended to examine subjects' perceptions of self-esteem, self-concept, satisfaction levels, and the like. Demographic measures such as participation rates, graduation rates, completion rates, grade point average (gpa), etc. were primary outcome measures in 13.2% of the studies.

The sample sizes found in the research selected for the annotated bibliography of the research literature are broadly summarized in Table 1. We grouped the sample sizes into five categories as shown in the table. Many of the studies didn't report sample sizes or sample size was not applicable as in the case of some qualitative pieces where in-depth interviews of a subject or two or a small focus group served as informants. In cases where a study had several samples of varying size, we tallied each sample. The samples ranged from numbers as low as eight subjects to numbers as high as 9,635 in one study.

Table 1  
**Sample Sizes of Studies**

<b>Not Applicable or Not Reported</b>	<b>N &lt; 20</b>	<b>N = 20 to 60</b>	<b>N = 60 to 100</b>	<b>N &gt; 100</b>
27%	22%	23%	3%	25%

One of the conclusions about the research identified in these two comprehensive literature searches is how little it tells us and how much remains to be learned (Demmert & Towner, 2002, 2003). A second finding is that conclusions and claims seem to go far beyond the data to support them. The great bulk of the research is descriptive only. With a few exceptions, the great preponderance of the research is of low quality in terms of commonly accepted research standards. The limited number of quantitative studies involved mostly tabulation, with a few studies including simple correlation analysis. Issues of statistical significance were not addressed or were addressed incompletely. Likewise, reporting of data and basic descriptive statistics were also often incomplete or missing altogether. Likewise, in far too many instances, outcome measures were inadequate or at least of unknown validity and reliability.

The research designs employed were, by and large, primitive by today's standards and, where designs allowed for some comparison, there was heavy reliance on single-group pretest-posttest designs (Campbell & Stanley, 1971). There are, of course, some notable exceptions (for example, see Bacon, Kidd, & Seaberg, 1982; Lipka & Adams, 2002; Kratochwill, McDonald, Bear-Tibbitts, & Levin, 2000; Tharp, 1982; and Wright, Taylor, & Macarthur, 2000). In summary, it is important to keep in mind that this particular body of research, limited to Native American populations, offers little in the way of convincing evidence for any causal or correlational assertions. Such claims need to be viewed with caution and most appropriately viewed as belief, opinion, and theory development rather than substantiated fact. Finally, we believe it is important to note that the research base offers us little in the way of replication

### **Literature Review**

There are two issues that are predominant in discussions of Native American education. First, there is a widespread concern among Native people about the preservation and revitalization of their traditional languages and cultures and how to incorporate these into the education process. Second, it is also widely recognized that in order to make educational and economic progress, it is prudent to integrate the concern with education in Native culture with education that prepares Native Americans for successful participation—especially economically—in the larger society.

Families, schools and communities are commonly viewed as the primary vehicles for the accomplishment of both of these goals—preservation and revitalization of heritage culture/language and the development of skills necessary for effective participation in the dominant culture. Traditionally, among Native American groups these responsibilities were carried out by a member of the

family, clan, or tribe. A specific example of this is noted among the Tlingit, where an uncle passed these “skills” on to his maternal nephews and an aunt passed on her skills to her nieces, both serving as the primary mentors and teachers of young children. For the male child this training began as soon as the nephew learned to walk.<sup>3</sup> The system worked well because failure to learn was not allowed for it was a matter of individual and clan survival. On a broader scale, Native American families and communities, partly through their influence on local schools, appear to be the main mechanism for traditional cultural education. Schools, particularly in later grades and higher education, probably are the main mechanism for education into the dominant culture.

The two educational objectives for Native Americans may not be independent. Learning multiple languages early and emerging with a stronger cultural identity might later enable higher achievement and educational attainment. On the other hand, the time spent instilling traditional language and culture may substitute for regular learning and leave gaps between Native Americans and other racial/ethnic groups.

Developing an education system that successfully instills Native language and culture, and also provides an education that provides an opportunity for Native Americans to successfully compete and participate in the larger economy, offers a framework for viewing the empirical research on Native Americans. A significant share of the past research has addressed the issue of how to successfully educate Native Americans in their own language and culture. A second focus of past research has been explaining educational outcomes for Native Americans much as it is done for other racial/ethnic groups. This research has focused on differences in achievement, educational attainment and labor market performance between Native Americans and other racial/ethnic groups and between different Native Americans tribal groups.

The summary of the research findings presented here is based upon two recent literature searches (Demmert & Towner, 2002, 2003) and recent unpublished research using the Early Childhood Longitudinal Study of kindergarten students (ECLS-K) and the National Assessment of Educational Progress (NAEP). First, in 2002, Demmert and Towner conducted a comprehensive review and analysis of the research literature on Native American education primarily focused on achievement and educational attainment of Native Americans. The purpose of the 2003 review (Demmert and Towner) was to examine the research literature that addressed a question of effectiveness of culturally based education for Native American students. In addition, the Northwest Regional Educational Laboratory national study on the education of Native American students also provides a broader perspective on the influences of Native language and culturally based education programs (see: <http://www.nwrel.org/indianed/cbe.pdf>).

## **Education in Traditional Language and Culture**

Northwest Regional Education Laboratory (NWRL), in the 2003 publication by Demmert and Towner, presents three established educational theories regarding Native peoples that are closely aligned with what we call "Culturally Based Education" (CBE), including limited research evidence that shows a direct relationship between CBE and improved academic performance among Native students. These theories include the following:

Cultural Compatibility Theory. Levels of congruence: the more closely the human interactions in the school and in the classroom are aligned with those of the community, the more likely are the goals of the school to be reached.

Cognitive Theory. Introducing new knowledge through an association with prior knowledge: for learning to occur, relevant prior knowledge in a person's long term memory must be stimulated or utilized, with this new information undergoing some form of processing that focuses on conceptual characteristics of the new information (such as its meaning, personal and social relevance, or relationships to prior knowledge and experience) as a means of improving learning and recall.

Cultural-Historical-Activity Theory (CHAT). Issues of culture, language, cognition, community and socialization are central to learning: primary socialization of infants and young children (as well as all later socialization into new communities of practice) is accomplished through joint, meaningful activity with guidance by more accomplished participants, principally through language exchanges or other semiotic processes. Language vocabularies and routines acquired by learners through these processes are the elements that account for community, linguistic, and cultural continuity, and are the primary cognitive tools for individual and group problem solving and adaptations (e.g., culturally-based secondary socialization processes like schooling can be facilitated by activating the learners' cognitive and linguistic tools laid down by community socialization). Primary to this hypothesis is that activity (primarily joint activity) is the setting in which language and cognition are developed, and that patterns of activity have a cultural basis.

The NWRL report also identifies six critical elements of culturally based education surfacing from the analysis of the literature review. These include the following:

- 1) Recognition and use of Native American (American Indian, Alaska Native, Native Hawaiian) languages as the language of instruction, as a bilingual approach to learning, or as a first or second language.

- 2) Pedagogy that stresses traditional cultural characteristics and adult-child interactions as the starting place for one's education (mores that are currently practiced in the community, and which may differ community to community).
- 3) Pedagogy in which teaching strategies are congruent with the traditional culture as well as contemporary ways of knowing and learning (opportunities to observe, opportunities to practice, and opportunities to demonstrate skills).
- 4) Curriculum that is based on traditional culture, which recognizes the importance of Native spirituality, and places the education of young children in a contemporary context (e.g., use and understanding of the visual arts, legends, oral histories, and fundamental beliefs of the community).
- 5) Strong Native community participation (including partnering with parents, elders, other community resources) in educating children and evident in the curriculum, planning, and operation of school/community activities.
- 6) Knowledge and use of the social and political mores of the community.

Demmert and Towner (2003) note that the criteria for study inclusion were: (1) the studies needed to be experimental or quasi-experimental by design; (2) some type of culturally-based educational program or intervention was examined; (3) some measure of an educationally relevant outcome was used; and (4) the target population was Native American.

This formal research evidence suggests a hypothesis that comprehensive culturally based education (CBE) programs, with strong Native language programs, influence a youngster's academic, social, and cultural, development as well as an individual's identity, in a positive way, especially when started early in a youngster's life (Demmert & Towner, 2003). However, the number of studies with appropriate designs, measures of effectiveness and statistical analysis is very small, indicating that better quality designs and replication are needed.

### **Explaining Native American Achievement and Gaps in Achievement**

There are three contrasting hypotheses that emerge in the literature on Native American achievement and that of other minority groups to account for achievement gaps. The first hypothesis is that cultural differences between the minority group and majority group are a source of explanation for low achievement.<sup>4</sup> Cultural factors may affect early development, motivation, educational expectations and learning in ways that can impact achievement. That impact may depend on how the cultural differences are incorporated into the educational process. The second hypothesis is that it is the past and present

unequal treatment of the minority by the majority group that partially accounts for low achievement.<sup>5</sup> Discrimination is an example of this treatment.<sup>6</sup> The third hypothesis is that the factors underlying low achievement are mostly common across minority and majority groups. That is, low achieving children across all groups share a set of common characteristics, but these characteristics are more common among minority groups. These characteristics include poverty, low parental education, high levels of teen pregnancy and single parent families, poor health status and lower quality schools.

These possible explanations are not mutually exclusive, and any definitive explanation may involve a complex interplay among these three explanations. For example, while common characteristics such as poverty may account for a significant share of the achievement gap, the cause of minority groups having such characteristics may be due to unequal treatment and discrimination. Also, the extent of the influence of cultural factors may depend on the extent to which the culture has been shaped by a history of unequal treatment, discrimination and worse, and how such cultural differences are integrated into the educational process.

All three explanations contain *prima facie* evidence that tends to offer support for their inclusion in any definitive explanation. Low achieving minority groups usually have many characteristics of low achieving majority students: higher rates of poverty and lower parental education, a higher proportion of births to younger mothers, larger family size and poorer health. This evidence suggests that there are a common set of characteristics that can account for low achievement across both majority and minority groups. However, minority groups have a higher incidence of such characteristics and thus lower scores than the majority group.

Both contrasting cultures and unequal treatment tend to be supported by evidence that some minority achievement gaps usually remain after controlling for the characteristics common to low achievers across majority and minority groups. The magnitude of the remaining gap also tends to differ across minority groups suggesting that the quite separate cultural factors and previous historical treatment of minority groups might account for these differences. A cultural difference explanation would also tend to be supported by evidence that minority groups that successfully assimilate into the majority group would eventually have achievement gaps narrow or disappear. The unequal treatment hypothesis is suggested by large increases in black achievement in the 1970s and 1980s following the legal removal of barriers to equal educational and economic opportunity in the 1950s and 1960s leading to lowered levels of school segregation and workplace discrimination (Grissmer et al., 1998).

Until recently, there were no comprehensive, nationally representative data sets to begin to test these hypotheses for young children. The ECLS-K is a longitudinal study of a nationally representative sample of approximately 19,000 entering kindergarten students in 1998-1999. A very comprehensive set of data was collected from parents, teachers, principals and children at the beginning of

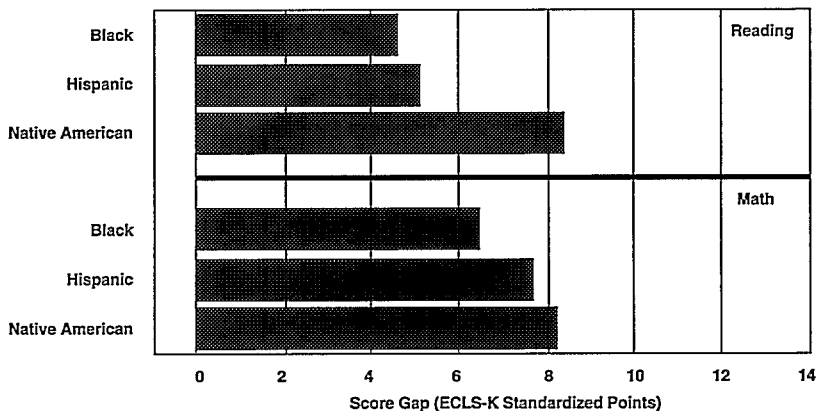
kindergarten in order to better understand what skills children bring to kindergarten and to determine what explains differences among children in their level of skills. The study contains approximately 300 Native American children. This sample is sufficient to begin to understand whether Native American children lag behind children from other racial/ethnic groups in their skills at kindergarten entrance, and to explore possible explanations for differences in skills.

Children were administered one-on-one tests lasting between 50-70 minutes of their skills in reading and math. Children's gross and fine motor skills were also measured, and parents and teachers provided assessments of the learning characteristics, social skills, personality characteristics and health status of each child. Together with the detailed set of information provided by parents about the family, their own characteristics, home and community characteristics, the ECLS-K provides the most comprehensive set of data available to measure and understand the differences in skills and knowledge of children entering kindergarten.

### Results from the ECLS-K

Figure 1 shows that Native American children start kindergarten with lower reading skills than white, black, and Hispanic children. Native American skills are about 27 percentile points lower than white students, about 10 percentile points below that of Hispanic children and 12 percentile points below that of black children. All differences are statistically significant.

Native American children also start kindergarten with the lowest math skills, although the difference is statistically significant only for white students. Native American skills are 27 percentile points lower than white students, about two percentile points below those of Hispanic children and eight percentile points below those of black children.



**Figure 1.** Score gaps in reading, math and general knowledge with white students at the beginning of kindergarten from the ECLS-K.



A very large number of family, parent, home and child characteristics (family human capital) are statistically linked to the level of reading and math skills at the beginning of kindergarten. These factors are generally similar across children from all racial/ethnic groups. These factors that show statistically significant effects, other things equal, include parental education, family income and a measure of long term poverty status, number of siblings, age of mother at birth of child, the number and biological relationship of caregivers to the child, language spoken at home, frequency of reading to child and number of children's books in the home, the health of the child as reported by the parent, the birth-weight, the presence of learning, speech and hearing disabilities, quality of emotional connection between parent and child, depression in the mother and a set of parent reported developmental learning and personality characteristics.

The strongest statistical relationships with reading and math skills are a set of developmentally sensitive variables including the child's age, measures of fine and gross motor skills, presence of learning disabilities and learning characteristics like attention span, persistence and curiosity. Certain family characteristics have strong statistical relationships also, but these are generally weaker than the developmental variables.

Native American children do not show consistent statistically significant differences from other students in their dependence on most of the factors linked to reading and math skills and general knowledge, although Native American students do appear to be somewhat more sensitive to differences in income and books in the home than other children.

Table 2 shows how Native American family characteristics differ from those of white, black and Hispanic family characteristics for variables with strong links to achievement. There are statistically significant differences between white children and black, Hispanic and Native American children in the mean value of most of the variables linked to reading and math skills. These differences suggest part of the gap in skills with white children may have their origin in differences in these family, parent, home and child characteristics.

Native American parents have the lowest level of college completion of any racial/ethnic group. Family income is also the lowest, although the difference is statistically significant only for white families. However, Native Americans have statistically significant higher long term money problems than every other racial/ethnic group. This evidence suggests sustained poverty may be greater among Native Americans than blacks or Hispanics.

Native Americans also have the youngest mothers, but the difference is statistically significant only for white families. However, Native American families also have the highest number of siblings. These differences are statistically significantly higher than black, Hispanic and white families. Native Americans have a statistically significant lower level of two parent families compared to whites and Hispanics, but a lower level than blacks. Native American families have a similar number of books in the home and similar frequency of reading to children as black and Hispanic children, but have

Table 2

## The Value of Key Family Characteristics from the ECLS by Racial/Ethnic Group

Variable	White	Black	Hispanic	Native American
Father-grade school	.011	.020	.199***	.014
Father-Some High School	.070***	.103	.163	.143
Father-High School Grad	.315***	.433	.328***	.432
Father-some college	.271**	.288	.198***	.320
Father-College Grad	.215***	.118	.077	.081
Father-Post College	.118***	.039***	.035***	.01
Mother-grade school	.009***	.018**	.178***	.034
Mother-Some High School	.058***	.159	.165	.137
Mother-High School Grad	.298**	.375	.309*	.367
Mother-Some college	.338	.344	.260***	.368
Mother-College Grad	.219***	.085	.070	.086
Mother-Post College	.077***	.020***	.018***	.008
Family Income (\$000)	62.5***	29.8	34.5	28.7
Money problems from birth	.218***	.315**	.274***	.369
Mom Age at Birth	27.9***	26.3	25.9	25.8
Number of Sibs	1.36***	1.57***	1.55***	1.94
Two Biol Parents	.741***	.32***	.651***	.455
Read-never	.005***	.015	.030	.028
Read- 1-2 times weekly	.127***	.305	.262**	.327
Read- 3-6 times weekly	.374***	.330*	.314	.266
Read- every day	.494***	.350	.395	.380
Books in the Home	93.4***	39.9	41.2	51.4
Child Health status	4.428***	4.155	4.118	4.178
Learning characteristics	3.165***	3.08	3.03	3.08
Social	3.389**	3.323	3.171***	3.31
Impulsive	1.912***	2.181***	1.956**	2.029
Fine Motor	5.977***	5.02***	5.584	5.612

\* mean difference between specified racial/ethnic group and Native American score is statistically significant at the 10 percent level

\*\* mean difference between specified racial/ethnic group and Native American score is statistically significant at the 5 percent level

\*\*\* mean difference between specified racial/ethnic group and Native American score is statistically significant at the 1 percent level

significantly fewer books in the home and read much less frequently than white families. Native American children have similar parent reported health status as black and Hispanic families, but statistically significantly lower than white children. Finally, on a parent reported set of developmental characteristics including learning characteristics (attention span, curiosity, etc), social skills, impulsivity and fine motor skills, Native American children have statistically significantly worse characteristics than white children.

A question is the extent to which these differences might account for score gaps between Native American and white children. This hypothesis can be tested by comparing the gaps when these characteristics are included in the achievement equations to gaps without these characteristics. Figure 2 provides this comparison

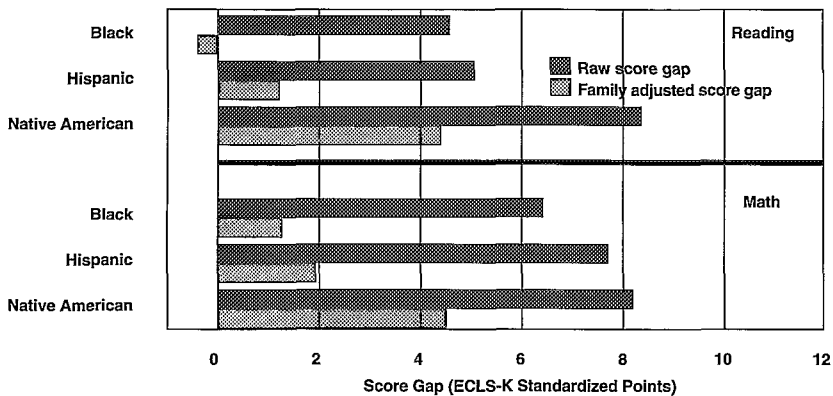
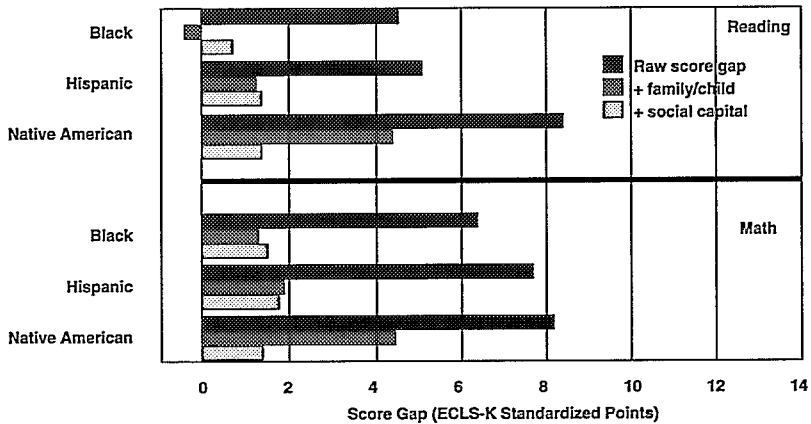


Figure 2. Estimated score gaps with white students with and without the inclusion of family characteristics.

and shows that for both black and Hispanic students the remaining gap after family characteristics are included is less than two points. However, for Native Americans, over four points remain unaccounted for after family characteristics are included. Differences in family characteristics might account for between 80 and 100 percent of the reading and math skills gap between white and black students, and about 75 percent of the gap between white and Hispanic students. In contrast, these differences account for less than one-half of the gap between white and Native American students. This evidence suggests that a unique factor outside family characteristics may be present for Native Americans that affects achievement.

A hypothesis for the missing factor for Native Americans is social capital. Social capital usually refers to long-term capacities existing within communities/school districts or states outside of individual family capital, which affect achievement but are outside of explicit control of the educational system (Coleman, 1988, 1990). Differences in social capital can partly arise due to the long-term differences in joint characteristics of the families in geographical areas, but also from the different economic and social institutions present. Social capital influences achievement through such things as peer effects, quality of communication and trust among families in communities, the safety of neighborhoods and the presence of community institutions that support achievement.

The effect of social capital can be estimated by including in the achievement equations a dummy variable for each school location after inclusion of family characteristics in the ECLS. If such a variable is linked to achievement, it will reduce the score gap beyond the reduction from family characteristics. Figure 3 shows the original gaps, the remaining gaps after inclusion of family variables and the remaining gaps after the inclusion of social capital.



**Figure 3.** Comparing raw score gaps with remaining gaps after the inclusion of family variables and family + social capital variables.

The results show that social capital variables do not further reduce the gaps for black and Hispanic students, but do reduce the gaps for Native American students. After social capital is included, the remaining gaps across racial/ethnic groups are very similar.

The source of the larger social capital effects for Native American may arise from the much larger proportion of the Native American population living in rural areas. Table 3 shows that about 69 percent of Native Americans live in rural areas compared to 26, 12 and 9 percent for white, black and Hispanic children respectively. Rural areas, especially poor rural areas, usually lack social capital.

	White	Black	Hispanic	Native American
Urban	42.2	53.8	65.3	19.8
Suburb	31.8	34.5	26.1	11.2
Rural	26.1	11.8	8.6	69.0

Figures 4 and 5 provide estimated score gaps in urban, suburban and rural areas for reading and math respectively. For both reading and math, the largest Native American gap with white students relates to those from rural areas. The white-Native American gaps in urban and suburban areas is always smaller than or about the same as the black and Hispanic gaps. The major reason why Native American gaps nationally are larger than black and white gaps is due to the poor

## Reading Gaps

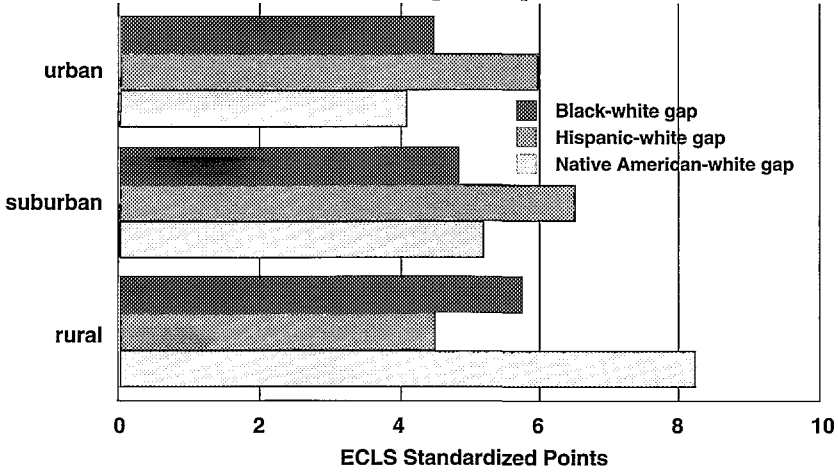


Figure 4. Reading score gaps at the beginning of kindergarten in urban, suburban and rural areas from the ECLS.

## Math Gaps

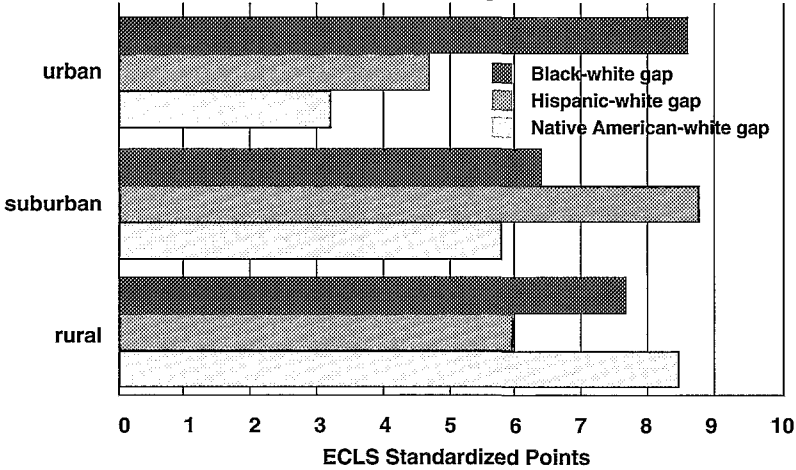


Figure 5. Math score gaps at the beginning of kindergarten in urban, suburban and rural areas from the ECLS.

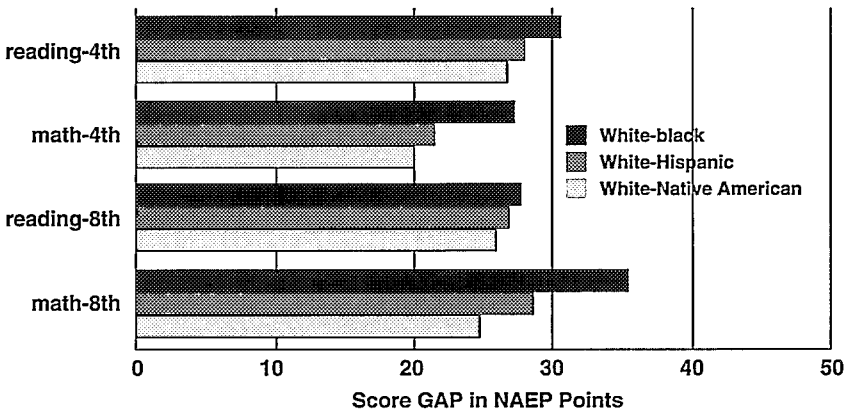
achievement performance of Native Americans in rural areas combined with the disproportionately large Native American population that lives in rural areas. These rural children in mostly poor areas in and around reservations need to be a main focus of efforts to raise Native American skills.

### NAEP Results

The 2003 NAEP tests given to a nationally representative sample of 4th and 8th graders in math and reading had sample sizes exceeding 150,000. Earlier NAEP tests had nationally representative samples of approximately 10,000 or less. The 2003 NAEP tests have the largest sample of Native American students and their achievement ever collected. Native American samples were approximately 1500 or more.

Figure 6 shows the score gaps with white students on the 2003 NAEP tests for black, Hispanic and Native American students. This data shows that Native Americans have the smallest gap on each test. Since the ECLS data at the beginning of kindergarten showed Native Americans to have the largest gaps, a reversal of gaps seems to have occurred between the beginning of kindergarten and 4th grade. It is possible, but unlikely, that the different structure of the tests could also cause such a reversal. If the reversal is not caused by test differences, then this result might suggest that the impact of schools is more positive for Native Americans than for black and Hispanic students.

The 2003 NAEP data does show similar results to the ECLS data on gaps by location. Figure 7 shows that on the 4th grade NAEP reading and math tests, the Native American gap with white students is largest in rural areas.



**Figure 6.** Score gaps with white students on 2003 NAEP tests by racial/ethnic group.

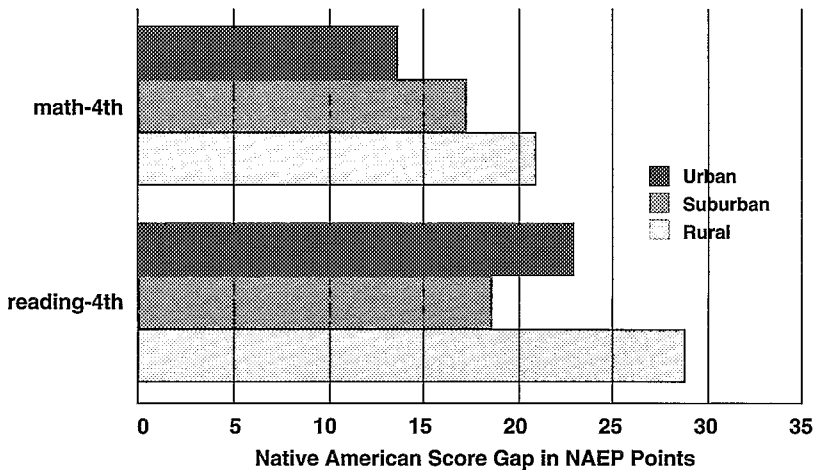
## Improving Research on Native American Education

### Future Data Collections

The paucity of high quality research on Native American education and achievement is primarily due to the small sample sizes collected on almost all previous major research data collections by the Department of Education. These small samples are inadequate to support high quality research. Such small samples have left a significant knowledge gap about Native American schooling and achievement compared to that available for black, Hispanic and white students.

Native Americans should be over-sampled on all major research data collections in education. Larger Native American samples could be done without adding significant costs to current data collection budgets. For overall samples of 10,000 or more, Native American samples could be increased to 1000 by either reducing observations of other groups and maintaining overall samples or adding to the overall sample. In the first case little additional cost is involved and there is minimal loss of accuracy in the larger racial/ethnic groups. If observations are added, the additional costs of obtaining samples of 1000 Native Americans in overall samples of 10,000 or more is at most five percent and likely much less due to the fixed costs associated with data collection. Once in the field, the marginal costs of including Native Americans can be well below average costs for the entire sample.

However, while over-sampling alone will allow much higher quality research on Native Americans, the design and inclusion of supplemental survey questions that are specific to hypotheses about the attitudes, beliefs, expectations



**Figure 7.** Native American score gaps with white students by location on the 2003 NAEP tests.

and performance of Native Americans on achievement and educational attainment are important. These supplemental questions are needed to address specific hypotheses arising from the unique history and culture of Native Americans and unique issues in the Native American community such as the dual goals of cultural education and education for success in the larger society.

### Future Research

Future research should be directed at addressing some key research questions about Native American achievement and educational outcomes. These questions include:

- How can education in Native American culture be combined with education needed to function in the broader society in mutually reinforcing ways that allow functioning effectively in both cultures?
- To what extent can differences in attitudes, expectations, achievement and educational attainment among Native American tribes and groups be attributed to differing individual, family, school and community characteristics, to different historical treatment and discrimination or to cultural differences?
- To what extent can the differences in Native American achievement and achievement in other racial/ethnic groups be explained by a higher incidence of conditions that lower achievement for all racial/ethnic groups, and to what extent are there fairly unique individual, family, school and community conditions that are present in the Native American population only?
- To what extent can Native American achievement differences be explained by the high incidence of living in rural poverty, and what are the specific characteristics of living in these areas that affect achievement?
- In what ways does Native American achievement respond to family, school and community characteristics in ways similar to other racial/ethnic groups, and in what ways do Native Americans respond differently and why?

A key question is to what extent will Native American achievement respond to the same kinds of environmental or educational resources, programs and policies that have been successful with non-Native American children? If Native American children respond similarly to other children, then the much larger volume of research available on other racial/ethnic groups can be used to guide improvement for Native Americans.

Our research with the ECLS data would suggest that most family and community characteristics that are linked to lower achievement for all racial/ethnic groups also are linked to lower achievement for Native Americans, but larger samples are required to perform more precise statistical tests. Our analysis would suggest that Native Americans are more sensitive to the effects



of low income and few books in the home. Significant gaps in skills between white students and each minority group studied exists prior to school entrance. The gap between Native Americans and white students in math and reading skills is larger than the gap for black and Hispanic students. Evidence presented here would suggest that Native Americans actually make gains relative to black and Hispanic students from kindergarten to 4th grade, so that by 4th grade, Native Americans either score approximately the same as or better than black and Hispanic students.

While schools may be able to narrow some of the pre-school gap, policies should also focus on narrowing the gap between birth and pre-school. There are common child and family characteristics that are associated with lower achievement at school entrance across all racial/ethnic groups studied, and some of these characteristics are amenable to intervention. However, these family characteristics account for a much larger proportion of the white-minority gap for Hispanic and black students than for Native Americans. Such child and family characteristics account for about one-half of the achievement gap between white and Native Americans. So addressing these characteristics can at best reduce the gap by about one-half.

A significant portion of the remaining gap for Native Americans seems to be accounted for by characteristics outside the family, but associated with the wider community, i.e., social capital. Social capital accounts for a much lower proportion of the black and Hispanic gap. One hypothesis about the higher dependence on social capital of Native Americans is that a much higher proportion of Native Americans live in poor, rural communities compared to white, black and Hispanic groups, and that these poor rural communities have little social capital. About 70 percent of Native Americans live in rural areas compared to 26, 12 and 9 percent for white, black and Hispanic children. There is a substantial achievement gap between Native Americans who live in rural areas compared to suburban and urban areas. The score gap between white and Native Americans is much less in urban and suburban areas.

To some extent, in the modern context, Native people have allowed failure in some families, clans or tribal groups as a result of the following (Indian Nations At Risk, 1992):

- 1) Many parents have not continued direct participation in, nor taken time to monitor the educational process of their children;
- 2) There has been a loss of language skills and inadequate attention paid to early development among young children (as a key to improved academic performance);
- 3) There has been a deterioration of skills and knowledge necessary for our cultural and social well being (because they have not been transferred to the next generation of youth as a continuing practice); and
- 4) Political, economic and spiritual situations have changed drastically.

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#### Endnotes

<sup>1</sup>For instance, the National Educational Longitudinal Study (NELS) in their original sample identified significantly more Native Americans than anticipated. A follow-up study revealed that many non-Native Americans had identified themselves as "Native" American. Such mis-identification is pronounced on data collections in which the race/ethnicity is collected from students. On the NAEP data, there are significant differences in the number of Native Americans identified by "school" records and student reported. The school records are normally reported by parents. Student reported Native Americans can typically can be 30-40 percent greater than school reported Native Americans. Moreover, the achievement levels of Native Americans who are student reported are significantly higher than for Native Americans who are school reported.

<sup>2</sup>The 2003 NAEP and the ECLS collect data on mixed racial/ethnic characteristics.

<sup>3</sup>This information is from personal knowledge – the process that I went through, as well as from knowledge obtained from my grandparents (Demmert).

<sup>4</sup>See for instance, Lareau, 2003; Lareau, 1989; Ogbu, 2003.

<sup>5</sup>See for instance, Ogbu, 2003 and Ogbu and Gibson, 1991 who argue that the past history of minority groups, especially whether these groups came voluntarily or were forced or persecuted, may play a role in current performance.

<sup>6</sup>See Brown et al., 2003 for a discussion of current discrimination practices.

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