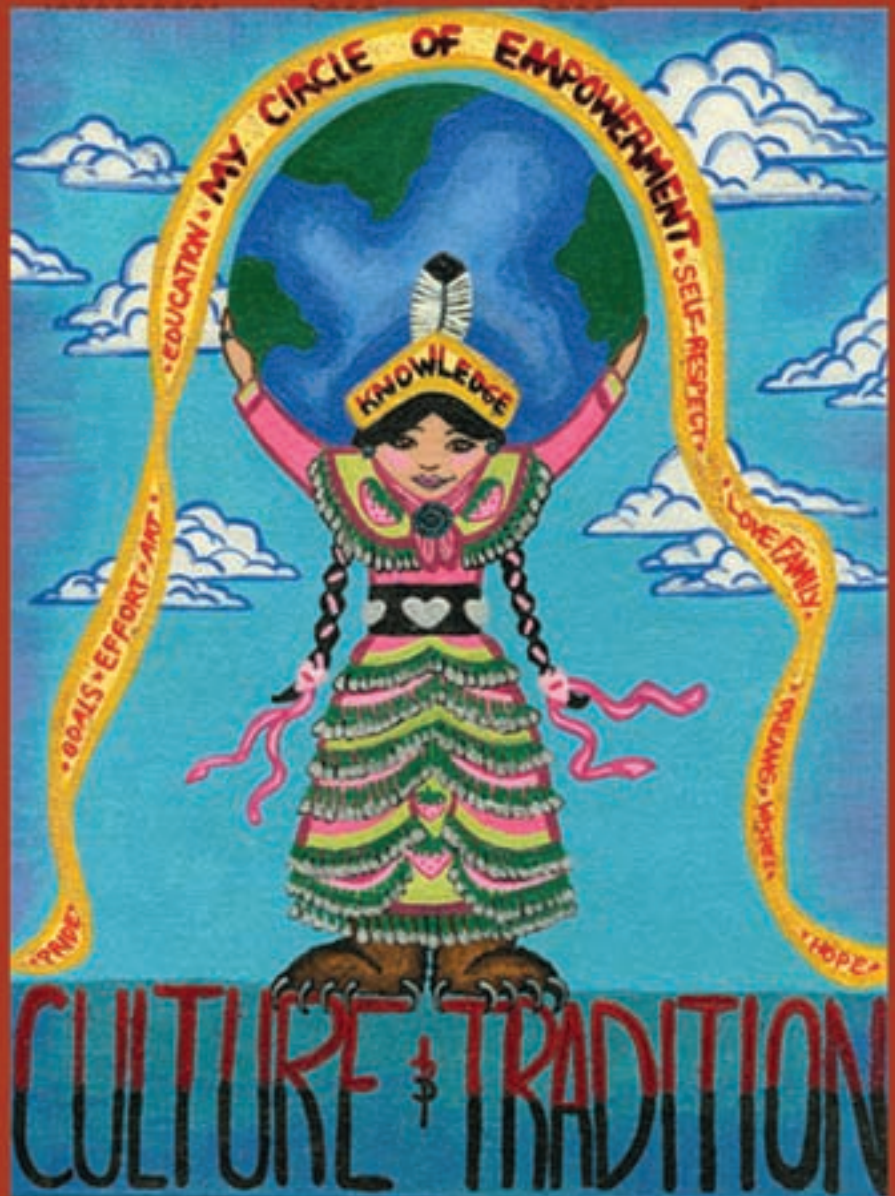


2009

National Indian Education Study 2009

Part II

The Educational Experiences of American Indian and Alaska Native Students in Grades 4 and 8
Statistical Analysis Report



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STUDENT ARTWORK

Front cover: "My Ambitions" by Kanowan Kayotawape
Page 7: "The Circle of Wisdom" by Michelle Holiman
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Back cover: "The Circle of Power" by Lilian Ngambi

The National Indian Education Study (NIES) is a two-part study designed to describe the condition of education for American Indian and Alaska Native students in the United States. NIES is authorized under Executive Order 13336, American Indian and Alaska Native Education, which was issued in 2004 to improve education efforts for American Indian and Alaska Native students nationwide. NIES is conducted under the direction of the National Center for Education Statistics on behalf of the U.S. Department of Education's Office of Indian Education.

Part II of the NIES provides information on the educational experiences of fourth- and eighth-grade American Indian and Alaska Native students based on a survey administered as part of the National Assessment of Educational Progress (NAEP) assessments. Part I of the NIES, which is reported separately, is conducted through NAEP and provides in-depth information on the academic performance of these students in reading and mathematics.

NAEP is a congressionally authorized project of the National Center for Education Statistics within the Institute of Education Sciences of the U.S. Department of Education. The Commissioner of Education Statistics is responsible for carrying out the NAEP project. The National Assessment Governing Board oversees and sets policy for NAEP.

NAEP is an integral part of our nation's evaluation of the condition and progress of education. Only information related to academic achievement and relevant variables is collected. The privacy of individual students and their families is protected, and the identities of participating schools are not released.

Executive Summary

The National Indian Education Study (NIES) is administered as part of the National Assessment of Educational Progress, which was expanded to allow more in-depth reporting on the achievement and experiences of American Indian/Alaska Native (AI/AN) students in grades 4 and 8.

The study fulfills a mandate of Executive Order 13336 issued in 2004 to assist AI/AN students in meeting challenging academic standards in a manner consistent with tribal traditions, languages, and cultures. In addition, NIES reports present findings that are of interest to educators, policymakers, and researchers involved in the education of AI/AN students.

NIES was first conducted in 2005 and then again in 2007. This report, the second in a two-part series based on the 2009 NIES survey, examined the educational experiences of AI/AN students. The results included in this report describe AI/AN students, their teachers and schools, and the integration of native culture and language in their education.

In the report, overall results reported for the nation include AI/AN students attending public, private, and other types of schools. Results are also reported for three mutually exclusive categories based on the type of school and proportion of AI/AN students: low density public schools where less than 25 percent of the student body is AI/AN; high density public schools where 25 percent or more of the students are AI/AN; and Bureau of Indian Education (BIE) schools that serve AI/AN students almost exclusively. All comparisons are based on statistical tests of significance (with appropriate adjustments for multiple comparisons), and only differences that have been determined to be statistically significant are discussed in the report.

Fourth- and eighth-grade American Indian/Alaska Native students provide information about themselves, their families and communities, and their school experiences

About 12,000 AI/AN fourth-graders and 10,000 AI/AN eighth-graders participated in the 2009 NIES survey. Their responses provide information about students' exposure to AI/AN culture and language, sources of help with schoolwork, and plans for their future.

AI/AN students report varying levels of knowledge and exposure to AI/AN culture

- Fifty-five percent of fourth-graders and 66 percent of eighth-graders reported having some or a lot of knowledge about their AI/AN history.
- Higher percentages of AI/AN students in BIE schools (51 percent at grade 4 and 44 percent at grade 8) than in high or low density public schools (44 and 39 percent, respectively, at grade 4, and 26 and 17 percent at grade 8) reported going on school-sponsored trips to museums or other places to learn about AI/AN people.

AI/AN students find support at home as well as at school

- Seventy-four percent of fourth-graders and 54 percent of eighth-graders reported getting help with their schoolwork from someone in their family once or twice a week or more.
- Higher percentages of AI/AN students attending BIE schools (66 percent at grade 4 and 64 percent at grade 8) than high or low density public schools (63 and 60 percent, respectively, at grade 4, and 55 and 53 percent at grade 8) reported getting help with their schoolwork from someone at school at least weekly.

More than one-half of AI/AN students attending BIE schools and public schools plan to go to college

- Fifty-five percent of eighth-grade AI/AN students attending BIE schools and 57 percent attending high and low density public schools reported that they planned to go to college full time in their first year after high school.

Teachers provide information about educational practices to promote the academic achievement of American Indian/Alaska Native students

About 3,800 fourth-grade teachers and 4,600 eighth-grade teachers responded to questions about the instruction of AI/AN students in their schools. Their responses provide information about the integration of native culture and language into instruction, the use of content standards and assessments to promote academic achievement, and the use of different types of resources.

Students in BIE schools are more likely to be exposed to cultural themes and activities as part of the curricula

- Higher percentages of AI/AN students attending BIE schools (81 percent at grade 4 and 92 percent at grade 8) than those attending high or low density public schools (54 and 31 percent, respectively, at grade 4, and 47 and 16 percent at grade 8) had teachers who reported integrating AI/AN culture and history into the reading/language arts curriculum at least once a month or more.



Most AI/AN students receive instruction entirely in English

- At least 87 percent of AI/AN students at grades 4 and 8 received instruction in core subjects (including reading/language arts and mathematics) entirely in English.
- Smaller percentages of AI/AN students in BIE schools (46 percent at grade 4 and 49 percent at grade 8) than in high or low density schools (80 and 97 percent, respectively, at grade 4, and 82 and 96 percent at grade 8) had teachers who provided instruction entirely in English.

Teachers of AI/AN students rely on state content standards in planning lessons

- At least 95 percent of AI/AN fourth- and eighth-graders had teachers who reported relying on state content standards to some extent or a lot in planning reading/language arts or mathematics lessons for their students.
- The percentages of AI/AN students whose teachers reported relying on state standards to some extent or a lot when planning lessons in reading/language arts were not significantly different among those attending BIE schools (96 percent at grade 4 and 97 percent at grade 8), high density public schools (97 percent at both grades), or low density public schools (96 percent at grade 4 and 97 percent at grade 8).

Teachers of AI/AN students use a variety of techniques to assess students' progress

- Eleven percent of AI/AN fourth-graders and 14 percent of eighth-graders were taught by teachers who used assessments developed by AI/AN organizations to a small extent or more.
- Higher percentages of AI/AN students in BIE schools (14 percent at grade 4 and 11 percent at grade 8) than in high or low density public schools (4 and 1 percent, respectively, at grade 4, and 3 and 3 percent at grade 8) had teachers who used assessments developed by AI/AN organizations.

School administrators report on school environment for American Indian/Alaska Native students

About 2,300 fourth-grade school administrators and 1,900 eighth-grade administrators responded to questions about school factors related to the education of AI/AN students. Their responses provide information about the presence of AI/AN teachers and staff in the school, areas of instruction in AI/AN culture, how schools connect with AI/AN families, and community involvement in school activities.

Highest proportion of AI/AN teachers is in BIE schools

- Among AI/AN students in BIE schools, 40 percent of fourth-graders and 42 percent of eighth-graders attended schools where more than three-quarters of the teachers were AI/AN.
- About one-third of AI/AN students in grades 4 and 8 attended schools with no AI/AN teachers.

Students are exposed to AI/AN culture in various ways

- Eighty-four percent of AI/AN fourth-graders and 75 percent of eighth-graders attended schools that offered instruction in AI/AN traditions and customs.
- Forty-six percent of AI/AN fourth-graders and 45 percent of eighth-graders attended schools where administrators reported providing instruction in AI/AN oral languages.

Schools communicate with AI/AN families in a variety of ways

- Forty-nine percent of fourth-graders and 57 percent of eighth-graders attended schools where administrators reported providing opportunities for daily communication with parents by telephone.
- Forty-five percent of fourth-graders and 63 percent of eighth-graders attended schools where opportunities for daily communication were provided through websites or e-mail.
- The percentages of students who attended schools that communicated with families weekly or daily through websites or e-mail were smaller in BIE schools (34 percent at grade 4 and 37 percent at grade 8) than in high or low density public schools (65 and 67 percent, respectively, at grade 4, and 69 and 85 percent at grade 8).

Involvement of the AI/AN community in the school is more common in schools with high proportions of AI/AN students

- Twenty-six percent of AI/AN fourth-graders and 33 percent of eighth-graders attended schools where members of the AI/AN community visited to discuss education issues with students and staff three or more times a year.
- The percentages of students attending schools where members of the AI/AN community visited to discuss education issues were higher for students in BIE schools (92 percent at grade 4 and 87 percent at grade 8) and high density public schools (73 percent at grade 4 and 82 percent at grade 8) than for those in low density schools (43 percent at grade 4 and 42 percent at grade 8).

For More Information

Complete copies of the 2009 NIES student, teacher, and school questionnaires are available online at <http://nces.ed.gov/nationsreportcard/nies/questionnaire.asp>. Additional results from the survey are available in the NAEP Data Explorer at <http://nces.ed.gov/nationsreportcard/naepdata>.

Introduction

Since 2005, the National Indian Education Study (NIES) has provided educators, policymakers, and the public with information about the background and academic performance of fourth- and eighth-grade American Indian and Alaska Native (AI/AN) students in the United States.

This report, the second in a two-part series based on the 2009 NIES survey, describes AI/AN students, their teachers and schools, and the integration of native culture and language in their education. Part I of the series reports on the achievement of AI/AN students in reading and mathematics.

The NIES survey is administered as part of the National Assessment of Educational Progress (NAEP), which was expanded to allow more in-depth reporting on the achievement and experiences of AI/AN students. It fulfills a mandate of Executive Order 13336 issued in 2004 to assist AI/AN students in meeting the challenging standards set forth in the Elementary and

Secondary Education Act reauthorized in 2001 (Public Law 107-110) in a manner consistent with tribal traditions, languages, and cultures. In addition, NIES reports present findings that are of interest to educational researchers and potentially relevant to the research and collaborative provisions of the Executive Order.¹

¹ Sec. 4. Enhancement of Research Capabilities of Tribal-Level Educational Institutions. The Secretary of Education and the Secretary of the Interior shall consult with the entities set forth in section 2(a) of this order and tribally controlled colleges and universities to seek ways to develop and enhance the capacity of tribal governments, tribal universities and colleges, and schools and educational programs serving American Indian and Alaska Native students and communities to carry out, disseminate, and implement education research, as well as to develop related partnerships or collaborations with non-tribal universities, colleges, and research organizations.



NIES Questionnaires

In addition to the questionnaires administered as part of the 2009 NAEP assessments, AI/AN students and their teachers and school administrators also completed questionnaires specifically for NIES.

Student questionnaires asked AI/AN students about themselves, their families and communities, and their classrooms and schools. Students completed the questionnaires after the regular NAEP assessments. A study administrator was present to help any students who had trouble reading or understanding the meaning of questions.

Teacher questionnaires were completed by the teachers of participating AI/AN students to collect information about the instruction of these students in their schools. At grade 4, a single form of the questionnaire was administered to all teachers participating in NIES, covering their background and general classroom approaches as well as specific reading/language arts and mathematics instructional practices. At grade 8, the teacher questionnaire was administered to both the students' reading/language arts and mathematics teachers.

School questionnaires were the same for both grade levels and were completed by administrative staff at the schools. Both teachers and administrators completed the questionnaires on their own, either before or during the NAEP assessments.

The NIES survey questions were designed to address some of the issues raised by Executive Order 13336, particularly as they related to identifying practices and methods that raise the academic

For more information

Additional information about the NIES questionnaires is presented in the Technical Notes, and copies of the complete questionnaires are available online at <http://nces.ed.gov/nationsreportcard/nies/questionnaire.asp>.

Results for other survey questions not highlighted in this report are available in the NAEP data explorer at <http://nces.ed.gov/nationsreportcard/naepdata>.

Data can also be disaggregated for states with samples of AI/AN students large enough to report results.

achievement of AI/AN students, and assessing the role of native language and culture in fostering that improvement. Results from selected questions in each of the three types of questionnaires are summarized in the chapters of this report. Although NIES surveys were also conducted in 2005 and 2007,² the results from the 2009 survey cannot be compared to those from earlier years because of changes in the wording of survey questions (see the Technical Notes for more information).

² Stancavage et al. (2006). *National Indian Education Study - Part II: The Educational Experiences of Fourth- and Eighth-Grade American Indian and Alaska Native Students* (NCES 2007-454). National Center for Education Statistics, U.S. Department of Education Sciences, U.S. Department of Education, Washington, D.C.
Moran, R., and Rampey, B. (2008). *National Indian Education Study - Part II: The Educational Experiences of American Indian and Alaska Native Students in Grades 4 and 8* (NCES 2008-458). National Center for Education Statistics, U.S. Department of Education Sciences, U.S. Department of Education, Washington, D.C.

Survey Samples

AI/AN students make up about 1 percent of the students at grades 4 and 8 nationally. Each of the five geographic regions based on U.S. Census divisions or aggregations of Census divisions presented in **figure 1** contains some proportion of the AI/AN student population. About one-half of AI/AN students attend schools in the South Central and Mountain regions (**table 1**).

Fourth- and eighth-grade students were identified as AI/AN based on school records and were sampled along with other students participating in the NAEP subject-area assessments (see page 57 of the Technical Notes for more information). All the AI/AN students who responded to the NIES survey also participated in the 2009 NAEP assessment in one of three subjects (reading, mathematics, or science). To obtain large enough samples of AI/AN students to report reliable results, schools in selected states with higher proportions of AI/AN students were selected at a higher rate than they would be otherwise for NAEP assessments. All Bureau of Indian Education (BIE) schools were also selected. To compensate for oversampling, the results for AI/AN students were weighted to reflect their actual contribution to the total population of students in grades 4 and 8 nationwide.

About 12,000 AI/AN students from approximately 2,300 schools at grade 4, and about 10,000 AI/AN students from approximately 1,900 schools at grade 8 participated in the 2009 NIES survey. Also responding to the survey were about 3,800 teachers and 2,300 school administrators at grade 4, and about 4,600 teachers and 1,900 school administrators at grade 8. Some school administrators responded for both grade 4 and grade 8 (see the Technical Notes for additional information).

Figure 1. NIES geographic regions

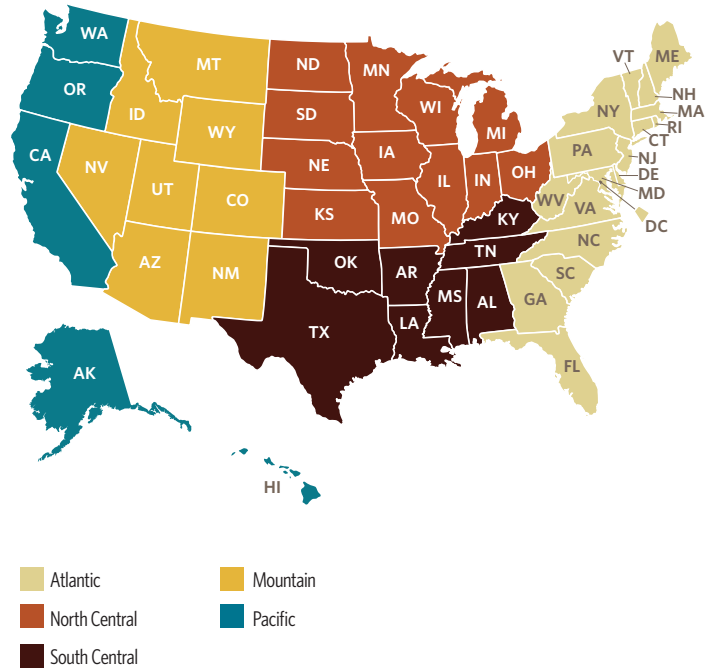


Table 1. Percentage of fourth- and eighth-grade AI/AN students, by region: 2009

Region	Grade 4	Grade 8
Atlantic	8	10
North Central	17	17
South Central	25	25
Mountain	30	27
Pacific	20	20

NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because of rounding.

RESPONSE RATES

To ensure that reported results are based on samples that are representative of the target populations, NAEP statistical standards require that participation rates for original school samples be at least 70 percent for results to be reported separately for different types of schools. In instances where participation rates meet the 70 percent criterion but fall below 85 percent, a nonresponse bias analysis is conducted to determine if the responding sample is not representative of the population, thereby introducing the potential for nonresponse bias.

The weighted overall school response rates were 97 percent at grade 4 and 97 percent at grade 8. The weighted school response rates by school type were as follows: 100 percent for public schools and 88 percent for BIE schools at grade 4, and 100 percent for public schools and 80 percent for BIE schools at grade 8.

The weighted overall student response rates were 87 percent at grade 4 and 84 percent at grade 8. The weighted student response rates by school type were as follows: 87 percent for AI/AN students attending public schools and 89 percent for BIE schools at grade 4, and 84 percent for public schools and 87 percent for BIE schools at grade 8. Nonresponse bias analyses were conducted because the student response rate for grade 8

failed to meet the NAEP standard of 85 percent. These analyses concluded that the potential effect of nonresponse bias on the survey estimates would be very slight (see the Technical Notes for additional information).

Reporting Survey Results

The results presented in this report are based on responses to survey questions administered in 2009 and are summarized in terms of percentages of students. Because the sample was not designed to be representative of teachers or school administrators, the unit of analysis is always the student. So even when results from the teacher and school questionnaires are presented, they are reported as the percentages of students whose teachers or school administrators provided a given response.

NIES results are reported using widely accepted statistical standards. Findings are reported based on a statistical significance level set at .05 with appropriate adjustments for multiple comparisons (see the Technical Notes for more information). Results in tables and figures by type of school or by students' race/ethnicity are noted to indicate that a percentage is significantly different from another. Only those differences that are found to be statistically significant are discussed in the text as higher or lower.



In summarizing the results by school type/density, data for response categories were sometimes collapsed to help illustrate better how response patterns differed for students attending different schools. For example, when asked how much they knew about their AI/AN tribe or group, fourth-graders selected one of the following four options: “nothing,” “a little,” “some,” or “a lot.” When comparing students’ responses to this question by school type/density, “some” and “a lot” categories were combined to determine if students were more or less likely to know at least some of this information based on the type of school they attended rather than to examine each response category separately. Data for all individual survey question responses by school type are available in the NAEP Data Explorer at <http://nces.ed.gov/nationsreportcard/naepdata>.

SCHOOL TYPE AND DENSITY

AI/AN students differ in terms of the types of schools they attend. Although the data are not shown here, in 2009 most AI/AN students attended public schools (91 percent at grade 4 and 90 percent at grade 8). The percentages of AI/AN students attending federally supported BIE schools were 7 percent at grade 4 and 6 percent at grade 8. The remaining students (2 percent at grade 4 and 4 percent at grade 8) attended other types of schools, including private schools, and Department

of Defense schools. While AI/AN students attending private schools and Department of Defense schools are included in the overall results at each grade, the number of students in these schools were not large enough to report separately.

The proportion of AI/AN students in the schools they attended also differed. Although the data are not shown here, 46 percent of AI/AN fourth-graders and 44 percent of eighth-graders attended high density schools where 25 percent or more of the students were AI/AN, including those in BIE schools. The remaining students (54 percent at grade 4 and 56 percent at grade 8) attended low density schools where less than 25 percent of the students were AI/AN.

Because AI/AN students’ experiences are likely to vary depending on the types of schools they attended, the NIES survey results are reported for three mutually exclusive categories: low density public schools, high density public schools, and BIE schools. The proportion of AI/AN students in each of these categories presented in **table 2** may vary slightly from those discussed above since they do not include students attending private or Department of Defense schools. The results presented in the following chapters compare the survey responses for students in each of the three types of schools.

Table 2. Percentage of fourth- and eighth-grade AI/AN students, by region and school type/density: 2009

School type/density	Total	Region				
		Atlantic	North Central	South Central	Mountain	Pacific
Grade 4						
Low density public schools	55	11	20	22	21	27
High density public schools	39	6	13	35	34	12
BIE (high density) schools	7	1	23	6	66	3
Grade 8						
Low density public schools	57	12	20	23	19	26
High density public schools	37	6	12	34	33	14
BIE (high density) schools	6	2	30	8	56	4

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. School density indicates the proportion of AI/AN students enrolled. Low density schools have less than 25 percent AI/AN students. High density schools have 25 percent or more. Results are not included for Department of Defense and private schools. Detail may not sum to totals because of rounding.

Characteristics of AI/AN Students

Information about how student characteristics differ across groups helps to provide some context for interpreting results. Information collected from the NAEP questionnaires shows differences between AI/AN students and non-AI/AN students and between AI/AN students attending different types of schools.

At both grades 4 and 8, larger percentages of AI/AN students than non-AI/AN students overall (including Black, Hispanic, White, and Asian/Pacific Islander students, and students whose race/ethnicity was unclassified) attended schools in rural locations and were eligible for the National School Lunch Program (an indicator of low family income), and smaller percentages of AI/AN students had a computer in the home (**table 3**).

When compared to other specific race/ethnicity groups, the percentages of fourth- and eighth-grade AI/AN students eligible for the National School Lunch Program were higher than the percentages of White and Asian/Pacific Islander students, but lower than the percentages of Black and Hispanic students. The percentages of AI/AN students who reported having more than 25 books in the home were higher than the percentages of Black and Hispanic students and lower than the percentages of White and Asian/Pacific Islander students at both grades. The percentage of eighth-grade AI/AN students reporting that at least one parent had some education beyond high school was smaller than the percentages of Black, White, and Asian/Pacific Islander students but larger than the percentage of Hispanic students.

Table 3. Percentage of fourth- and eighth-grade students, by race/ethnicity and selected student characteristics: 2009

Characteristic	AI/AN	Non-AI/AN	Other race/ethnicity groups			
			Black	Hispanic	White	Asian/Pacific Islander
Grade 4						
Attend rural schools	46	21*	12*	11*	29*	8*
English language learners	8	9	1*	36*	1*	17*
Students with disabilities	12	11*	12	9*	12	6*
Eligible for National School Lunch Program	67	44*	72*	75*	26*	32*
More than 25 books in home	55	67*	52*	46*	79*	72*
Computer in home	78	89*	85*	81	93*	93*
No days absent from school	43	52*	51*	51*	53*	65*
Grade 8						
Attend rural schools	49	21*	14*	10*	28*	8*
English language learners	6	5	1*	21*	#*	11*
Students with disabilities	14	10*	12	9*	10*	4*
Eligible for National School Lunch Program	59	39*	67*	70*	22*	35*
Parental education beyond high school	55	65*	64*	38*	74*	68*
More than 25 books in home	57	65*	52*	40*	77*	69*
Computer in home	82	92*	88*	86*	95*	97*
No days absent from school	35	45*	45*	45*	44*	63*

Rounds to zero.

* Significantly different ($p < .05$) from AI/AN students.

NOTE: AI/AN = American Indian/Alaska Native. Black includes African American, Hispanic includes Latino, and Pacific Islander includes Native Hawaiian. Race categories exclude Hispanic origin. Results are not shown for students whose race/ethnicity was unclassified, but they are included in the results for non-AI/AN students. Information on parental education was not collected at grade 4.

Higher percentages of AI/AN students in BIE schools than in high and low density public schools attended schools in rural locations, were identified as English language learners, and were eligible for the National School Lunch Program (table 4). The percentages of students in these

groups were also higher in high density public schools than in low density public schools. The percentages of students who reported having a computer in the home were higher among those attending low density public schools than those in high density public schools or BIE schools.

Table 4. Percentage of fourth- and eighth-grade AI/AN students, by school type/density and selected student characteristics: 2009

Characteristic	School type/density		
	Low density public schools	High density public schools	BIE (high density) schools
Grade 4			
Attend rural schools	25	70 ^a	91 ^{a, b}
English language learners	3	12 ^a	35 ^{a, b}
Students with disabilities	15	14	13 ^a
Eligible for National School Lunch Program	58	79 ^a	87 ^{a, b}
More than 25 books in home	63	47 ^a	36 ^{a, b}
Computer in home	82	74 ^a	63 ^{a, b}
No days absent from school	43	40	37 ^{a, b}
Grade 8			
Attend rural schools	30	72 ^a	88 ^{a, b}
English language learners	1	11 ^a	34 ^{a, b}
Students with disabilities	17	13 ^a	16 ^b
Eligible for National School Lunch Program	53	74 ^a	83 ^{a, b}
Parental education beyond high school	56	51	43 ^{a, b}
More than 25 books in home	61	48 ^a	35 ^{a, b}
Computer in home	85	76 ^a	64 ^{a, b}
No days absent from school	35	34	37

^a Significantly different ($p < .05$) from low density public schools.

^b Significantly different ($p < .05$) from high density public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. School density indicates the proportion of AI/AN students enrolled. Low density schools have less than 25 percent AI/AN students. High density schools have 25 percent or more. Results are not shown for Department of Defense and private schools. Information on parental education was not collected at grade 4.





Cautions in Interpretation

The findings in this report are based on the responses of AI/AN students, their teachers, and their school administrators to multiple-choice survey questions. Although study administrators were available to assist students, the results may still be limited if respondents did not understand or have the information to answer the questions, or were not willing to share the information they had.

The results presented in this report are wholly descriptive, and readers are cautioned not to draw causal inferences based solely on the results presented here. Although comparisons are made among the results for AI/AN students in high and low density public schools and BIE schools, these

should not be interpreted as evidence that the density of the AI/AN school population or the school type are the causes of any significant differences in other student, teacher, and school characteristics. There are many reasons why students, teachers, and school programs may differ, including ones that are not examined in the NAEP or NIES surveys.

This report is based on NIES Part II survey results, not an experimental or quasi-experimental study. The survey information, however, characterizes the extent to which tribal languages and cultures are integrated into the education of AI/AN students. Thus, NIES provides a context for further study and understanding of AI/AN students' educational experiences.

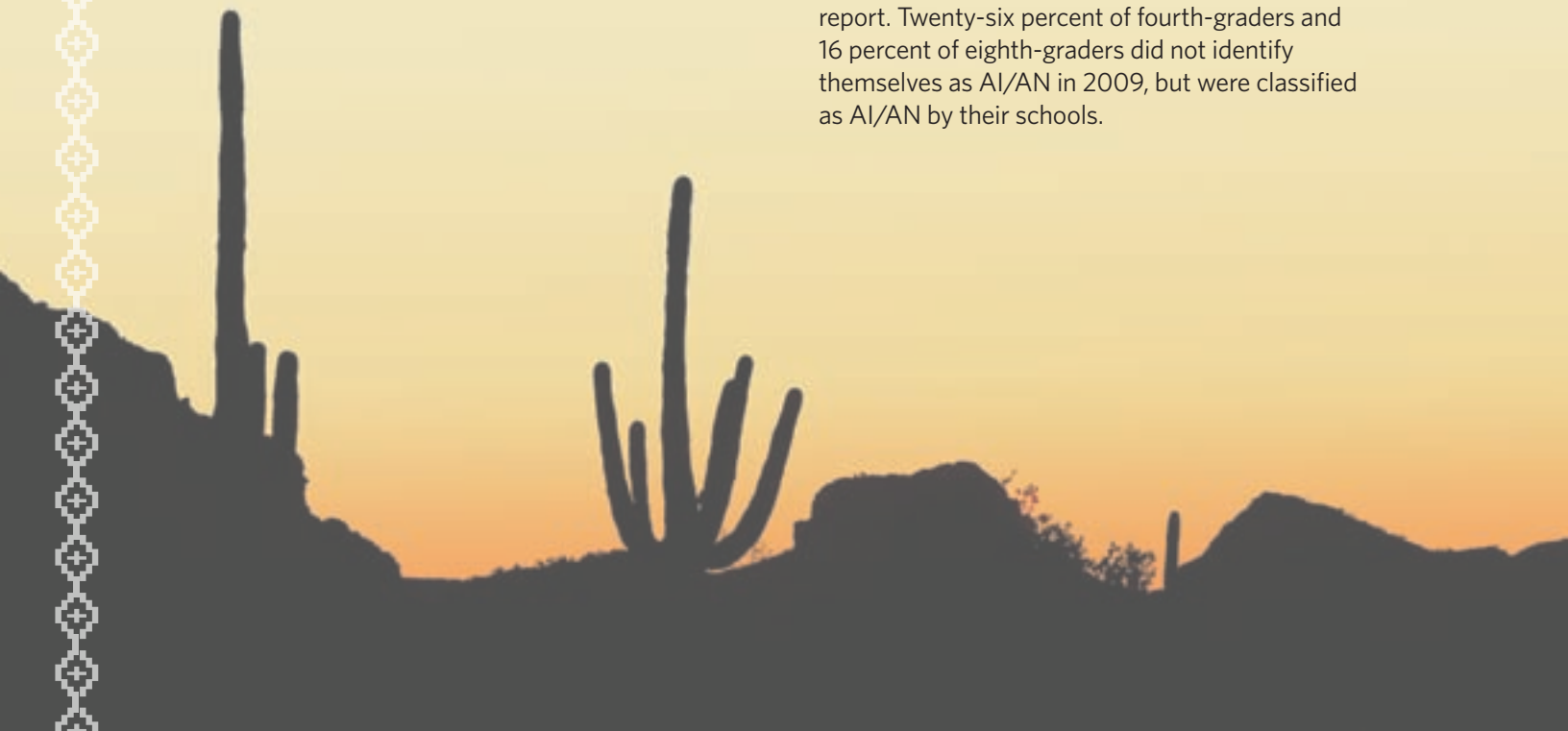
Chapter 1

American Indian/Alaska Native Students Report on Cultural and Educational Experiences, and Future Aspirations

The 2009 NIES student questionnaires asked fourth- and eighth-grade American Indian/Alaska Native (AI/AN) students about themselves, their families and communities, and their school experiences. The results presented in this chapter focus on students' responses to questions about their exposure to AI/AN culture and language, sources of help with their schoolwork, and plans for their future. While much of the same information was collected at both grades 4 and 8, the questions in the eighth-grade questionnaire were sometimes more detailed than those in the fourth-grade questionnaire.

AI/AN students' perceptions of themselves and their school may vary depending upon their family background and their exposure to their native history, traditions, culture, and language. Responses of AI/AN students growing up in urban settings where they may be in the minority might differ from those who live in rural areas where they might be part of a more homogeneous group. The interactions among home, school, and community influences are complex and potentially provide avenues for promoting AI/AN student achievement.

Note that although information about their race/ethnicity group was also provided by the students, it was not used in summarizing the results in this report. Twenty-six percent of fourth-graders and 16 percent of eighth-graders did not identify themselves as AI/AN in 2009, but were classified as AI/AN by their schools.



Students in schools with higher proportions of AI/AN students are more likely to be exposed to AI/AN culture

STUDENTS' KNOWLEDGE OF THEIR AI/AN CULTURE

When asked how much they knew about their AI/AN history and traditions, larger percentages of students reported knowing a little, some, or a lot, than knowing nothing at all (**table 1-1**). Fifty-five percent of fourth-graders reported knowing some or a lot about their AI/AN tribe or group's history, traditions, or crafts, which was higher than the 45 percent knowing a little or nothing. Sixty-six percent of eighth-graders reported knowing some or a lot about their history, and 54 percent knew some or a lot about their traditions and culture.

When eighth-graders were asked how much they knew about current issues important to AI/AN people, the percentages of students reporting knowing nothing, a little, or something about them were higher than the percentage who reported knowing a lot. Forty-seven percent of eighth-graders reported at least some knowledge about current issues, and 53 percent reported knowing a little or nothing.

Although not shown in the table, 51 percent of fourth-graders and 73 percent of eighth-graders reported knowing the name of their American Indian tribe or Alaska Native group.

Table 1-1. Percentage of fourth- and eighth-grade AI/AN students, by their responses to a question about their AI/AN heritage: 2009

How much do you know about the following?	Nothing	A little	Some	A lot
Grade 4				
Your AI/AN tribe or group (history, traditions, or arts and crafts)	15	30	30	25
Grade 8				
Your AI/AN history	9	25	41	25
Your AI/AN traditions and culture (way of life, customs)	18	28	32	22
Issues today that are important to AI/AN people	23	30	31	16

NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because of rounding.

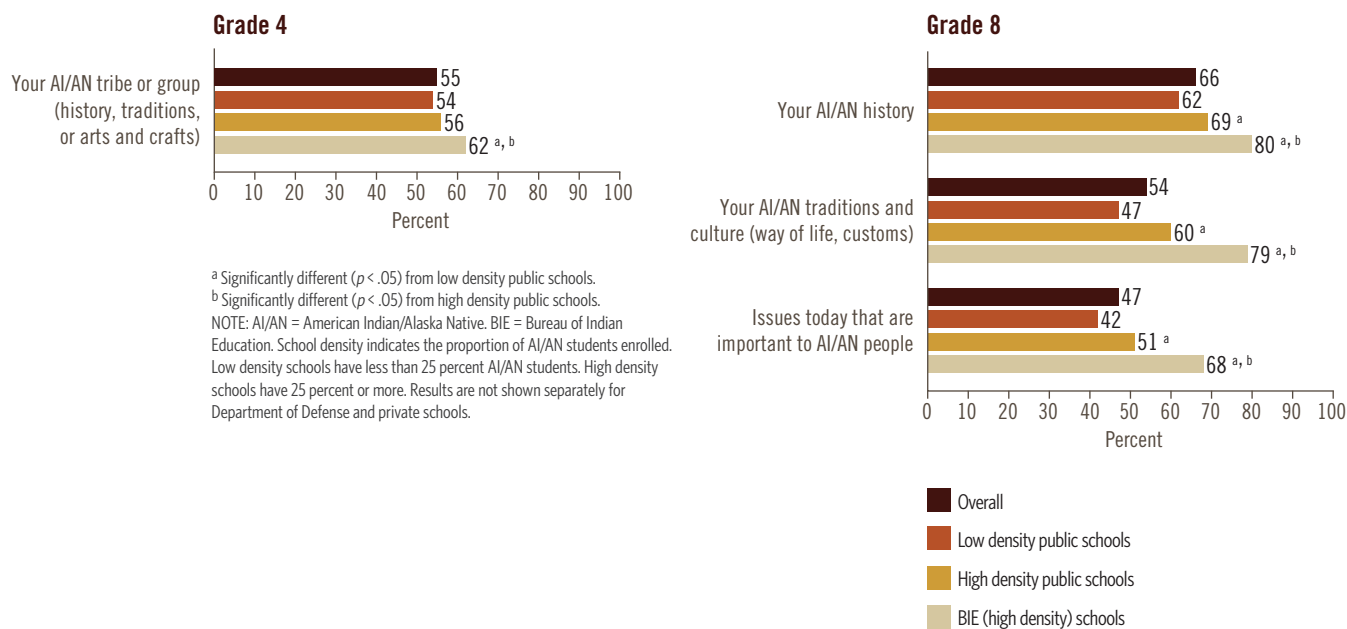




The combined percentages of students who reported having some or a lot of knowledge about AI/AN history and traditions were higher for students in BIE schools than for their peers in high or low density public schools (figure 1-1). Similarly, the percentage of eighth-graders who had some or a lot of knowledge about current issues important to AI/AN people was higher for students in BIE schools than in high or low density public schools.

While there was no significant difference in the percentages of fourth-graders in high and low density public schools who had some or a lot of knowledge of AI/AN history and traditions, the percentages of eighth-graders with at least some knowledge of AI/AN history, traditions, and current issues were higher among those in high density public schools than in low density schools.

Figure 1-1. Percentage of fourth- and eighth-grade AI/AN students who reported that they have some or a lot of knowledge about their AI/AN heritage, by school type/density: 2009



STUDENTS' EXPOSURE TO AI/AN CULTURE OUTSIDE OF SCHOOL

To explore students' exposure to AI/AN culture beyond just their reported level of knowledge, they were asked several questions about the extent to which they participated in cultural activities. Among the four response options provided for each of the questions at grades 4 and 8, the largest percentage of students indicated they had never participated in traditional ceremonies or gatherings, although these percentages were smaller than the combined percentages who reported participating every few years, at least once a year, or several times a year (table 1-2).

Forty-one percent of fourth-graders reported participating in AI/AN ceremonies and gatherings at least once or several times a year. At grade 8, the questions distinguished between participating in ceremonies and gatherings with people from their own tribe or group and those with people from different tribes or groups. Forty-nine percent of eighth-graders reported participating in activities with their own tribe or group, and 41 percent engaged in activities with other tribes or groups at least once a year or more.

Table 1-2. Percentage of fourth- and eighth-grade AI/AN students, by their responses to a question about their participation in AI/AN-related activities: 2009

How often have you participated in the following?	Never	Every few years	At least once a year	Several times a year
Grade 4				
AI/AN ceremonies and gatherings	39	20	17	24
Grade 8				
Ceremonies and gatherings for people from your AI/AN tribe or group	34	17	22	27
Ceremonies and gatherings that bring people together from many different AI/AN tribes or groups	40	19	23	18
Other AI/AN activities	37	22	23	18

NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because of rounding.

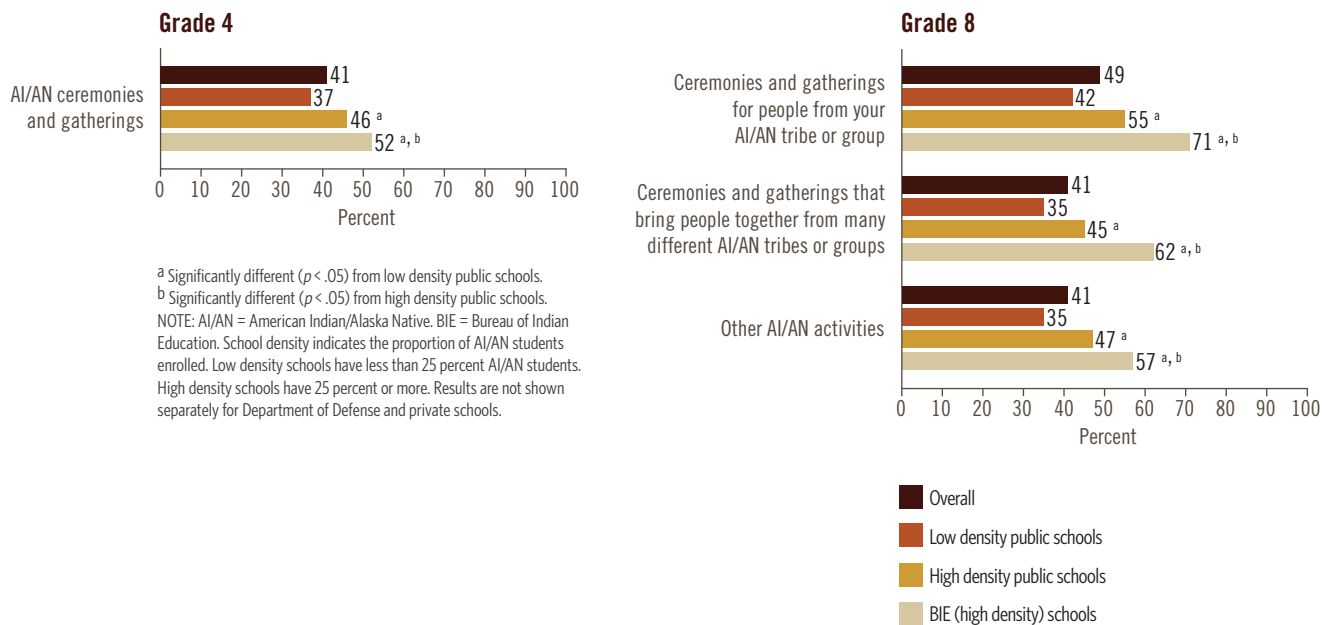
49% of eighth-grade AI/AN students participated in ceremonies and gatherings of their tribe or group at least once or several times a year.



When the percentages of students who reported participating in AI/AN activities at least once a year or several times a year were examined by school type and density, the results showed that a higher percentage of AI/AN students in BIE schools than

their peers in high or low density public schools reported participating in cultural activities outside of school (figure 1-2). Higher percentages of students in high density public schools than in low density schools engaged in these activities at both grades.

Figure 1-2. Percentage of fourth- and eighth-grade AI/AN students who reported that they have participated in AI/AN-related activities at least once a year or several times a year, by school type/density: 2009

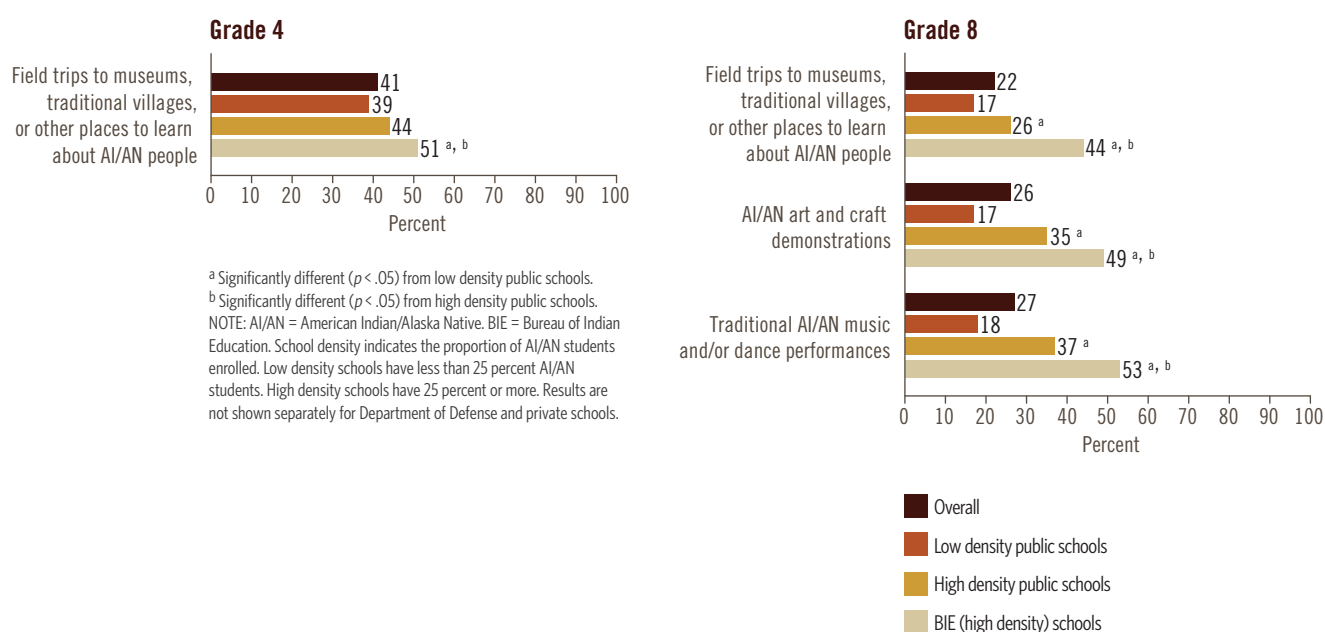


STUDENTS' PARTICIPATION IN SCHOOL-SPONSORED AI/AN CULTURAL ACTIVITIES

Students were sometimes exposed to AI/AN cultural activities through school events in addition to those they engaged in outside of school. When asked about school-sponsored activities, 41 percent of fourth-graders and 22 percent of eighth-graders reported that they went on field trips to museums, traditional villages, or other places to learn about

their people during the current school year (figure 1-3). Twenty-six percent of eighth-graders reported going to art and craft demonstrations during the current school year, and 27 percent reported going to traditional music and/or dance performances through their school. At both grades 4 and 8, the percentages of students who reported attending these activities were higher for AI/AN students in BIE schools than in high or low density public schools.

Figure 1-3. Percentage of fourth- and eighth-grade AI/AN students who reported that they attended various school-sponsored AI/AN-related activities during the current school year, by school type/density: 2009



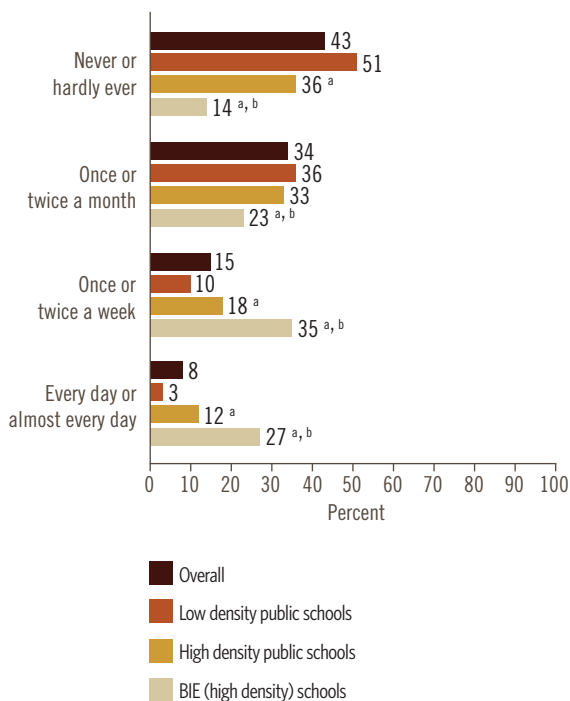
41% of fourth-grade AI/AN students reported attending school-sponsored trips to museums, traditional villages, or other places to learn about AI/AN people during the current school year.

STUDENTS' EXPOSURE TO AI/AN CULTURE IN THE CLASSROOM

Eighth-grade AI/AN students were asked about the extent to which their teachers talked in class about the history, traditions, and cultures of AI/AN people. Fifty-seven percent of the nation's AI/AN eighth-graders reported their teachers talked about native culture in their classrooms at least once a month (figure 1-4).

When these results are examined by type of school, higher percentages of students in BIE schools than in high or low density public schools reported their teachers talked about AI/AN culture weekly or daily, and the percentages of students in high density public schools were higher than the percentages of those in low density schools.

Figure 1-4. Percentage of eighth-grade AI/AN students who reported how often their teachers talk in class about the history, traditions, and cultures of AI/AN people, by school type/density: 2009



^a Significantly different ($p < .05$) from low density public schools.
^b Significantly different ($p < .05$) from high density public schools.
 NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. School density indicates the proportion of AI/AN students enrolled. Low density schools have less than 25 percent AI/AN students. High density schools have 25 percent or more. Results are not shown separately for Department of Defense and private schools. Detail may not sum to totals because of rounding.

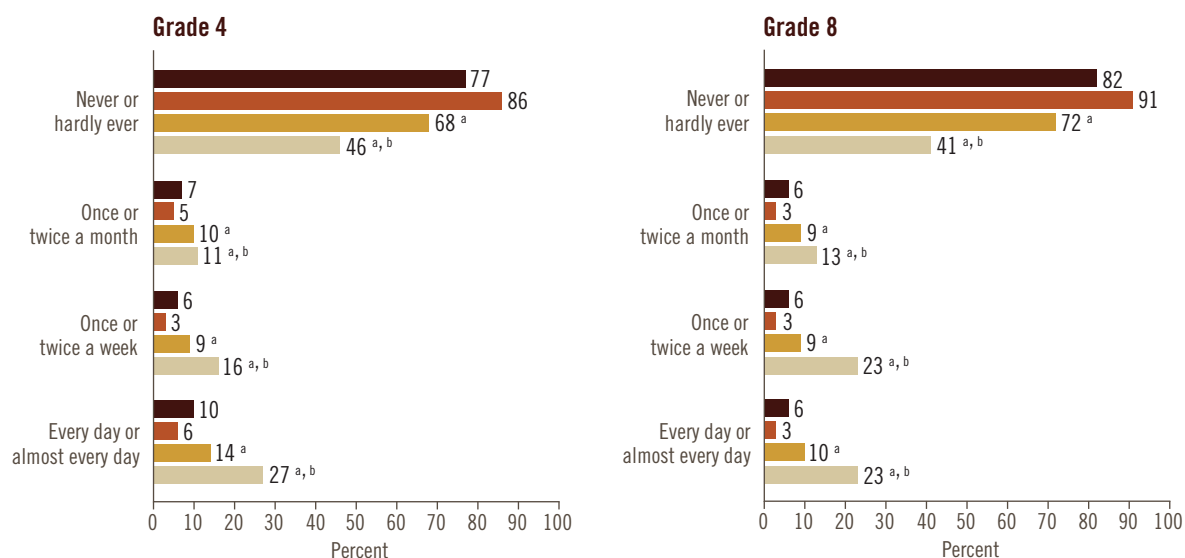


STUDENTS' EXPOSURE TO AI/AN LANGUAGE IN SCHOOL

AI/AN students may hear their AI/AN language spoken at school by their teachers, principal, or other staff. When asked how often people in their school talk in their AI/AN language, 77 percent of fourth-graders and 82 percent of eighth-graders responded never or hardly ever (figure 1-5).

The percentages of AI/AN students in BIE schools exposed to their AI/AN language in their school were higher than in high or low density public schools, and the percentages in high density public schools were higher than in low density schools.

Figure 1-5. Percentage of fourth- and eighth-grade AI/AN students who reported how often people in their schools talk to each other in their AI/AN languages, by school type/density: 2009



^a Significantly different ($p < .05$) from low density public schools.

^b Significantly different ($p < .05$) from high density public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. School density indicates the proportion of AI/AN students enrolled. Low density schools have less than 25 percent AI/AN students. High density schools have 25 percent or more. Results are not shown separately for Department of Defense and private schools. Detail may not sum to totals because of rounding.

Overall

Low density public schools

High density public schools

BIE (high density) schools

Results are available in the **NIES Data Explorer** for additional information provided by students on the following topics related to their knowledge of and exposure to AI/AN culture and language:

- whether or not students know the name of the AI/AN tribe or group they belong to;
- whether or not AI/AN people come to school to talk about their traditions and cultures;
- how often family members speak in AI/AN language;
- whether or not students use books, videos, or other materials about AI/AN people;
- how much students know about AI/AN systems of counting or about AI/AN symbols and designs used in mathematics; and
- how much students enjoy reading about AI/AN people or about people who have different traditions and cultures.

AI/AN students find support at school as well as at home

In 2009, at least 77 percent of fourth- and eighth-graders reported getting help with schoolwork from a parent or family member, or from a teacher or other adult from school once a month or more (table 1-3). The percentage of fourth-graders who reported getting help from a family member on a daily basis was higher than the percentages getting family help on a weekly or monthly basis. The pattern was similar for fourth-graders who reported getting help from a teacher or other adult at the school. The percentages of eighth-graders who received help from a family member or someone from the school on a weekly basis were higher than

the percentages getting help from either source daily or monthly.

A total of 74 percent of AI/AN students at grade 4 and 54 percent³ at grade 8 reported having someone in their family help them weekly or daily. Sixty-one percent of students at grade 4 and 55 percent at grade 8 reported being helped this often by teachers or other school personnel.

³ The percentage is calculated based on the sum of the unrounded numbers rather than on the rounded numbers shown in the table.

Table 1-3. Percentage of fourth- and eighth-grade AI/AN students, by their responses to a question about getting help with their schoolwork: 2009

How often do any of the following people help you with your schoolwork?	Never or hardly ever	Once or twice a month	Once or twice a week	Every day or almost every day
Grade 4				
Parent or someone else from your family	13	13	27	47
Teacher or another adult from your school	23	16	27	34
Grade 8				
Parent or someone else from your family	21	25	33	20
Teacher or another adult from your school	23	22	31	24

NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because of rounding.

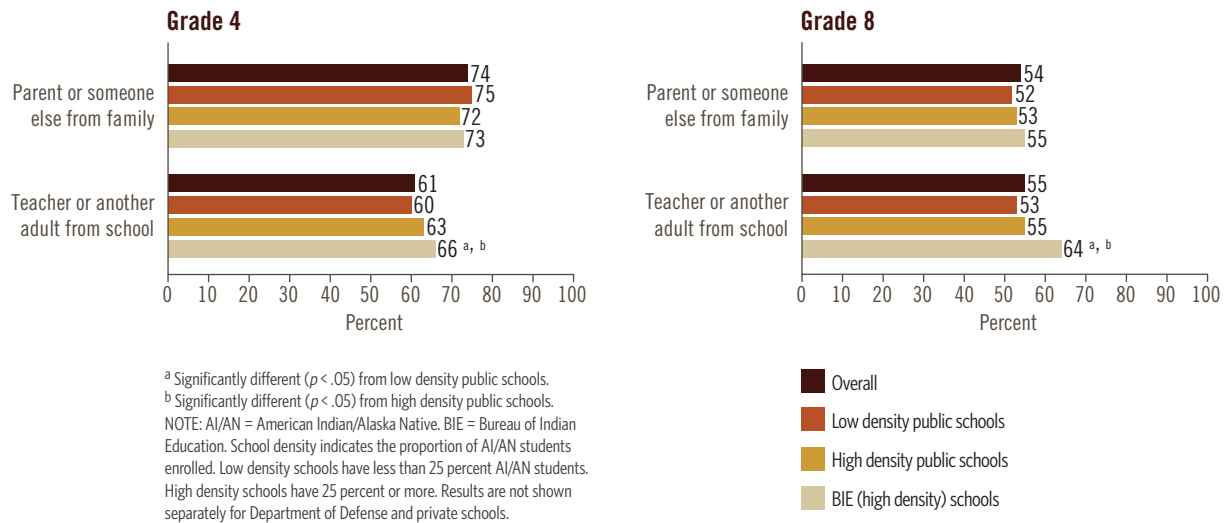
Results are available in the **NIES Data Explorer** for additional information provided by students on the following topics related to sources of help with their schoolwork:

- how often another student helps with schoolwork; and
- how often someone in the community helps with schoolwork.

The percentages of AI/AN fourth- and eighth-graders who reported getting help from someone in their family once a week or more were not significantly different for students attending different types of schools (figure 1-6). The

percentages of fourth- and eighth-graders who reported getting help from someone at school once a week or more were higher for those in BIE schools than for those in high or low density public schools.

Figure 1-6. Percentage of fourth- and eighth-grade AI/AN students who reported that they receive help with their schoolwork from various individuals once a week or more, by school type/density: 2009



AI/AN students attending BIE schools as likely as those attending public schools to plan to go to college full time

STUDENTS' PLANS AFTER HIGH SCHOOL

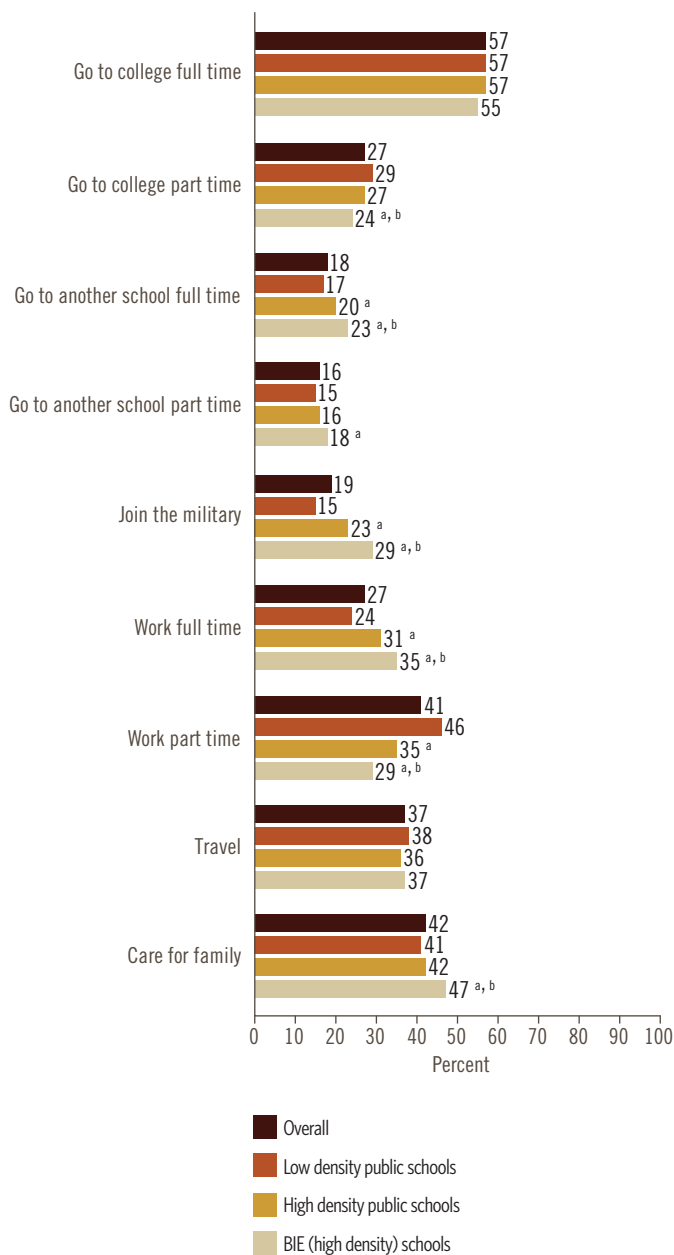
Students' plans for the future may suggest their academic orientation, but planning may also be constrained by the availability of educational and financial resources. Eighth-graders participating in the NIES survey were asked what they planned to do in their first year after high school (note that students could choose as many activities as applied).

Fifty-seven percent of AI/AN eighth-graders indicated that they planned to go to college full time after high school (figure 1-7). There were no significant differences in the percentages of students in BIE schools and those in high or low density public schools reporting that they planned to go to college full time.

The percentages of students planning to join the military or work full time after high school were higher for those attending schools with greater proportions of AI/AN students (i.e., those in BIE or high density public schools) than for those attending schools with smaller proportions of AI/AN students (i.e., low density public schools). A lower percentage of students attending BIE schools than in high or low density public schools reported planning to go to college part time, and a higher percentage reported planning to care for family after high school.

57% of eighth-grade AI/AN students indicated that they plan to go to college full time immediately following high school.

Figure 1-7. Percentage of eighth-grade AI/AN students who reported the various things they plan to do in their first year after high school, by school type/density: 2009



^a Significantly different ($p < .05$) from low density public schools.
^b Significantly different ($p < .05$) from high density public schools.
 NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. School density indicates the proportion of AI/AN students enrolled. Low density schools have less than 25 percent AI/AN students. High density schools have 25 percent or more. Results are not shown separately for Department of Defense and private schools.

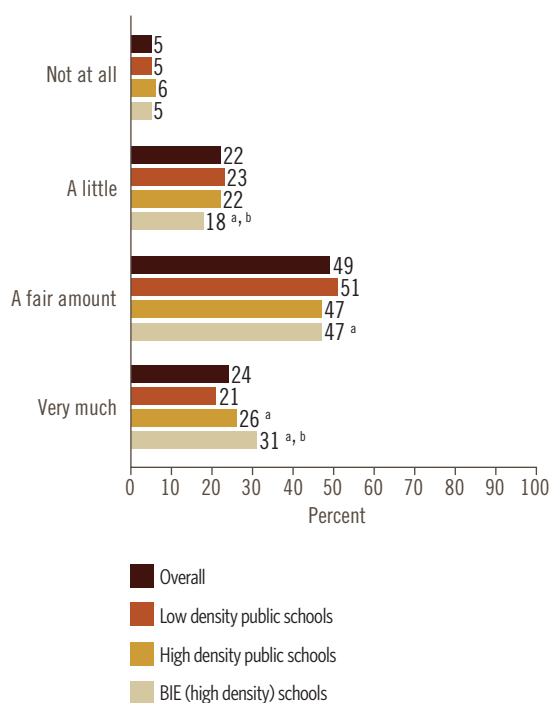
HOW WELL STUDENTS FEEL SCHOOL IS PREPARING THEM FOR THEIR FUTURE PLANS

As a follow-up to the question about plans after high school, eighth-grade AI/AN students were asked how much of what they were learning in school was preparing them for the life they wanted to lead. Of the four possible response options, almost one-half of students (49 percent) reported “a fair amount” of preparation (figure 1-8). The percentage of students in BIE schools indicating “a fair amount” was not significantly different from the percentage of students in high density public schools, but was smaller than the percentage of students in low density schools.

The percentage of students who reported the least amount of preparation (i.e., “not at all”) was smaller than the percentage for any of the other response categories and did not differ significantly among the different types of schools.

A higher percentage of students attending BIE schools than in high and low density public schools indicated the highest level of preparation (i.e., “very much”), and the percentage of students in high density schools was higher than in low density schools.

Figure 1-8. Percentage of eighth-grade AI/AN students who reported how much the things they are learning in school will prepare them for the life they want to lead, by school type/density: 2009



^a Significantly different ($p < .05$) from low density public schools.

^b Significantly different ($p < .05$) from high density public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. School density indicates the proportion of AI/AN students enrolled. Low density schools have less than 25 percent AI/AN students. High density schools have 25 percent or more. Results are not shown separately for Department of Defense and private schools. Detail may not sum to total because of rounding.

Chapter Summary

In 2009, most AI/AN fourth- and eighth-graders reported having at least some knowledge of their AI/AN culture, including the history and traditions of their tribe or group. The extent to which students were exposed to their culture in the schools they attended varied somewhat based on the proportion of AI/AN students in those schools. Students who attended BIE schools were more likely than those in high or low density public schools to report going on school-sponsored field trips to museums, traditional villages, or other places to learn about AI/AN people, and to have teachers who talked about the cultures of AI/AN people in class. In turn, students attending high density public schools were generally more likely than those in low density schools to report being exposed to similar activities.

There were, however, some areas in which there were no significant differences in student reports based on the type of school or density of AI/AN students. For example, there were no differences in the percentages of AI/AN students who reported receiving help with their schoolwork from a parent or someone else in their family, or who reported planning to attend college full time in their first year after high school.

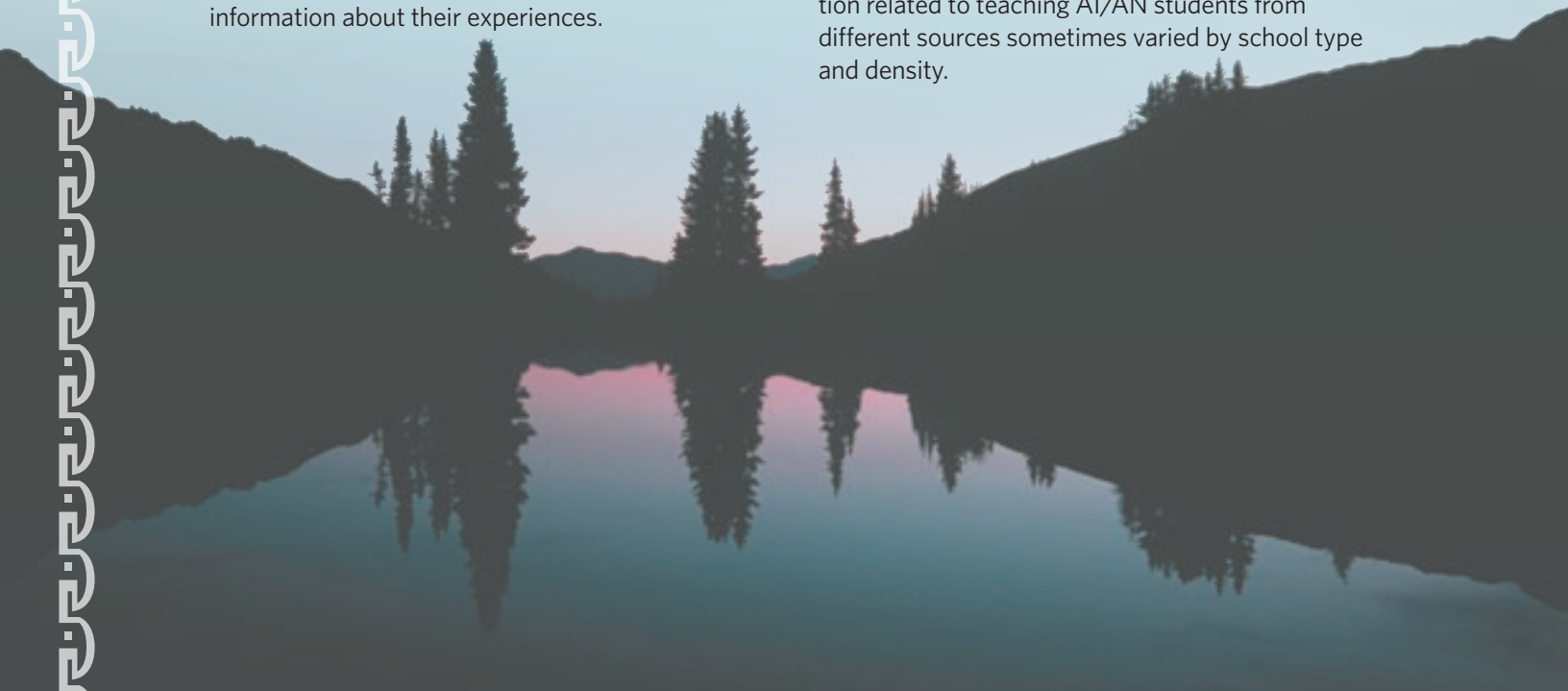
Chapter 2

Teachers of American Indian/ Alaska Native Students Report on Classroom Practices

The 2009 NIES teacher questionnaire collected information about the classroom experiences of American Indian/Alaska Native (AI/AN) students. The results presented in this chapter focus on teachers' responses to questions about the integration of native culture and language into instruction, use of content standards and assessments to promote the academic achievement of their AI/AN students, and use of different types of resources.

Teachers may draw upon a variety of strategies to address the unique needs of their AI/AN students. It is possible that integrating native culture and language into the curriculum could be a way to connect these students with academic content and skills. The extent to which teachers use different strategies in their classrooms may vary based on their knowledge and experience. Several questions were included on the NIES teacher survey to collect information about their experiences.

In 2009, about one-quarter of AI/AN students (25 percent at grade 4 and 22 percent at grade 8) were taught by teachers with 10 to 19 years of experience at the school they attended. Thirty-nine percent of AI/AN students at grade 4 and 40 percent at grade 8 had teachers with less than 5 years of experience at the school. Thirty-eight percent of AI/AN students at grade 4 and 43 percent at grade 8 had teachers who reported acquiring knowledge specific to teaching AI/AN students to a moderate or large extent from independent reading and study specific to teaching AI/AN students. Forty-one percent of AI/AN students at both grades 4 and 8 had teachers who reported gaining knowledge from living and working in the AI/AN community to a moderate or large extent. Teachers' experience and the extent to which they acquired knowledge, skills, and information related to teaching AI/AN students from different sources sometimes varied by school type and density.



Students in schools with higher proportions of AI/AN students are more likely to have teachers who report including cultural themes, current issues, and activities in the curricula

INTEGRATING AI/AN CULTURE INTO THE CURRICULA

The extent to which teachers reported integrating lessons and materials about AI/AN culture into the curriculum varied by subject area. Between 25 and 43 percent of AI/AN fourth-graders, and from 25 to 32 percent⁴ of eighth-graders, had teachers who integrated cultural topics related to history and current issues into the reading/language arts

curriculum once a month or more (table 2-1). Eleven to 13 percent⁴ of AI/AN students at grade 4, and 14 to 16 percent at grade 8, had teachers who integrated cultural topics into the mathematics curriculum once a month or more.

⁴ The percentages are calculated based on the sum of the unrounded numbers rather than on the rounded numbers shown in the table.

Table 2-1. Percentage of fourth- and eighth-grade AI/AN students, by teachers' responses to a question about integrating AI/AN-related lessons and materials into their reading/language arts and mathematics curricula: 2009

To what extent do you integrate lessons and materials about AI/AN culture and history and current issues affecting AI/AN people and communities into your curriculum?	Never	At least once a year	At least once a month	At least once a week	Every day or almost every day
Grade 4					
Reading/language arts					
AI/AN culture and history	7	50	29	11	3
Current AI/AN issues	26	48	17	7	1
Mathematics					
AI/AN culture and history	62	25	8	5	1
Current AI/AN issues	69	20	8	3	1
Grade 8					
Reading/language arts					
AI/AN culture and history	14	54	21	7	5
Current AI/AN issues	35	40	18	5	2
Mathematics					
AI/AN culture and history	57	27	13	2	1
Current AI/AN issues	65	21	10	4	#

Rounds to zero.

NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because of rounding.

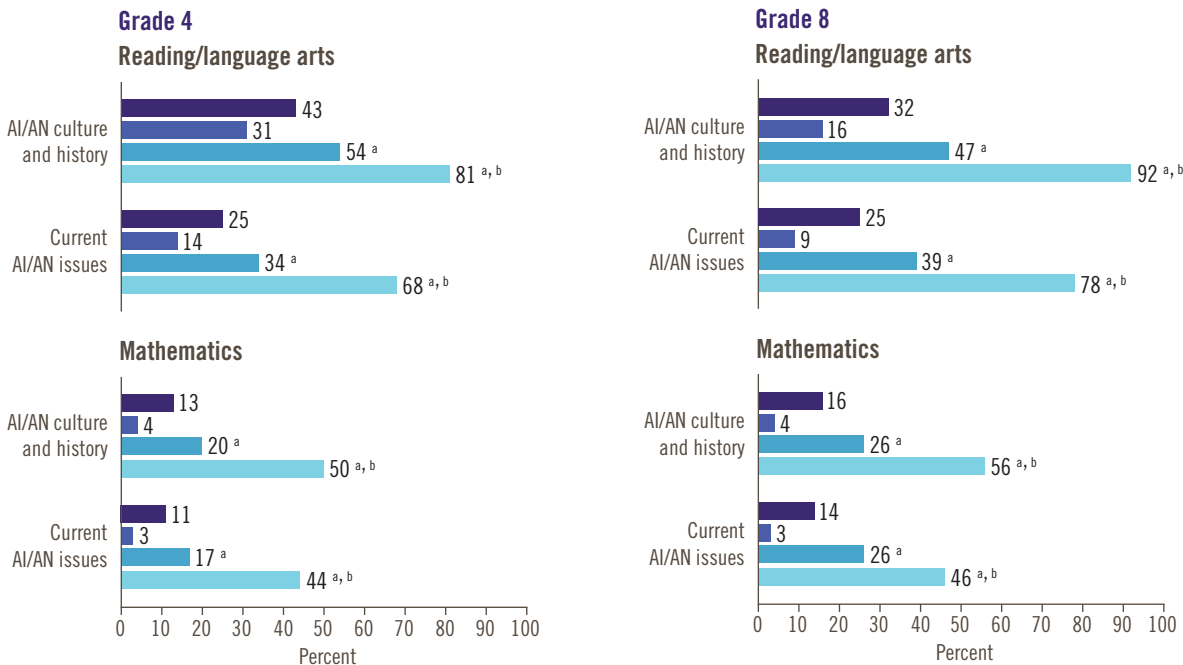
43% of fourth-grade AI/AN students had teachers who integrated AI/AN culture into the reading/language arts curriculum once a month or more.



When the percentages of students whose teachers reported integrating AI/AN culture and history or current issues monthly, weekly, or daily were combined at each grade, the results showed that higher percentages of AI/AN students attending BIE schools than students in high or low density public

schools had teachers who integrated cultural topics into the curriculum once a month or more (figure 2-1). Higher percentages of students in high density public schools than in low density schools had teachers who did so once a month or more.

Figure 2-1. Percentage of fourth- and eighth-grade AI/AN students whose teachers reported that they integrate lessons and materials about AI/AN culture and history and current AI/AN issues into their reading/language arts and mathematics curricula once a month or more, by school type/density: 2009



^a Significantly different ($p < .05$) from low density public schools.
^b Significantly different ($p < .05$) from high density public schools.
 NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. School density indicates the proportion of AI/AN students enrolled. Low density schools have less than 25 percent AI/AN students. High density schools have 25 percent or more. Results are not shown separately for Department of Defense and private schools.

- Overall
- Low density public schools
- High density public schools
- BIE (high density) schools

AI/AN-FOCUSED ACTIVITIES IN READING/LANGUAGE ARTS

As a follow-up to the general question on the extent to which teachers integrated AI/AN culture into reading/language arts instruction, teachers were also asked about certain selected AI/AN-focused reading and writing activities. About two-thirds or more of AI/AN fourth- and eighth-graders had teachers who reported having them engage in some AI/AN-focused reading activities at least once a year. The percentage of students whose teachers asked them to read literature with AI/AN themes

once a month or more was 34 percent at grade 4 and 22 percent at grade 8 (table 2-2).

At least one-half of AI/AN students had teachers who reported having them engage in AI/AN-focused writing activities once a year or more. The percentage of students whose teachers had them write about their own experiences as an AI/AN person once a month or more was 23 percent⁵ at grade 4 and 25 percent at grade 8.

⁵ The percentages are calculated based on the sum of the unrounded numbers rather than on the rounded numbers shown in the table.

Table 2-2. Percentage of fourth- and eighth-grade AI/AN students, by teachers' responses to a question about the use of various AI/AN-related reading/language arts activities: 2009

How often do you have your students do each of the following reading/language arts activities?	Never	At least once a year	At least once a month	At least once a week	Every day or almost every day
Grade 4					
Read literature with AI/AN themes	5	61	27	6	1
Read literature by AI/AN authors	15	65	16	3	#
Read about, or discuss, current issues of concern to AI/AN community	28	47	18	6	1
Write about experiences or issues affecting AI/AN people	41	43	13	3	#
Write about their own experiences as an AI/AN person	48	29	15	5	2
Grade 8					
Read literature with AI/AN themes	12	66	17	4	1
Read literature by AI/AN authors	19	65	13	3	#
Read about, or discuss, current issues of concern to AI/AN community	35	43	15	5	1
Write about experiences or issues affecting AI/AN people	43	40	12	4	1
Write about their own experiences as an AI/AN person	41	33	15	8	2

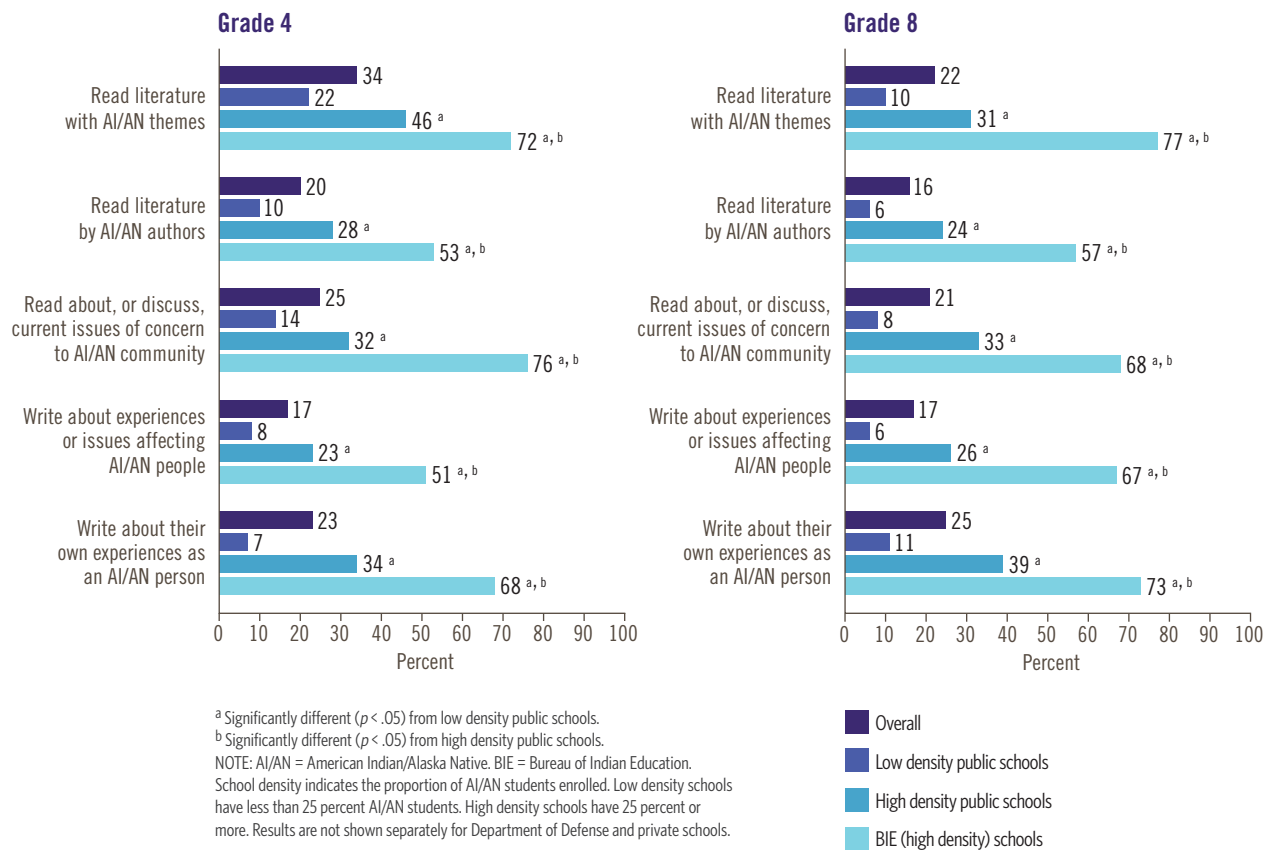
Rounds to zero.

NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because of rounding.

At both grades 4 and 8, the percentages of students whose teachers reported having them engage in selected AI/AN-related reading and writing activities once a month or more were higher for those attending BIE schools than in high or low density public schools, and the percentages of students in high density schools were, in turn, higher than the percentages in low density schools (figure 2-2). For example, 72 percent of AI/AN fourth-graders in BIE

schools had teachers who reported having students read literature with AI/AN themes once a month or more, which was higher than the 46 percent of fourth-graders in high density public schools and 22 percent in low density schools. For the same activity at grade 8, teachers of 77 percent of the students in BIE schools reported doing so, which was higher than the 31 percent in high density schools and 10 percent in low density schools.

Figure 2-2. Percentage of fourth- and eighth-grade AI/AN students whose teachers reported that they have their students do various AI/AN-related reading/language arts activities once a month or more, by school type/density: 2009



77% of AI/AN eighth-graders in BIE schools were asked by their teachers to read literature with AI/AN themes once a month or more.

AI/AN-FOCUSED ACTIVITIES IN MATHEMATICS

Teachers were also asked how often they had their students engage in certain selected activities that integrated AI/AN culture into the mathematics curriculum. Less than one-fifth of AI/AN students (between 5 and 14 percent⁶ at grade 4 and between 2 and 16 percent⁶ at grade 8) had teachers who reported having them engage in the

activities listed in [table 2-3](#) once a month or more. These percentages were consistently smaller than the percentages of students whose teachers reported never having them do these activities.

⁶ The percentages are calculated based on the sum of the unrounded numbers rather than on the rounded numbers shown in the table.

Table 2-3. Percentage of fourth- and eighth-grade AI/AN students, by teachers' responses to a question about the use of various AI/AN-related mathematics activities: 2009

How often do you have your students do each of the following mathematics activities?	Never	At least once a year	At least once a month	At least once a week	Every day or almost every day
Grade 4					
Solve mathematics problems that reflect situations found in AI/AN communities	67	20	9	3	2
Participate in activities that integrate mathematics with AI/AN themes	60	30	7	2	1
Study traditional AI/AN mathematics	77	16	5	1	1
Study mathematics within traditional AI/AN contexts	80	15	4	#	#
Grade 8					
Solve mathematics problems that reflect situations found in AI/AN communities	59	25	9	5	1
Participate in activities that integrate mathematics with AI/AN themes	69	24	5	2	#
Study traditional AI/AN mathematics	81	15	2	1	#
Study mathematics within traditional AI/AN contexts	88	10	2	1	#

Rounds to zero.

NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because of rounding.



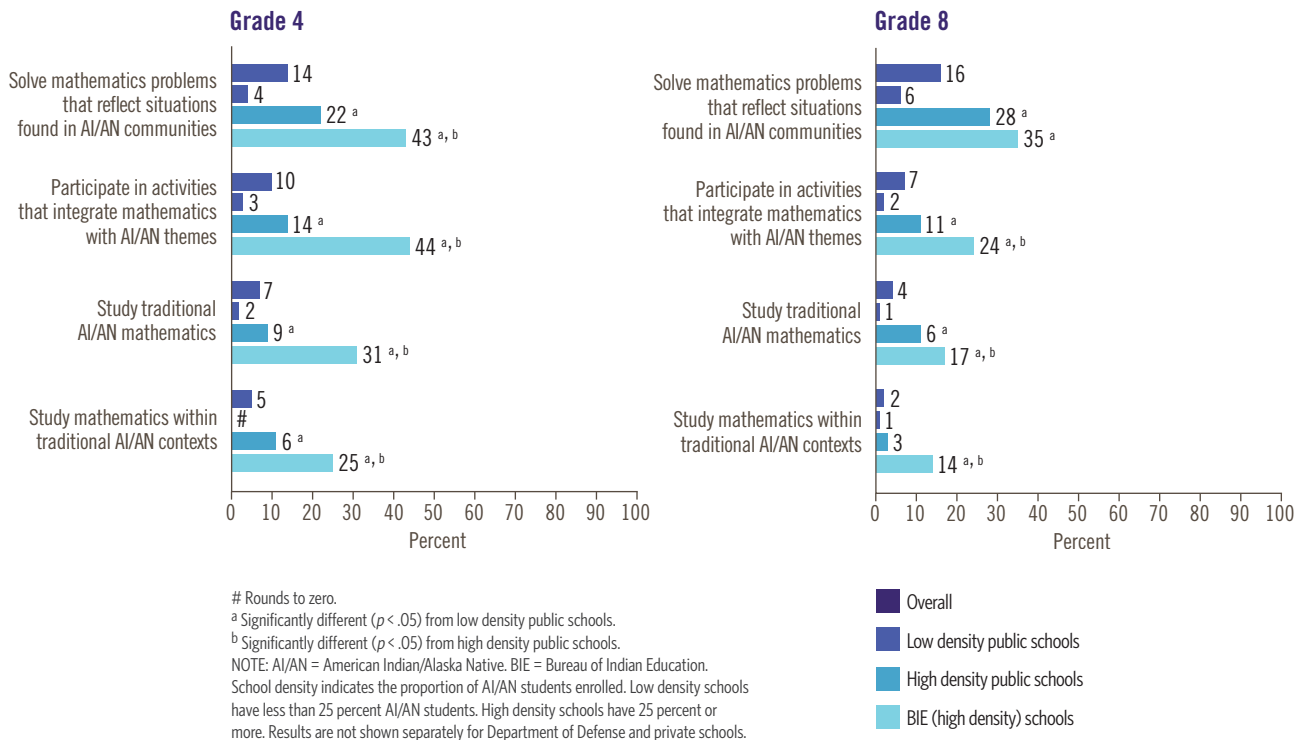
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2009 National Indian Education Study.



The percentages of students in BIE schools whose teachers had them engage in various AI/AN-focused mathematics activities once a month or more ranged from 25 to 44 percent at grade 4, and from 14 to 35 percent at grade 8 (figure 2-3). With only two exceptions at grade 8, the percentages of

AI/AN students in BIE schools engaging in these activities were higher than the percentages of students in high or low density public schools, and the percentages of students in high density schools were higher than in low density schools.

Figure 2-3. Percentage of fourth- and eighth-grade AI/AN students whose teachers reported that they have their students do various AI/AN-related mathematics activities once a month or more, by school type/density: 2009

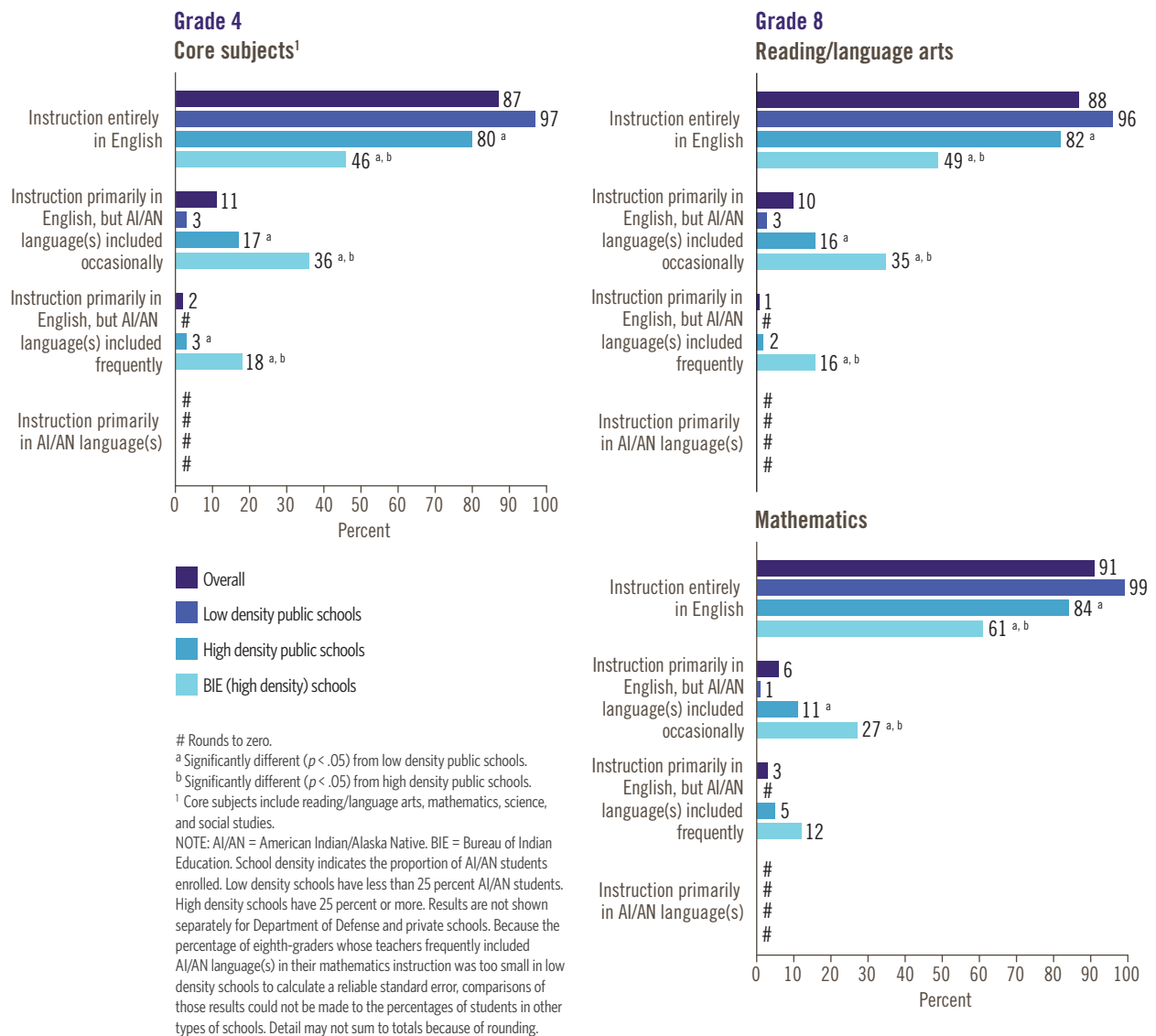


Most AI/AN students receive instruction entirely in English

Higher percentages of AI/AN students received instruction entirely in English than in AI/AN languages. Eighty-seven percent of all AI/AN fourth-graders had teachers who reported teaching core subjects entirely in English (figure 2-4). At grade 8, reading/language arts instruction was provided entirely in English for 88 percent of students, and mathematics instruction was entirely in English for 91 percent of students overall.

Use of AI/AN language for instruction at least occasionally was more likely to occur in schools with high proportions of AI/AN students than in schools with lower proportions. Higher percentages of students attending BIE schools than those in high or low density public schools had teachers who reported occasionally including AI/AN language(s) in their instruction, and the percentages in high density schools were higher than in low density schools.

Figure 2-4. Percentage of fourth- and eighth-grade AI/AN students whose teachers reported the extent to which they use students' AI/AN language(s) in class, by school type/density: 2009



Teachers of AI/AN students rely on state and district content standards in planning lessons

RELIANCE ON CONTENT STANDARDS FOR READING/LANGUAGE ARTS INSTRUCTION

Results from the teacher questionnaire show the extent to which teachers of AI/AN students rely on various content standards in planning lessons in reading and language arts. Ninety-five percent⁷ of AI/AN fourth- and eighth-graders had teachers who reported relying “some” or “a lot” on state content standards (table 2-4). Eighty-five percent of fourth-graders and 83 percent⁷ of eighth-graders

had teachers who reported relying on district standards to some extent or a lot.

In contrast to the reported reliance on state and district standards, 13 percent of AI/AN students at grade 4 and 10 percent at grade 8 had teachers who reported relying “some” or “a lot” on AI/AN content or cultural standards.

⁷ The percentage is calculated based on the sum of the unrounded numbers rather than on the rounded numbers shown in the table.

Table 2-4. Percentage of fourth- and eighth-grade AI/AN students, by teachers’ responses to a question about the use of various standards in planning reading/language arts lessons: 2009

How much do you rely on each of the following documents in planning reading/language arts lessons?	Not at all	A little	Some	A lot	Not aware of any
Grade 4					
State content standards	2	2	9	87	1
District content standards	4	6	15	70	6
Standards developed by national professional organizations	13	16	27	38	6
AI/AN content or cultural standards	35	13	10	3	40
Grade 8					
State content standards	1	3	12	84	1
District content standards	3	6	16	68	7
Standards developed by national professional organizations	13	17	30	35	5
AI/AN content or cultural standards	34	12	8	2	44

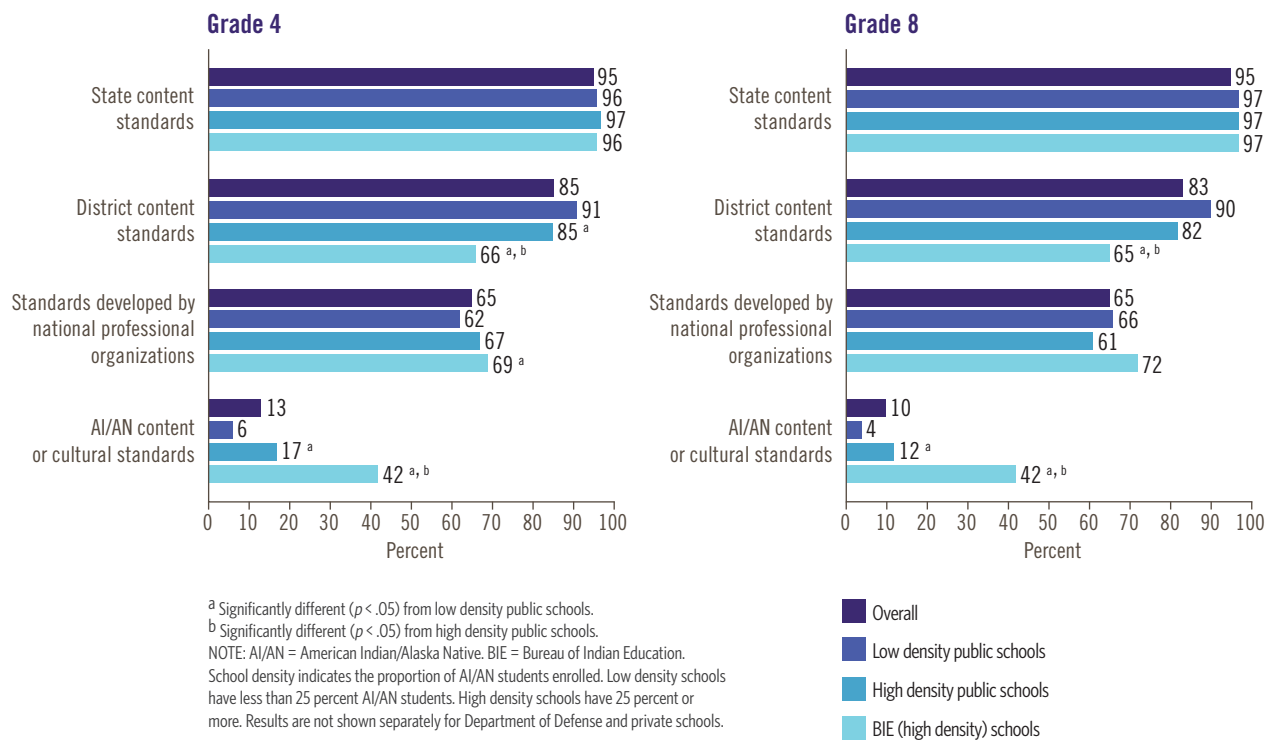
NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because of rounding.

Although BIE schools are not part of state school districts, some may follow state or district standards. While the reported reliance on state standards did not vary by type of school, reliance on district and cultural standards did. At both grades 4 and 8, the percentages of AI/AN students with teachers who used district reading/language arts standards to some extent or a lot were lower

for students in BIE schools than for those in high or low density public schools (figure 2-5).

In addition, higher percentages of students attending BIE schools than high or low density public schools had teachers who relied on AI/AN content or cultural standards.

Figure 2-5. Percentage of fourth- and eighth-grade AI/AN students whose teachers reported that they rely on various standards to some extent or a lot when planning reading/language arts lessons, by school type/density: 2009



RELIANCE ON CONTENT STANDARDS FOR MATHEMATICS INSTRUCTION

Results related to teachers’ reliance on content and cultural standards in mathematics classrooms mirrored those for reading/language arts. Ninety-six percent of fourth-graders and 97 percent of eighth-graders had teachers who reported relying

on state standards to some extent or a lot in planning their mathematics lessons (table 2-5). Only 10 percent of AI/AN students at grade 4 and 5 percent at grade 8 had teachers who reported using AI/AN content or cultural standards to this extent in guiding their instruction.

Table 2-5. Percentage of fourth- and eighth-grade AI/AN students, by teachers’ responses to a question about the use of various standards in planning mathematics lessons: 2009

How much do you rely on each of the following documents in planning mathematics lessons?	Not at all	A little	Some	A lot	Not aware of any
Grade 4					
State content standards	2	2	8	88	#
District content standards	4	3	14	73	6
Standards developed by national professional organizations	13	15	29	38	6
AI/AN content or cultural standards	39	8	7	3	43
Grade 8					
State content standards	1	2	9	88	1
District content standards	6	5	14	68	7
Standards developed by national professional organizations	8	15	28	46	4
AI/AN content or cultural standards	44	10	4	1	42

Rounds to zero.

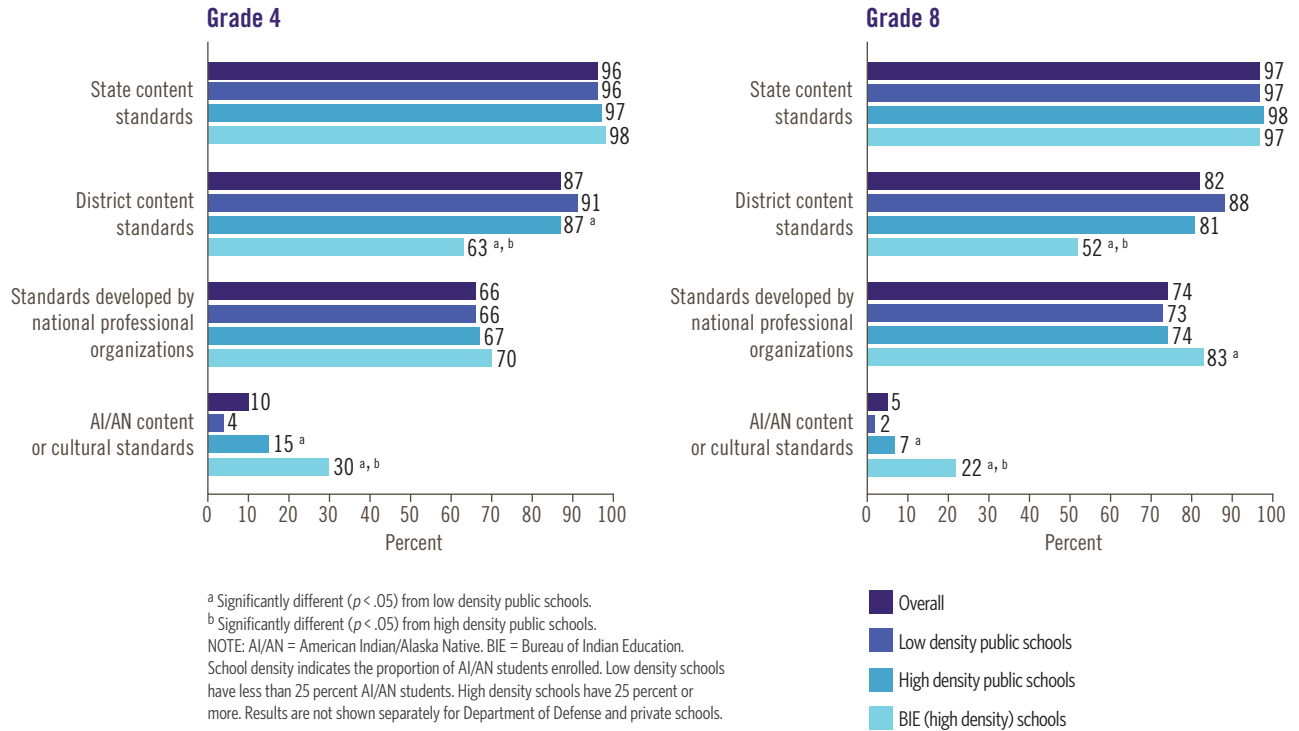
NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2009 National Indian Education Study.

There were no significant differences in the percentages of AI/AN students at either grade whose teachers relied on state content standards to some extent or a lot by type of school or school density (figure 2-6). Higher percentages of students

in BIE schools than in high or low density public schools had teachers who reported relying on AI/AN cultural standards, and lower percentages had teachers who relied on district content standards in BIE schools.

Figure 2-6. Percentage of fourth- and eighth-grade AI/AN students whose teachers reported that they rely on various standards to some extent or a lot when planning mathematics lessons, by school type/density: 2009



Teachers use a variety of techniques to assess students' progress

Teachers of AI/AN students made use of a full range of assessment techniques to measure students' progress. With one exception, 50 percent or more of fourth- and eighth-grade AI/AN students had teachers who reported using the assessment techniques listed in [table 2-6](#) to a

moderate or large extent. The use of assessments developed by AI/AN organizations was an exception, where only 3 percent of fourth- and eighth-graders had teachers who reported using the assessments to a moderate or large extent.

Table 2-6. Percentage of fourth- and eighth-grade AI/AN students, by teachers' responses to a question about the use of various methods to assess students' progress: 2009

To what extent do you use the following to assess student progress?	Not at all	Small extent	Moderate extent	Large extent
Grade 4				
State assessments	3	19	34	44
District assessments	10	13	33	44
Assessments developed by AI/AN organizations	89	8	2	1
Tests supplied by textbook publishers	4	15	35	46
Teacher-made tests or quizzes	2	16	42	40
Performance-based assessments	2	19	49	30
Group projects	7	44	36	14
Oral responses of students during class discussions	2	20	40	38
Grade 8				
State assessments	3	19	37	41
District assessments	13	18	34	35
Assessments developed by AI/AN organizations	86	11	2	1
Tests supplied by textbook publishers	11	28	36	25
Teacher-made tests or quizzes	1	7	37	54
Performance-based assessments	3	14	45	39
Group projects	8	36	40	17
Oral responses of students during class discussions	2	19	42	38

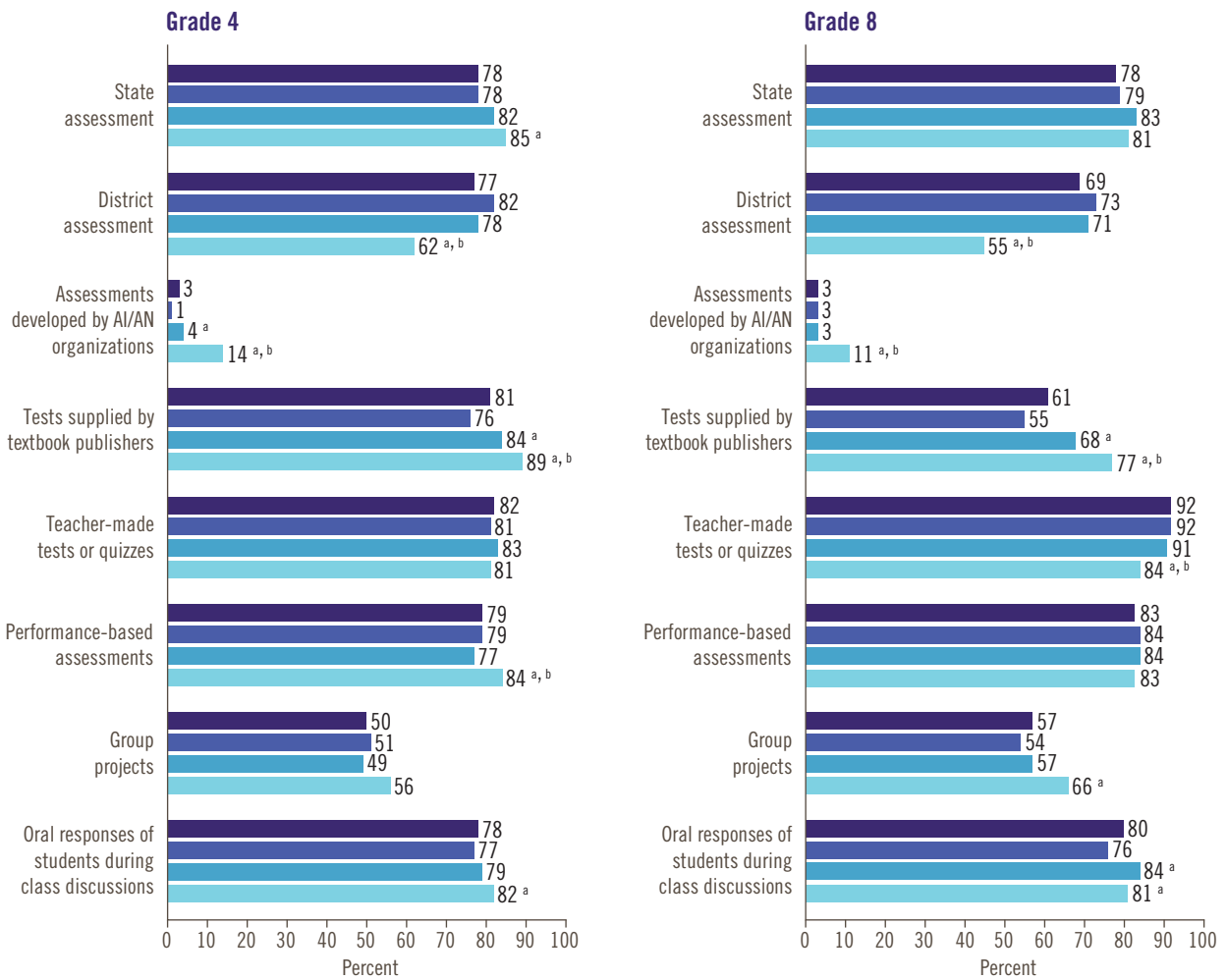
NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because of rounding.

3% of AI/AN fourth- and eighth-graders had teachers who used assessments developed by AI/AN organizations in assessing students' progress to a moderate or large extent.

At both grades 4 and 8, higher percentages of AI/AN students in BIE schools than in high and low density public schools were assessed using tests supplied by textbook publishers, and lower percentages were assessed using district tests (figure 2-7). The percentage of fourth-graders

whose teachers reported using state assessments was higher for students in BIE schools than in low density public schools, while there was no significant difference in the percentages of eighth-graders by type of school or density.

Figure 2-7. Percentage of fourth- and eighth-grade AI/AN students whose teachers reported that they use various methods to assess students' progress to a moderate or large extent, by school type/density: 2009



^a Significantly different ($p < .05$) from low density public schools.
^b Significantly different ($p < .05$) from high density public schools.
 NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education.
 School density indicates the proportion of AI/AN students enrolled. Low density schools have less than 25 percent AI/AN students. High density schools have 25 percent or more. Results are not shown separately for Department of Defense and private schools.

- Overall
- Low density public schools
- High density public schools
- BIE (high density) schools

Teachers of AI/AN students make more use of a variety of resources for improving students' academic performance

Teachers of AI/AN students participating in NIES were asked about their use of different resources to improve the academic performance of AI/AN students. At least one-half of AI/AN fourth- and eighth-graders had teachers who reported consulting the different resources listed in [table 2-7](#) at least one or two times in the past two years.

Included among some of the more frequently consulted resources, teachers of 20 percent of AI/AN students at grade 4 and 22 percent at grade 8 reported consulting online websites or databases five or more times over a two-year period; another 26 percent of fourth-graders and 23 percent of eighth-graders had teachers who consulted other teachers five or more times in two years.

Table 2-7. Percentage of fourth- and eighth-grade AI/AN students, by teachers' responses to a question about the use of various resources to help them improve the academic performance of their AI/AN students: 2009

During the last two years, how many times have you consulted each of the following resources to help you improve the academic performance of your AI/AN students?	Never	1 or 2 times	3 or 4 times	5 or more times
Grade 4				
Online websites or databases	41	27	12	20
Articles in professional journals	46	32	14	8
Local libraries or cultural centers	47	29	15	8
Other teachers in your school	31	26	18	26
Elders or other experts	46	26	15	13
Grade 8				
Online websites or databases	38	27	13	22
Articles in professional journals	40	32	16	12
Local libraries or cultural centers	48	29	15	8
Other teachers in your school	31	24	21	23
Elders or other experts	45	26	16	13

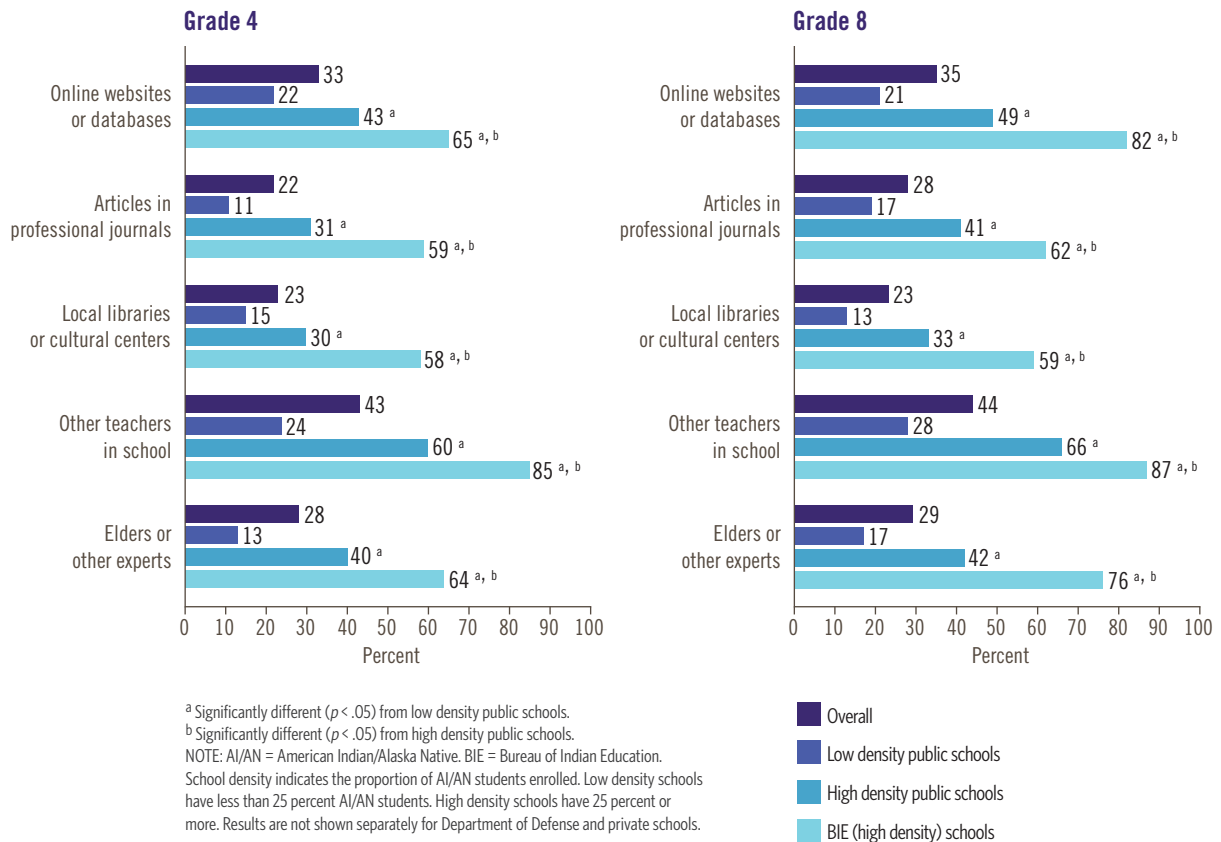
NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because of rounding.



AI/AN students in BIE schools were more likely than those in high or low density public schools to have teachers who reported consulting other teachers when seeking to help improve the academic performance of their students. Eighty-five percent of fourth-graders and 87 percent of eighth-graders in BIE schools had teachers who sought help from other teachers three or more times in the past two years—higher than the percentages of AI/AN students in other types of schools (figure 2-8).

Students in schools with higher proportions of AI/AN students were generally more likely than students in schools with smaller proportions to have teachers who reported making use of other selected resources as well. For each of the selected resources highlighted, the percentages of students in BIE schools whose teachers reported consulting them three or more times in the past two years were higher than the percentages in high and low density public schools, and the percentages in high density schools were higher than in low density schools.

Figure 2-8. Percentage of fourth- and eighth-grade AI/AN students whose teachers reported that they consulted various resources three or more times during the last two years to help them improve the academic performance of their AI/AN students, by school type/density: 2009



Chapter Summary

The extent to which teachers reported integrating AI/AN themes into their instruction varied somewhat by subject area. More than one-half of AI/AN students had teachers who reported integrating cultural themes in reading/language arts instruction once a year or more, while less than one-half had teachers who reported doing so in their mathematics instruction. Students attending BIE schools were more likely than those in high or low density public schools to be exposed to AI/AN themes as part of their instruction in core subjects, and students in high density schools were more likely than those in low density schools to have AI/AN themes integrated into their instruction.

The majority of AI/AN fourth- and eighth-graders had teachers who reported relying on state or district content standards in planning instruction in reading/language arts and mathematics. Students in BIE schools were less likely than those in high or low density public schools to have teachers who relied on district content standards and more likely to have teachers who relied on AI/AN cultural standards.

Teachers reported using a variety of resources and techniques for assessing or improving the academic performance of AI/AN students. Online websites or databases and other teachers were two of the resources consulted more frequently to help improve students' academic performance. Students in BIE schools were more likely than those in high density schools to have teachers who consulted these and other selected resources such as professional journals, local libraries, and elders, and students in high density schools were more likely than those in low density schools to have teachers who did so.

Results are available in the **NIES Data Explorer** for additional information provided by teachers on the following topics related to their knowledge and experiences:

- extent to which teachers speak any of the native languages spoken by AI/AN students;
- preparation for teaching students whose first language is not English;
- extent to which teachers acquire knowledge, skills, and information from independent study, family background, or locally sponsored AI/AN cultural orientation program, and living and working in the AI/AN community;
- extent to which teachers acquire knowledge, skills, and information from college courses or classes focusing on teaching AI/AN students or on various cultures or diversity;
- frequency of attending in-service classes to help improve the academic performance of AI/AN students; and
- sponsors of in-service classes and workshops.

Chapter 3

School Administrators Report on School Environment for American Indian/Alaska Native Students

Results from the 2009 NIES school questionnaire provide insight into the ways schools respond to the distinctive needs of their American Indian/Alaska Native (AI/AN) students. The results presented in this chapter focus on the presence of AI/AN teachers and other staff in the school, areas of instruction in AI/AN culture and current issues, how schools connect with AI/AN communities through communication with families, provision of services, and involvement of the community in school activities.

AI/AN children are educated in various settings. Because some of the schools they attend are small and located in rural areas, schools may need to tap different sources for support, including the surrounding community. AI/AN parents, community members, and local leaders help infuse culture and language inside the school and provide academic support and encouragement to students outside of school.

In addition to questions about school environment, the NIES school questionnaire collected information about the number of years the current principal or head of the school has held that position. More than one-half of AI/AN students (59 percent at grade 4 and 61 percent at grade 8) attended schools where the principal was in the position four years or less, and only a small percentage (4 percent at grade 4 and 2 percent at grade 8) attended schools where the current principals were there 20 years or more.



Highest proportions of AI/AN school staff in BIE schools

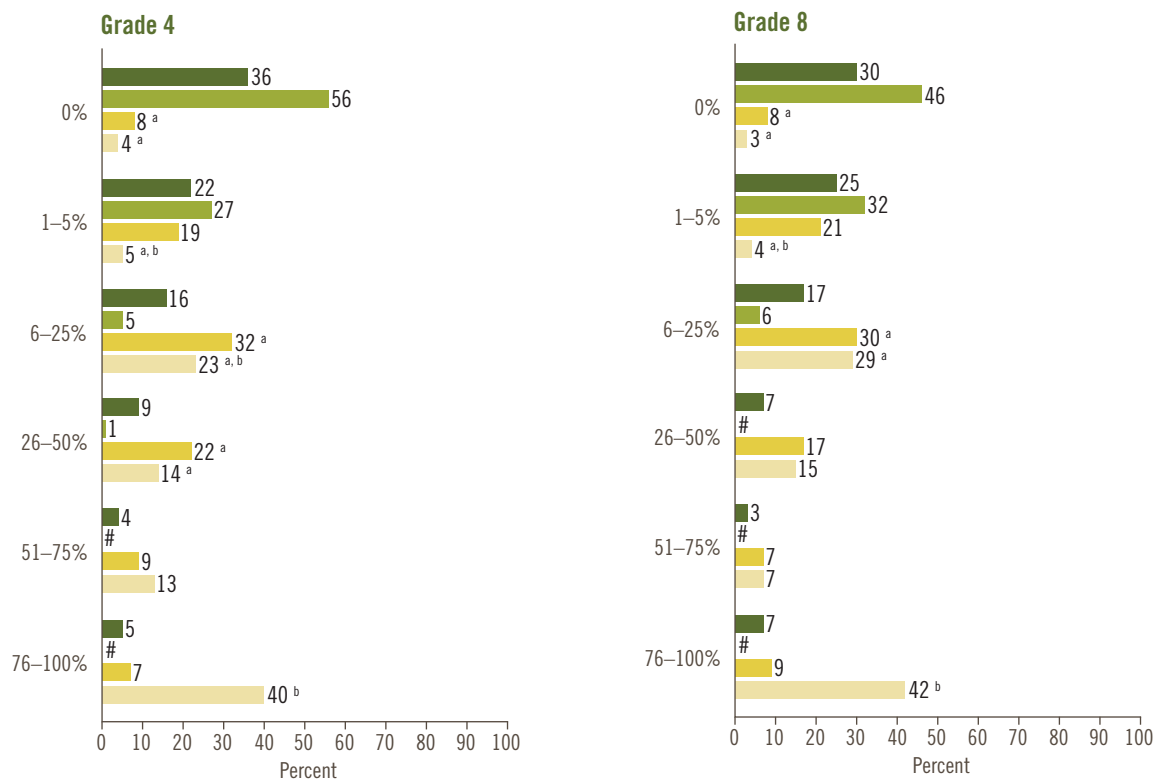
STUDENTS TAUGHT BY AI/AN TEACHERS

The presence of AI/AN teachers and other staff in the school may help create an atmosphere of acceptance and provide role models for AI/AN students. About one-quarter of AI/AN students (22 percent at grade 4 and 25 percent at grade 8) attended schools where 1 to 5 percent of the teachers were AI/AN, and relatively few (about 10 percent) attended schools where 51 percent or more of the teachers were AI/AN (figure 3-1). About one-third of AI/AN students (36 percent

at grade 4 and 30 percent at grade 8) attended schools with no AI/AN teachers.

The proportions of AI/AN teachers varied by type of school. Forty percent of fourth-graders and 42 percent of eighth-graders in BIE schools attended schools where more than three-quarters of the teachers were AI/AN, which were higher than the percentages of students in high density schools. About one-half of the AI/AN students in low density schools (56 percent of fourth-graders and 46 percent of eighth-graders) attended schools with no AI/AN teachers.

Figure 3-1. Percentage of fourth- and eighth-grade AI/AN students whose school administrators reported the percentage of AI/AN teachers at their schools, by school type/density: 2009



Rounds to zero.
^a Significantly different ($p < .05$) from low density public schools.
^b Significantly different ($p < .05$) from high density public schools.
 NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. School density indicates the proportion of AI/AN students enrolled. Low density schools have less than 25 percent AI/AN students. High density schools have 25 percent or more. Results are not shown separately for Department of Defense and private schools. For the 51 to 75 and 76 to 100 percent categories at both grades 4 and 8, the percentages in low density schools were too small to calculate reliable standard errors; therefore, comparisons of those results could not be made to the percentages of students in other types of schools. Comparisons for the 26 to 50 percent category at grade 8 could not be made for the same reason. Detail may not sum to totals because results are not shown for the "I don't know" response choice.

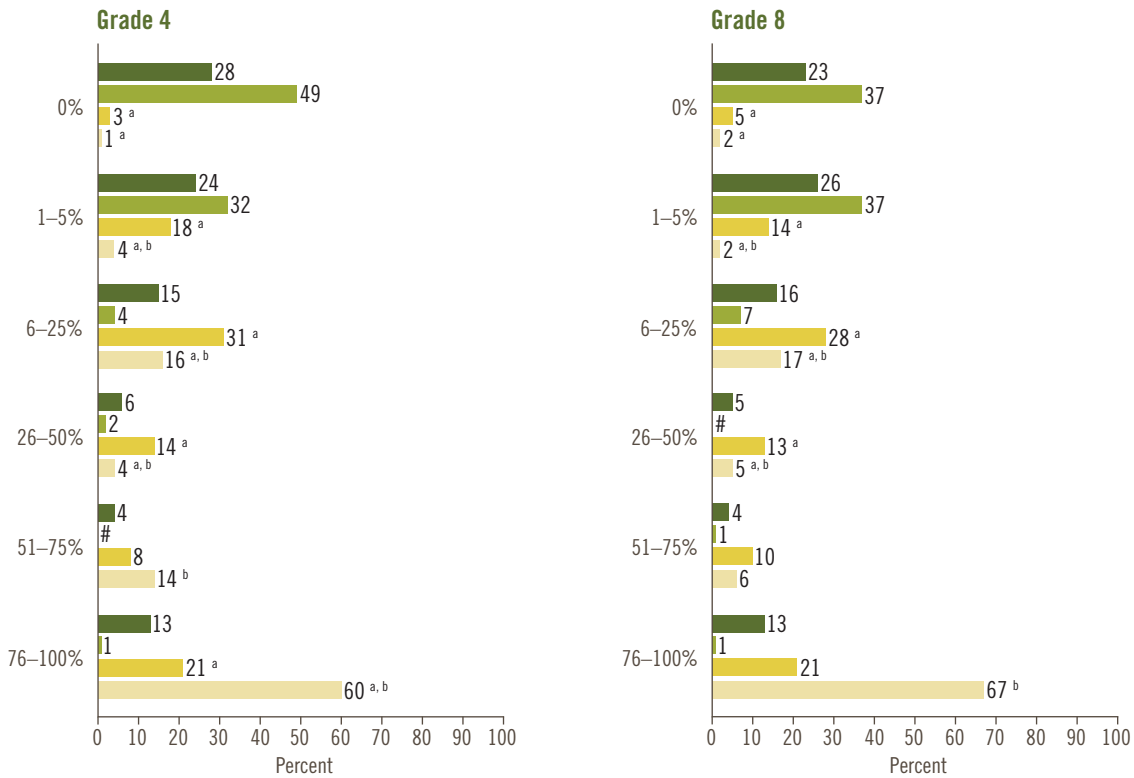
PRESENCE OF AI/AN STAFF OTHER THAN TEACHERS

In 2009, about two-thirds of AI/AN students overall (63 percent at grade 4 and 64 percent at grade 8) attended schools where at least some of the nonteaching staff (i.e., staff other than teachers) in the school were AI/AN (figure 3-2).

The proportions of AI/AN school staff varied for different types of schools. Sixty percent of fourth-graders and 67 percent of eighth-graders in

BIE schools attended schools where more than three-quarters of the nonteaching staff were AI/AN, which were higher than the percentages of students attending high density public schools. Among AI/AN students in low density public schools, 49 percent at grade 4 and 37 percent at grade 8 attended schools with no AI/AN nonteaching staff.

Figure 3-2. Percentage of fourth- and eighth-grade AI/AN students whose school administrators reported the percentage of AI/AN nonteaching staff at their schools, by school type/density: 2009



Rounds to zero.

^a Significantly different ($p < .05$) from low density public schools.

^b Significantly different ($p < .05$) from high density public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. School density indicates the proportion of AI/AN students enrolled. Low density schools have less than 25 percent AI/AN students. High density schools have 25 percent or more. Results are not shown separately for Department of Defense and private schools. For the 51 to 75 percent category at both grades 4 and 8, the percentages in low density schools were too small to calculate reliable standard errors; therefore, comparisons of those results could not be made to the percentages of students in other types of schools. Comparisons for the 76 to 100 percent category at grade 8 could not be made for the same reason. Detail may not sum to totals because results are not shown for the "I don't know" response choice.

Overall

Low density public schools

High density public schools

BIE (high density) schools

Some AI/AN students in low density as well as high density schools receive instruction in AI/AN culture, current issues, and language

INSTRUCTION IN AI/AN CULTURE

School administrators were asked whether or not AI/AN students in their schools received instruction in a variety of topics related to their native culture. Overall, between 82 and 84 percent of fourth-graders attended schools where administrators reported providing instruction in tribal history, traditions, and the arts (figure 3-3).

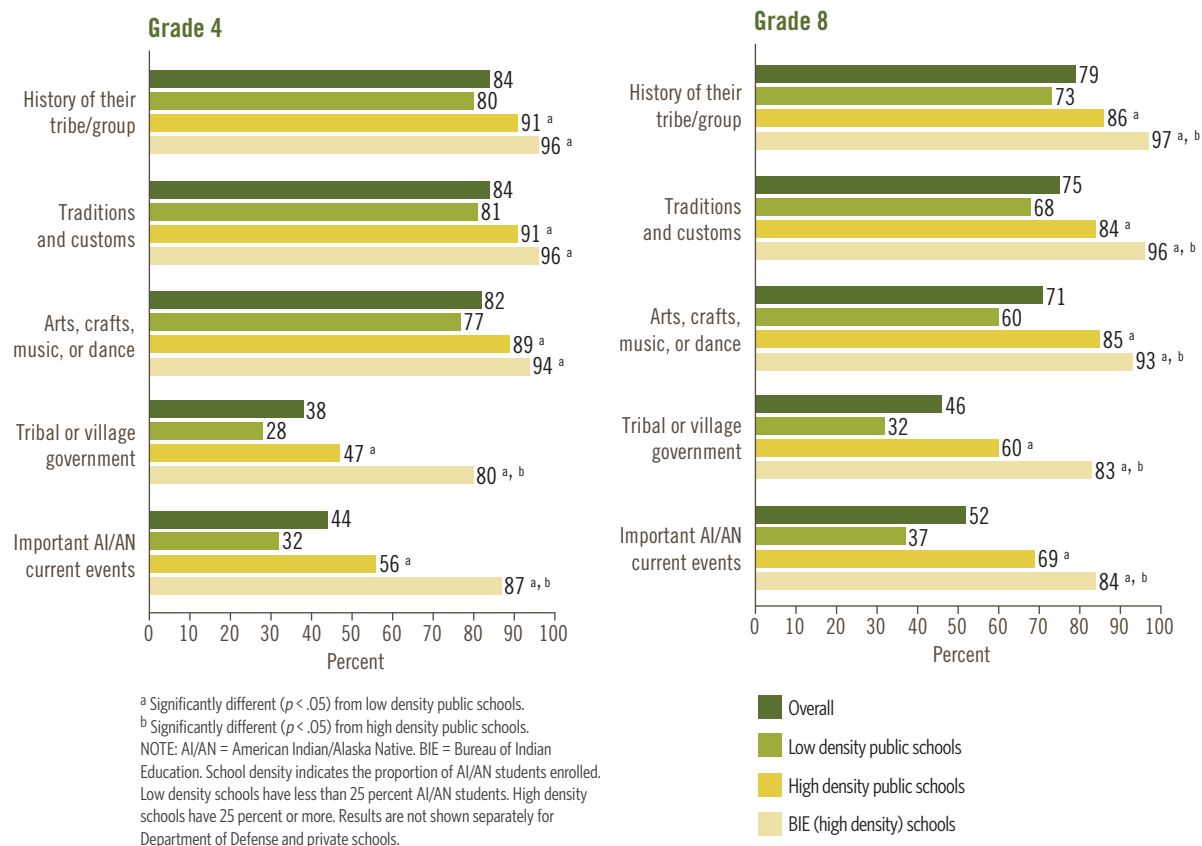
The percentages of eighth-graders in schools offering instruction in these areas ranged from 71 to 79 percent. Percentages of students in schools offering instruction in tribal government or current

events and issues were 38 to 44 percent at grade 4, and 46 to 52 percent at grade 8.

The percentages of students in schools offering instruction in AI/AN culture were consistently higher for those attending BIE and high density public schools than for those in low density public schools at both grades.

Apparent differences in school administrators' responses to this question and students' responses to a similar question in chapter 1 may be due to differences in the way the questions were asked or how they were interpreted.

Figure 3-3. Percentage of fourth- and eighth-grade AI/AN students whose school administrators reported that their students receive instruction about AI/AN cultures in various areas, by school type/density: 2009



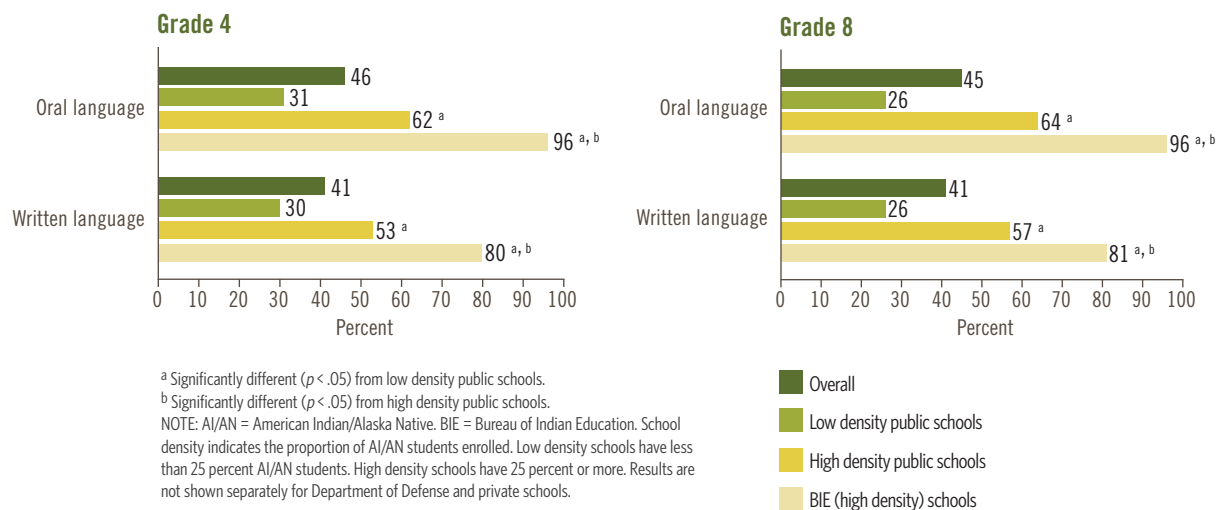
INSTRUCTION ABOUT AI/AN LANGUAGE

School administrators were also asked to indicate whether or not students received instruction about AI/AN oral and written language. Overall, 46 percent of AI/AN students at grade 4 and 45 percent at grade 8 attended schools that offered instruction in oral AI/AN language, and

41 percent at each grade attended schools with instruction in written AI/AN language (figure 3-4).

The percentages of students in schools where instruction about AI/AN language was provided were higher for those in BIE schools than in high density public schools, and higher in high density public schools than in low density schools.

Figure 3-4. Percentage of fourth- and eighth-grade AI/AN students whose school administrators reported that their students receive instruction about AI/AN oral and written language(s), by school type/density: 2009



Results are available in the **NIES Data Explorer** for additional information provided by school administrators on the following topics:

- the percentage of teachers at the school for three or more years;
- the sources of funding to support AI/AN students;
- the extent to which certain issues (e.g., student absenteeism, low student aspirations) are problems in the schools;
- the percentage of students enrolled at the beginning of the school year still enrolled at the end of the year;
- the number of courses and programs about AI/AN traditions and culture offered in the school and whether they are required or elective;
- the extent to which books and materials on AI/AN issues are available in the school library; and
- the level of influence of various standards on curriculum.

School administrators reported providing information and services to AI/AN families in a variety of ways

COMMUNICATION BETWEEN SCHOOLS AND FAMILIES

School administrators reported using a variety of opportunities for communicating with the families of AI/AN students. Forty-nine percent of fourth-graders and 57 percent of eighth-graders attended schools where administrators reported providing opportunities for communicating with parents by

telephone on a daily basis (table 3-1). Between 45 and 63 percent attended schools where daily communication was provided through websites or e-mail. Fifty-nine to 69 percent of AI/AN students attended schools where teacher/family conferences were held a few times a year, and 45 to 50 percent attended schools where information about the school was sent home once or twice a month.

Table 3-1. Percentage of fourth- and eighth-grade AI/AN students, by school administrators' responses to a question about the various ways their schools communicate with families: 2009

In a typical school year, how often does your school provide each of the following opportunities for communication between school and families?	A few times a year	Once or twice a month	Once or twice a week	Every day or almost every day
Grade 4				
Teacher/family conferences	69	8	5	18
Information sent home about school	16	45	34	4
Written reports of child's performance	53	32	13	2
Telephone calls with parents	8	20	23	49
Information provided through websites or e-mail	21	16	18	45
Grade 8				
Teacher/family conferences	59	9	8	24
Information sent home about school	27	50	15	9
Written reports of child's performance	44	42	9	4
Telephone calls with parents	8	14	21	57
Information provided through websites or e-mail	12	11	14	63

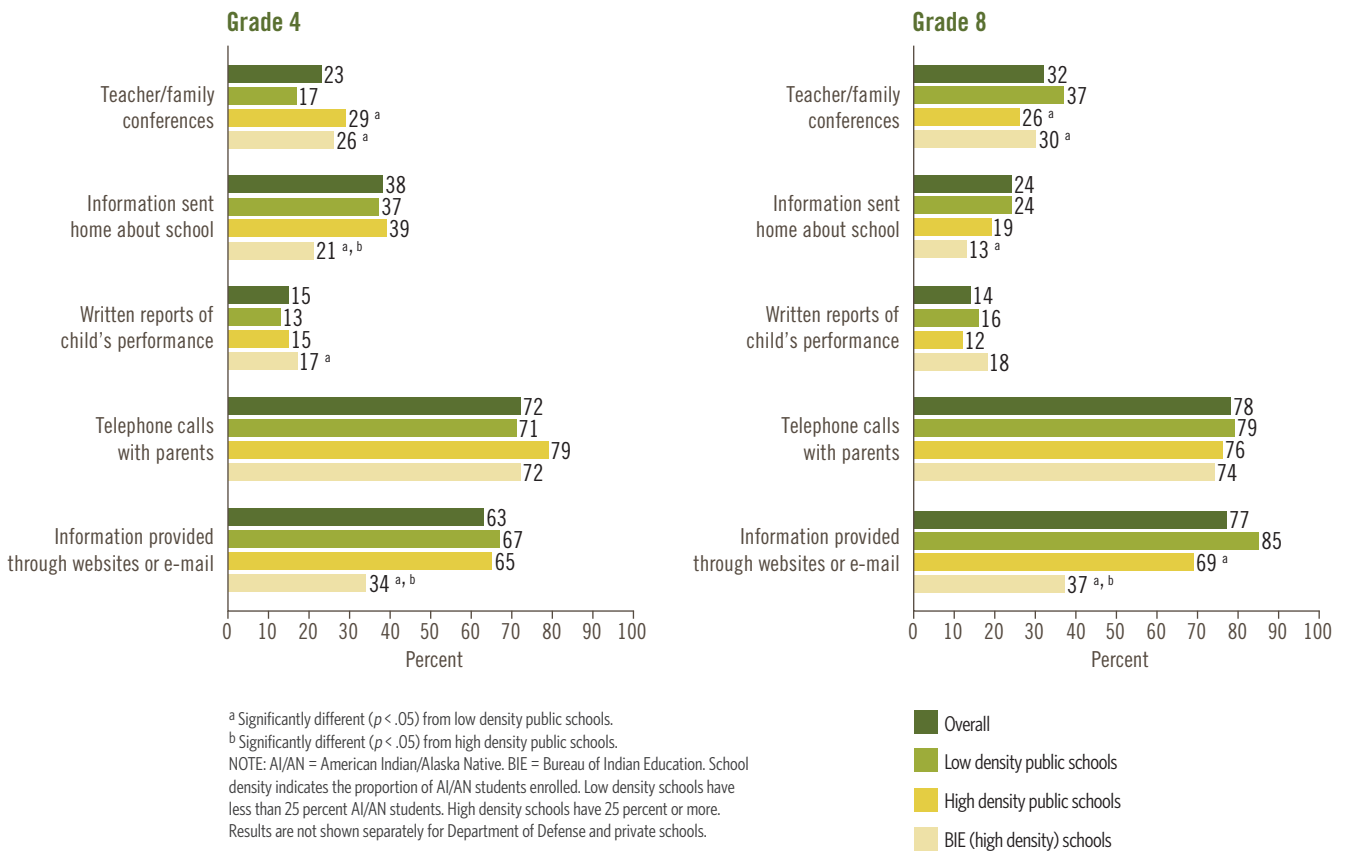
NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because of rounding.

63% of eighth-grade AI/AN students attend schools where information was provided through websites or e-mail on a daily basis.

More frequent use (once a week or more) of these communication opportunities varied by type of school. Lower percentages of fourth-graders attending BIE schools than high or low density public schools had school administrators who reported frequent communication by sending information home or by using websites or e-mail (figure 3-5). The percentage of eighth-graders

whose school administrators reported frequent communication through websites or e-mail was smaller for those attending BIE schools than those in high or low density schools, while the percentages of students in schools reporting frequent communication by telephone were not significantly different across the three school categories.

Figure 3-5. Percentage of fourth- and eighth-grade AI/AN students whose school administrators reported the various ways their schools communicate with families at least once a week or every day during a typical school year, by school type/density: 2009



Results are available in the **NIES Data Explorer** for additional information provided by school administrators on the following topics related to communication between families and schools:

- whether or not families or community members participate in parent-teacher organizations, open houses or back-to-school nights, parent-teacher conferences, school curriculum decisions, or volunteer programs; and
- frequency of opportunities for families to participate in school events, the formulation of school policies and improvement plans, and sharing AI/AN histories and traditions as part of the instructional program.

SERVICES OFFERED TO AI/AN STUDENTS AND THEIR FAMILIES

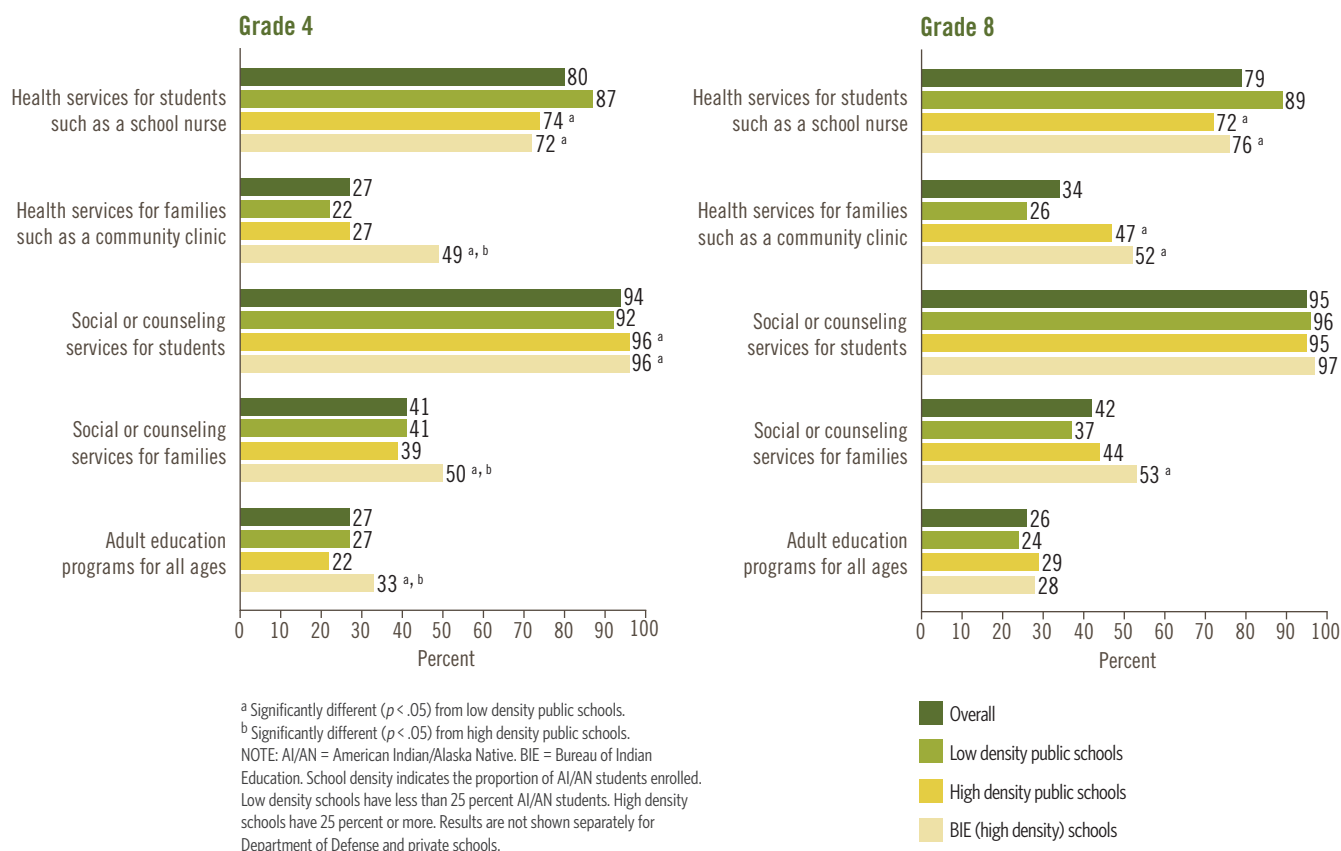
Information was also collected about the types of student and family services schools provided, including health and social/counseling services and adult education programs. Overall, 80 percent of AI/AN students at grade 4 and 79 percent at grade 8 attended schools that provided health services such as a school nurse for their students (figure 3-6). At both grades, the percentages of students attending schools providing these services were smaller for BIE schools and high density public schools than for low density schools.

Most students (94 percent at grade 4 and 95 percent at grade 8) attended schools that

provided social/counseling services for their students. Higher percentages of fourth-graders in BIE and high density public schools than in low density schools attended schools offering these services, while there were no significant differences by type of school at grade 8.

Forty-one percent of AI/AN students at grade 4 and 42 percent at grade 8 attended schools that provided social/counseling services for families. The percentages of students attending schools that provided these services were higher for BIE schools than for low density schools at both grades.

Figure 3-6. Percentage of fourth- and eighth-grade AI/AN students whose school administrators reported the various types of student and family services their schools offer on a regular basis, by school type/density: 2009



Community involvement more common in BIE and high density schools

INVOLVEMENT OF THE AI/AN COMMUNITY IN THE SCHOOLS

Schools can take advantage of AI/AN resources that exist outside the school by providing opportunities for members of the community to become involved in school-related activities. Between 19 and 27 percent of fourth-graders and between 20 and

33 percent of eighth-graders attended schools where members of the community were given the opportunity to participate in Indian Education Parent Groups, discuss education issues with students and staff, or share AI/AN traditions three or more times a year (table 3-2).

Table 3-2. Percentage of fourth- and eighth-grade AI/AN students, by school administrators' responses to a question about the involvement of AI/AN community members in various school-related activities: 2009

In a typical school year, how many times has a member of the American Indian or Alaska Native community done the following?	Never	1-2 times	3 or more times
Grade 4			
Participated in Indian Education Parent Groups	46	20	19
Visited the school to discuss education issues with students and staff, other than a conference regarding an individual student	36	32	26
Visited the school to share AI/AN traditions and culture with students and staff	29	38	27
Grade 8			
Participated in Indian Education Parent Groups	49	16	20
Visited the school to discuss education issues with students and staff, other than a conference regarding an individual student	34	26	33
Visited the school to share AI/AN traditions and culture with students and staff	33	37	23

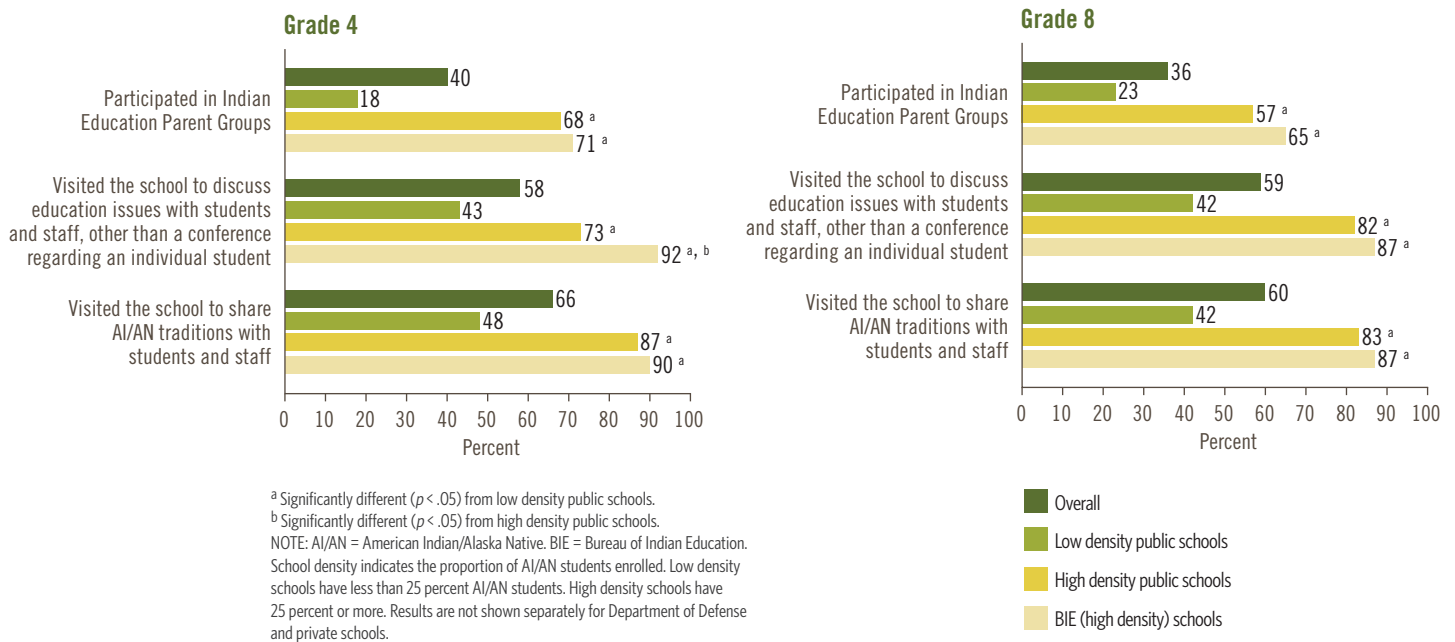
NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because results are not shown for the "I don't know" response choice.

33% of eighth-grade AI/AN students attended a school where AI/AN community members visited the school to discuss education issues with students and staff three or more times a year.

At both grades 4 and 8, the percentages of students attending schools where members of the AI/AN community had some involvement were higher for students in BIE and high density public schools than in low density schools. The percentage of

fourth-graders whose school administrators reported visits by members of the community to discuss education issues one or more times a year was higher for those attending BIE schools than for those in high or low density schools (figure 3-7).

Figure 3-7. Percentage of fourth- and eighth-grade AI/AN students whose school administrators reported that AI/AN community members are involved in various school-related activities one or more times during a typical school year, by school type/density: 2009



90% of AI/AN fourth-graders in BIE schools attended schools where community members visited to share AI/AN traditions at least once during the school year.

INVOLVEMENT OF AI/AN OFFICIALS IN THE SCHOOLS

School involvement on the part of AI/AN community officials, including elders, represents an important local commitment to education. Between 15 and 17 percent of AI/AN students at grade 4 and between 17 and 23 percent at grade 8 attended schools where officials from the community were given opportunities to attend meetings with school

personnel with or on behalf of parents, or meet with school officials on education issues three or more times a year (table 3-3).

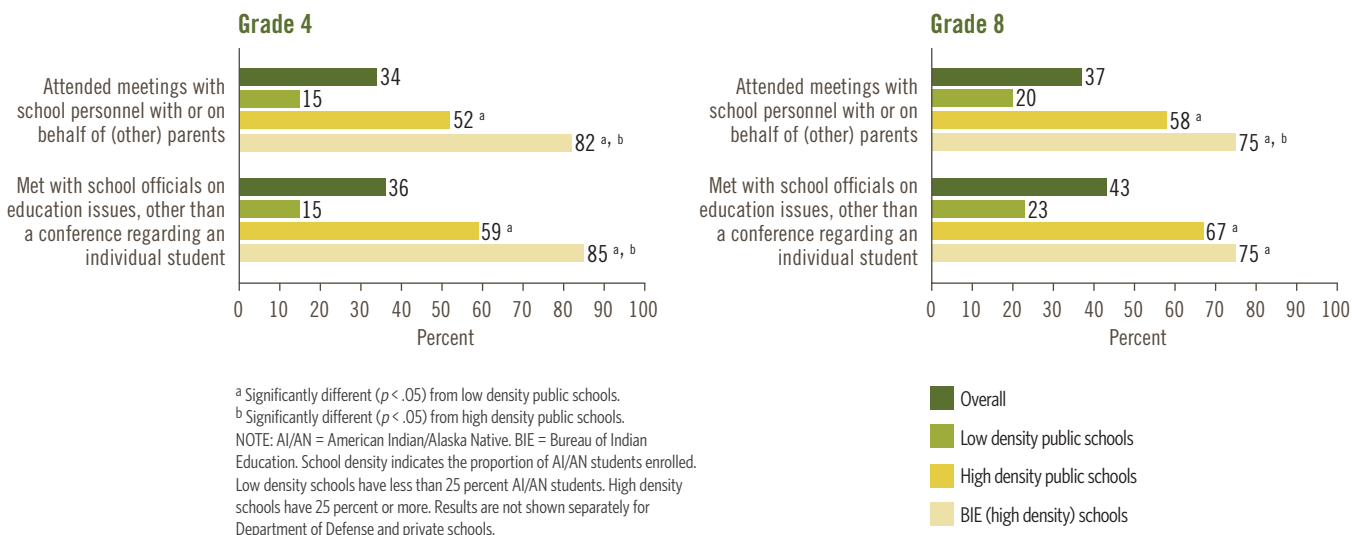
The percentage of AI/AN students attending schools in which administrators reported opportunities for officials from the community to attend meetings or meet with school officials were higher in BIE and high density public schools than in low density schools (figure 3-8).

Table 3-3. Percentage of fourth- and eighth-grade AI/AN students, by school administrators' responses to a question about the involvement of AI/AN community officials in various school-related activities: 2009

In a typical school year, how many times have officials (including elders) of the American Indian or Alaska Native community done the following?	Never	1-2 times	3 or more times
Grade 4			
Attended meetings with school personnel with or on behalf of (other) parents	53	17	17
Met with school officials on education issues, other than a conference regarding an individual student	52	21	15
Grade 8			
Attended meetings with school personnel with or on behalf of (other) parents	49	20	17
Met with school officials on education issues, other than a conference regarding an individual student	46	20	23

NOTE: AI/AN = American Indian/Alaska Native. Detail may not sum to totals because results are not shown for the "I don't know" response choice.

Figure 3-8. Percentage of fourth- and eighth-grade AI/AN students whose school administrators reported that AI/AN community officials are involved in various school-related activities one or more times during a typical school year, by school type/density: 2009





Chapter Summary

Information collected about the environment of the schools AI/AN students attended addressed both characteristics within the school (e.g., the proportion of AI/AN teachers and other staff in the school and instruction in AI/AN culture) and the interaction between the school and the AI/AN community. In 2009, about one-quarter of AI/AN students attended schools where 1 to 5 percent of the teachers were AI/AN. Students in BIE schools were more likely than those in high or low density public schools to attend schools where three-quarters or more of the teachers were AI/AN. Students in low density schools were more likely than those in high density or BIE schools to attend schools with no AI/AN teachers. Although most AI/AN students overall attended schools that offered at least some instruction in AI/AN culture and language, students in BIE schools and high density public schools were more likely than those in low density public schools to attend such schools.

School administrators reported providing information and services to AI/AN students and their families in a variety of ways. The extent to which information and services were provided on a regular basis sometimes differed by type of school. For example, AI/AN students in BIE schools were less likely than those in high or low density public schools to be in schools that reported communicating with families through websites or e-mail. Students in BIE schools were more likely than those in low density schools to be in schools that provided health and social/counseling services for families.

The extent of the involvement of the AI/AN community in the schools AI/AN students attended also varied by the type of school. AI/AN students attending BIE schools and high density schools were more likely than those in low density schools to be in schools where administrators reported involving members and officials of the AI/AN community in school-related activities.

Technical Notes

This section describes the procedures used for Part II of the 2009 National Indian Education Study (NIES).

DEVELOPMENT OF 2009 NIES SURVEY INSTRUMENTS

NIES questionnaires were developed for students at grades 4 and 8, their reading/language arts and mathematics teachers, and their school administrators. The Office of Indian Education identified the following five categories of questions related to practices and methods associated with raising academic achievement of American Indian and Alaska Native (AI/AN) students and assessing the role of native language and culture in fostering that improvement:

1. The extent to which AI/AN culture and language are part of the curricula;
2. Availability of school resources for improving AI/AN student achievement;
3. How assessment information is used by schools with AI/AN student populations;
4. Involvement of AI/AN tribes, groups, or villages with the schools; and
5. How AI/AN students, teachers, and schools feel about education.

Most of the survey questions were multiple choice, but the questionnaires did include a space at the end for respondents to write in any comments. A Technical Review Panel, assembled to advise NIES, oversaw the development of the questionnaires.

Although the NIES background questionnaires were administered successfully in 2005 and 2007, anecdotal evidence from the field staff as well as comments from the NIES Technical Review Panel and members of AI/AN communities indicated that there could still be problems with the

interpretation of some questions for some respondents.

In response to these concerns, questions were revised and in-depth, think-aloud interviews with respondents were conducted, which led to further revisions to the questions for the 2009 study. Because the wording of many questions has changed, results from prior years are not directly comparable to 2009.

The number of questions in each questionnaire is shown in **table TN-1**. Many questions have multiple parts. A few of the questions serve to direct respondents past questions that do not apply to them. For example, grade 8 teachers who taught both reading/language arts and mathematics answered all 27 questions; teachers who taught only one of these subjects answered only the questions applicable to that subject.

Table TN-1. Number of NIES survey questions, by type of questionnaire: 2009

Type of questionnaire	Number of questions
Student, grade 4	25
Student, grade 8	25
Teacher, grade 4	23
Teacher, grade 8	27
School, grades 4 and 8	25

Student questionnaires required approximately 10–15 minutes to complete, while teacher and school questionnaires could be completed in approximately 20–25 minutes. Complete copies of the questionnaires can be found at <http://nces.ed.gov/nationsreportcard/nies/questionnaire.asp>.

SAMPLING PROCEDURES AND RESPONSE RATES

The NIES Part II sample was designed to produce information representative of the target population of all fourth- and eighth-grade AI/AN students in the United States in different types of schools—public, Bureau of Indian Education (BIE), Department of Defense, and private. The sample selection for NIES took place in conjunction with the sampling activities for the 2009 National Assessment of Educational Progress (NAEP) assessments at grades 4 and 8.

The samples of AI/AN students participating in the 2009 NAEP reading and mathematics assessments, upon which the NIES Part I results are based, represent augmentations of the sample of AI/AN students who would usually be selected to participate in NAEP. This allows more detailed reporting of performance for this group. To increase the samples of AI/AN students, all BIE schools and students were included in the 2009 NAEP sample. The BIE population represents approximately 131 schools at grade 4 and 111 schools at grade 8. In terms of the number of students, the BIE population represents approximately 2,900 students at grade 4 and 2,500 students at grade 8.

Because the reporting of achievement results at the state level was a goal of NIES Part I, schools in the following six states were oversampled in 2009: Arizona, Minnesota, North Carolina, Oregon, Utah, and Washington. An additional six states (Alaska, Montana, New Mexico, North Dakota, Oklahoma, and South Dakota) had sufficient AI/AN students to report results without oversampling. Schools with relatively large percentages (at least 5 percent) of AI/AN students were oversampled by factors ranging from 2 to 6 based on the state and grade. When AI/AN students are widely dispersed among schools, school oversampling is not effective. The basic approach taken was to create a new stratum in each state that contains schools with a *high* percentage of AI/AN students, and then to increase the *measure of size* of these schools by an oversampling factor, thereby increasing their probability of selection. The increase in the expected sample size of AI/AN students was then calculated.

Using different sampling rates for different subgroups of the population, and consequently applying different weights, is generally not as efficient

as a sampling scheme that gives each unit in the population an equal chance of selection. The precision achieved by a sample selected in this way could be accomplished with a smaller sample size (typically called the “effective” sample size) if sampling rates were the same for each subgroup. However, sampling different subgroups at different rates provides more accurate estimates of target population characteristics and reduces the costs associated with collecting data in the field.

Sampling for NIES Part II followed the two-stage procedure used for the 2009 NAEP assessments. The first stage was the sampling of schools. Schools selected for NAEP were asked to provide a list of all enrolled students in the grade(s) of interest from which the sample of students would be drawn—the second stage of sampling. On these student lists, schools report each student’s race/ethnicity based on information from official school records. For NIES Part II, the schools that reported having AI/AN students enrolled in fourth or eighth grade were identified. All BIE schools were part of the sample.

To maximize student sample sizes, all fourth- and eighth-grade AI/AN students in the sampled schools were selected for participation in NIES Part II. This means that, in addition to the fourth- and eighth-grade AI/AN students who were assessed in reading or mathematics and whose results are reported in the NIES Part I report, fourth- and eighth-grade AI/AN students in the sampled schools who participated in the NAEP science assessment were also selected to participate in NIES Part II. Including the students assessed in science increased the NIES Part II sample by roughly 3,000 AI/AN students per grade without having to sample additional schools. Nonetheless, the NIES questionnaires were designed to collect information about AI/AN students’ experiences in reading/language arts and mathematics, not science. Therefore, all students participating in NIES Part II completed the same questionnaire regardless of the NAEP subject area in which they were assessed. Furthermore, questionnaires were administered to participating students’ reading/language arts and mathematics teachers to collect information specific to instructional practices in those subject areas. There was no separate questionnaire administered to science teachers.

As for all NAEP assessments, school personnel had the opportunity to review the lists of selected students and identify any students with disabilities or English language learners who could not take the assessment even with the available accommodations or who were to be excluded based on NAEP guidelines. Parents were notified of the assessment, but active consent for participation was only solicited if required by the school.

The NIES Part II sample, which was drawn from the subsample of schools with AI/AN students, included about 15,000 AI/AN students at approximately 2,400 schools at grade 4, and 13,000 AI/AN students at 2,000 schools at grade 8 located throughout the United States. At grades 4 and 8, the sample consisted of 95 percent public and Department of Defense schools, 4 to 5 percent BIE schools, and 1 percent private schools. From this sample, the questionnaires were completed by about 12,300 grade 4 students from 2,300 schools, and 10,400 grade 8 students from 1,900 schools (table TN-2). Also responding to the survey were about 3,800 grade 4 teachers, 4,600 grade 8

teachers, 2,300 grade 4 school administrators, and 1,900 grade 8 school administrators associated with these students. Some school administrators responded for both grade 4 and grade 8.

The NIES Part II survey was designed to obtain a sample that was not only representative of all U.S. AI/AN students at grades 4 and 8 but would also allow comparisons between AI/AN students attending BIE schools, and high density and low density schools, where density is defined as the proportion of AI/AN students enrolled. (High density schools have 25 percent or more AI/AN students; low density schools have fewer than 25 percent.) The sample included 300 high density public schools for fourth grade, 300 high density public schools for eighth grade, 2,000 low density public schools for fourth grade, and 1,700 low density public schools for eighth grade. As in 2007, the 2009 sample design allows the NIES Part II survey data to be linked to the achievement data collected in Part I using the NAEP Data Explorer at <http://nces.ed.gov/nationsreportcard/naepdata/>.

Table TN-2. Number of participating schools with AI/AN students and number of participating AI/AN students, by grade and type of school: 2009

Type of school	Grade 4		Grade 8	
	Schools	Students	Schools	Students
Overall	2,300	12,300	1,900	10,400
Public	2,100	10,000	1,800	8,700
BIE	100	2,200	100	1,700
Private	10	‡	10	‡
DoDEA ¹	20	‡	20	‡

‡ Reporting standards not met.

¹ Department of Defense Education Activity (overseas and domestic schools).

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. For public and BIE schools, the number of schools and the number of students are rounded to the nearest hundred. The number of private and Department of Defense schools are rounded to the nearest ten. Detail may not sum to totals because of rounding.

Weighted and unweighted response rates for schools and students overall and by school type are presented in tables **TN-3** and **TN-4**. The weighted school response rates were 97 percent at grades 4 and 8. The weighted school response rates by school type were as follows: at fourth grade, 100 percent for public schools and 88 percent for BIE schools; at eighth grade, 100 percent for public schools and 80 percent for BIE schools. Private school results were not reported for either grade 4 or grade 8 due to insufficient sample size.

The unweighted school response rates were 92 percent for grade 4 and 89 percent for grade 8.

The unweighted school response rates by school type were as follows: at fourth grade, 94 percent for public schools and 80 percent for BIE schools; at eighth grade, 91 percent for public schools and 75 percent for BIE schools.

The weighted student response rates were 87 percent at grade 4 and 84 percent at grade 8. The weighted student response rates by school type were as follows: at fourth grade, 87 percent for public schools and 89 percent for BIE schools; at eighth grade, 84 percent for public schools and 87 percent for BIE schools. Private school results were not reported for either grade 4 or grade 8 due to insufficient sample size.

Table TN-3. Weighted school and AI/AN student response rates, by grade and type of school: 2009

Type of school	Grade 4		Grade 8	
	Schools	Students	Schools	Students
Overall	97	87	97	84
Public	100	87	100	84
BIE	88	89	80	87

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Response rates for Department of Defense and private schools are included in overall but are not shown separately.

Table TN-4. Unweighted school and AI/AN student response rates, by grade and type of school: 2009

Type of school	Grade 4		Grade 8	
	Schools	Students	Schools	Students
Overall	92	85	89	82
Public	94	84	91	80
BIE	80	89	75	87

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Response rates for Department of Defense and private schools are included in overall but are not shown separately.



The unweighted student response rates were 85 percent at grade 4 and 82 percent at grade 8. The unweighted student response rates by school type were as follows: at fourth grade, 84 percent for public schools and 89 percent for BIE schools; at eighth grade, 80 percent for public schools and 87 percent for BIE schools.

No separate samples were drawn for teachers or school administrators. However, a weighted response rate, or match rate, was calculated for teachers and school administrators based on completed questionnaires using student weights since the student was the unit of analysis. These rates are shown in **table TN-5**. At grade 4, completed questionnaires were obtained from schools for 94 percent of students, from reading/language arts teachers for 89 percent of students, and from mathematics teachers for 65 percent of students. At grade 8, completed school questionnaires were obtained for 90 percent of students, completed reading/language arts teacher questionnaires were obtained for 88 percent of students, and completed mathematics teacher questionnaires were obtained for 85 percent of students. Because the student is the unit of analysis for NIES, teacher surveys or school administrator surveys that could not be linked to specific students were not used in the analysis.

Match rates for questionnaires completed by students' mathematics teachers were lower than those for the reading/language arts teachers. At grade 4, students typically have the same teacher for both reading and mathematics. At grade 8, students typically have different reading/language arts and mathematics teachers. For these reasons, results from grade 4 teacher questionnaires are based on the responses of students' reading/language arts teachers. At grade 8, results for general questions about background and instruction from teacher questionnaires and for questions about specific reading/language arts practices are

based on the responses of students' reading/language arts teachers. Results for questions about specific mathematics practices are based on the responses of students' mathematics teachers.

To ensure that reported findings are based on samples that are representative of the target population, NAEP established a response rate standard of 85 percent. The weighted student response rates for the NIES samples were 86.5 percent at grade 4 and 84.1 percent at grade 8. Because the weighted student response rate for grade 8 was below 85 percent, a student nonresponse bias analysis was conducted. The analysis showed that the responding grade 8 sample was different from the original sample with respect to geographical distribution across NIES regions, states, and types of location; eligibility for the National School Lunch Program; relative age; school density; and proportions of students with disabilities (SD) and English language learners (ELL). Both SD and ELL students were underrepresented in the responding sample. After weighting adjustments were made to account for differences in the response rates by student groups, the only evidence of remaining bias was the slight overrepresentation of AI/AN students who were ELL and the slight underrepresentation of AI/AN students with disabilities. Following the weighting adjustments, the responding grade 8 AI/AN student sample consisted of 6.7 percent ELL students, whereas in the original student sample it was 6.4 percent. The final responding sample consisted of 15.6 percent SD students, compared to 16.0 percent in the original sample. Although these statistically significant indications of potential nonresponse bias are present in the final data, the effect on survey estimates seems likely to be very slight, since the distribution of the final student sample matches closely with that of the original sample.

Table TN-5. Percentage of AI/AN students with completed questionnaires, by grade and type of questionnaire: 2009

Type of questionnaire	Grade 4	Grade 8
School	94	90
Teacher, reading/language arts	89	88
Teacher, mathematics	65	85

NOTE: AI/AN = American Indian/Alaska Native.

WEIGHTING

The general purpose of weighting is to adjust for the unequal probabilities of selection of schools and students, and to adjust for the effects of nonresponse by schools and students selected to participate. The oversampling of schools with high proportions of AI/AN students was accounted for by the sampling weights.

The school probability of selection was a function of three factors: the NAEP selection, the probability of being retained for NIES Part II, and the number of AI/AN students in the NAEP sample per school. Nonresponse adjustments at the school level attempted to mitigate the impact of differential nonresponse by school type (public, private, and BIE), region, and estimated percentage enrollment of AI/AN students. For student weights, nonresponse adjustments accounted for differential response rates based on student age (above age for grade level or not) and English language learner status.

The complex sample design of NIES Part II (with the added complexity of NAEP) resulted in a wide variability of student sample weights from the overall average weight. Sampling weights improve the validity of inferences to be drawn between the student samples and their respective populations by helping to ensure that the results of the survey are fully representative of the target population. For NIES, as for NAEP, weights are computed for both schools and students. The school weights are one component in calculating the student weights. The student weights are the weights used in analysis.

DATA COLLECTION PROCEDURES

NIES representatives (National Center for Education Statistics data collection contractor staff) visited the schools in January and February of 2009 to administer the NIES Part II survey questionnaires. Students completed the questionnaires proctored by the study representatives. The questions were read out loud to all students at grades 4 and 8 who needed assistance. In addition, the study representatives were available to answer any questions that students had as they worked on the questionnaires.

The NAEP background questionnaires, which form the basis for the non-AI/AN student data included in this report, were collected in a similar fashion. That is, students completed the questionnaires in a proctored setting where study administrators were available to answer any questions.

For both NIES and NAEP, teachers and school administrators were asked to complete the questionnaires on their own, either prior to or during the visit from the study representative.

DEMOGRAPHIC VARIABLES

Identification of AI/AN Students

Student race/ethnicity data are based on official school records, as reported by participating schools at the time of data collection. Schools were asked to report each student's race/ethnicity as "White, not Hispanic," "Black, not Hispanic," "Hispanic," "Asian/Pacific Islander," "American Indian/Alaska Native," or "other." Schools were instructed to categorize students of more than one race as "other," and these students were not included in reporting results for AI/AN students or in any comparisons to students in other individual race/ethnicity groups. In 2009, the percentage of students whose race/ethnicity was unclassified (including those with more than one race and those with no available information regarding their race/ethnicity) was 2 percent at grade 4 and 1 percent at grade 8.

Although information about their race/ethnicity group was also provided by the students, it was not used in summarizing the results in this report. Twenty-six percent of fourth-graders and 16 percent of eighth-graders did not identify themselves as AI/AN in 2009, but were classified as AI/AN by their schools.

In schools sampled for NAEP, all students who were reported to be AI/AN were selected for participation in the NIES study. During data collection, some cases arose in which schools determined that students had been incorrectly classified as AI/AN. In those cases, the students were reclassified at the schools' direction, and they were not included in the NIES study. Consequently, all students in the NIES study were identified as AI/AN by school records.

School Type/Density

Throughout the report, results are reported separately for students attending low density public schools, high density public schools, and BIE schools. This variable represents a cross between school type and school density. NAEP school type categories include public, BIE, Department of Defense, and private schools. To provide more detail in comparisons between BIE and public schools in the NIES report, the public school category was further divided based on the proportion of AI/AN students attending those schools. As defined by the Office of Indian Education, low density schools are those in which less than 25 percent of the students are AI/AN, and high density schools are those in which 25 percent or more of the students are AI/AN. These categories divide AI/AN students into two groups of roughly equal size. The number of students sampled from Department of Defense and private schools was too small to allow reporting their results as a separate category. Therefore, results by school type/density do not include these other students.

There are 184 BIE schools and dormitories located on or near 63 reservations that serve approximately 47,000 students in 23 states. Schools funded by the BIE are either operated by the BIE or by tribes under contracts or grants. BIE-operated schools are under the direct auspices of the BIE, and tribally operated schools are managed by individual federally recognized tribes with grants or contracts from the BIE. The BIE, formerly the Office of Indian Education Programs, in the Department of the Interior, oversees the BIE elementary and secondary school programs.

National School Lunch Program

NAEP first began collecting data in 1996 on student eligibility for the National School Lunch Program (NSLP) as an indicator of low income. Under the guidelines of NSLP, children from families with incomes below 130 percent of the poverty level are eligible for free meals. Those from families with incomes between 130 and 185 percent of the poverty level are eligible for reduced-price meals. (For the period July 1, 2008, through June 30, 2009, for a family of four, 130

percent of the poverty level was \$27,560, and 185 percent was \$39,220.)

Some schools provide free meals to all students irrespective of individual eligibility, using their own funds to cover the costs of non-eligible students. Under special provisions of the National School Lunch Act intended to reduce the administrative burden of determining student eligibility every year, schools can be reimbursed based on eligibility data for a single base year. Participating schools might have high percentages of eligible students and report all students as eligible for free lunch. For more information on NSLP, visit <http://www.fns.usda.gov/cnd/lunch/>.

Literacy Materials in the Home

Results for literacy materials in the home were reported based on responses to four questions on the student questionnaires:

- Does your family get a newspaper at least four times a week? Yes/No/I don't know
- Does your family get any magazines regularly? Yes/No/I don't know
- Is there an encyclopedia in your home? It could be a set of books, or it could be on the computer. Yes/No/I don't know
- About how many books are there in your home? Few (0-10)/Enough to fill one shelf (11-25)/Enough to fill one bookcase (26-100)/Enough to fill several bookcases (more than 100)

The data reported are for the "yes" responses to the first three questions, and for the combined "26-100" and "more than 100" responses to create the "more than 25 books" category.

School Location

NAEP results are reported for four mutually exclusive categories of school location: city, suburb, town, and rural. The categories are based on standard definitions established by the Federal Office of Management and Budget using population and geographic information from the U.S. Census Bureau. Schools are assigned to these categories in the NCES Common Core of Data locale codes based on their physical address.

DRAWING INFERENCES FROM THE RESULTS

The reported statistics are estimates of population proportions based on samples of students and are therefore subject to uncertainty. The magnitude of this uncertainty is reflected in the standard error of each of the estimates. Thus, when the percentages of certain groups are compared, the estimated standard errors should be taken into account.

The comparisons in this report are based on statistical tests that consider both the magnitude of the differences between the percentages and the estimated standard errors of the percentages being compared. The differences described in this report have been determined to be statistically significant at the .05 level with adjustments for multiple comparisons.

Estimates based on smaller groups are likely to have relatively large standard errors. As a consequence, a numerical difference that seems large may not be statistically significant. Furthermore, differences of the same magnitude may or may not be statistically significant, depending on the size of the standard errors. The results presented in **table TN-6**, for example, show that the 4-point difference between the percentages of AI/AN students in BIE schools and those in low density public schools indicating school prepared them “a fair amount” for the future was statistically significant, while the 4-point difference between the percentages of students in high and low density public schools was not statistically significant. Standard errors for all estimates in this report are available at <http://nces.ed.gov/nationsreportcard/naepdata/>.

When estimates of percentages are close to 0 or 100, reliable standard errors cannot be estimated. As a result, significance tests are not conducted when the comparison involves an extreme percentage. Refer to http://nces.ed.gov/nationsreportcard/tdw/analysis/infer_guidelines_extreme.asp for more information about how extreme percentages are defined in NAEP.

VARIANCE ESTIMATION AND TESTS OF SIGNIFICANCE

Because of the complex sampling design, conventional formulas for estimating sampling variability that assume simple random sampling are inappropriate. Instead, a jackknife replication procedure is used to estimate standard errors. Replication methods involve constructing a number of subsamples, or replicates, from the full sample and computing the statistic of interest for each replicate. The replicate weights are used to compute the standard error of a given statistic.

The tests of significance used in the analyses for this report are based on Students' *t* statistics. The formula used to compute the Student's *t* statistic is as follows:

$$t = \frac{E_1 - E_2}{\sqrt{se_1^2 + se_2^2}}$$

where E_1 and E_2 are the estimates of the two groups being compared, and se_1 and se_2 their respective standard errors.

Table TN-6. Percentage of eighth-grade AI/AN students' responses to a question about school preparation for future life, by school type/density: 2009

How much are the things you are learning in school preparing you for the life you want to lead?	School type/density		
	Low density public schools	High density public schools	BIE (high density) schools
Not at all	5 (0.6)	6 (0.5)	5 (0.0)
A little	23 (1.1)	22 (1.1)	18 (0.0) ^{a, b}
A fair amount	51 (1.4)	47 (1.7)	47 (0.0) ^a
Very much	21 (1.2)	26 (1.2) ^a	31 (0.0) ^{a, b}

^a Significantly different ($p < .05$) from low density public schools.

^b Significantly different ($p < .05$) from high density public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. School density indicates the proportion of AI/AN students enrolled. Low density schools have less than 25 percent AI/AN students. High density schools have 25 percent or more. Results are not shown for Department of Defense and private schools. Standard errors of the estimates appear in parentheses. Detail may not sum to totals because of rounding.

All BIE schools serving fourth- and/or eighth-grade students were sampled for this study. In addition, all public schools in North Dakota at grade 8 were sampled. Nonresponse among these schools was mitigated with adjustments to responding schools' weights. Hence, these samples are census samples, which means the percentage estimates of student population distributions (e.g., the percentage of students living in a rural area) are the actual population values. For statistical testing, the implication is that for any numerical difference between groups within these samples, single-population t -tests are conducted reflecting the fact that only one of the estimates is subject to uncertainty. In the case of the t -test involving census samples, the term se_2 is equal to zero in the formula above.

As the number of comparisons that are conducted at the same significance level increases, it becomes more likely that at least one of the estimated differences will be significant merely by chance; that is, it will be erroneously identified as significantly different from zero. Even when there is no statistical difference at the .05 level between the percentages being compared, there is a 5 percent chance of getting a significant t value from sampling variability alone. As the number of comparisons increases, the chance of making this type of error increases. To control the significance level for the set of comparisons at a particular level (e.g., .05), appropriate adjustments for multiple comparisons have been made in this report. The false discovery rate (FDR) procedure (Benjamini and Hochberg 1995) was used to control the rate of false discoveries.

Unlike some other multiple comparison procedures that control the familywise error rate (i.e.,

the probability of making even one false rejection in the set of comparisons), the FDR procedure controls the expected proportion of falsely rejected hypotheses.

The Benjamini and Hochberg application of the FDR criterion can be described as follows. Let q be the number of significance tests made and let $P(1) \leq P(2) \leq \dots \leq P(q)$ be the ordered significance levels of the q tests, from the smallest to the highest p -value. Let α be the combined significance level desired. The procedure compares $P(q)$ with α , $P(q-1)$ with $\alpha(q-1)/q$, . . . , $P(1)$ with α/q , stopping the comparisons with the largest j such that $P(j) \leq \alpha j/q$. Reject all hypotheses corresponding to $P(1)$, . . . , $P(j)$. A detailed explanation of this procedure can be found at <http://nces.ed.gov/nationsreportcard/tdw/analysis/infer.asp>.

COMPARISONS TO NON-AI/AN STUDENTS

Students who were selected for the 2009 NAEP assessments at grades 4 and 8 and subsequently identified by their schools as AI/AN were included in the NIES sample. Consequently, in addition to completing the NIES student questionnaire, NIES participants also completed the section of student background questions included in each NAEP assessment booklet. Responses to a common set of NAEP student background questions were collected for all NAEP participants. From these NAEP background questions, the responses of students in the NIES sample can be compared to the responses of non-AI/AN students who participated in NAEP. Findings in this report that compare AI/AN and non-AI/AN students are based on 2009 NAEP mathematics assessment data.

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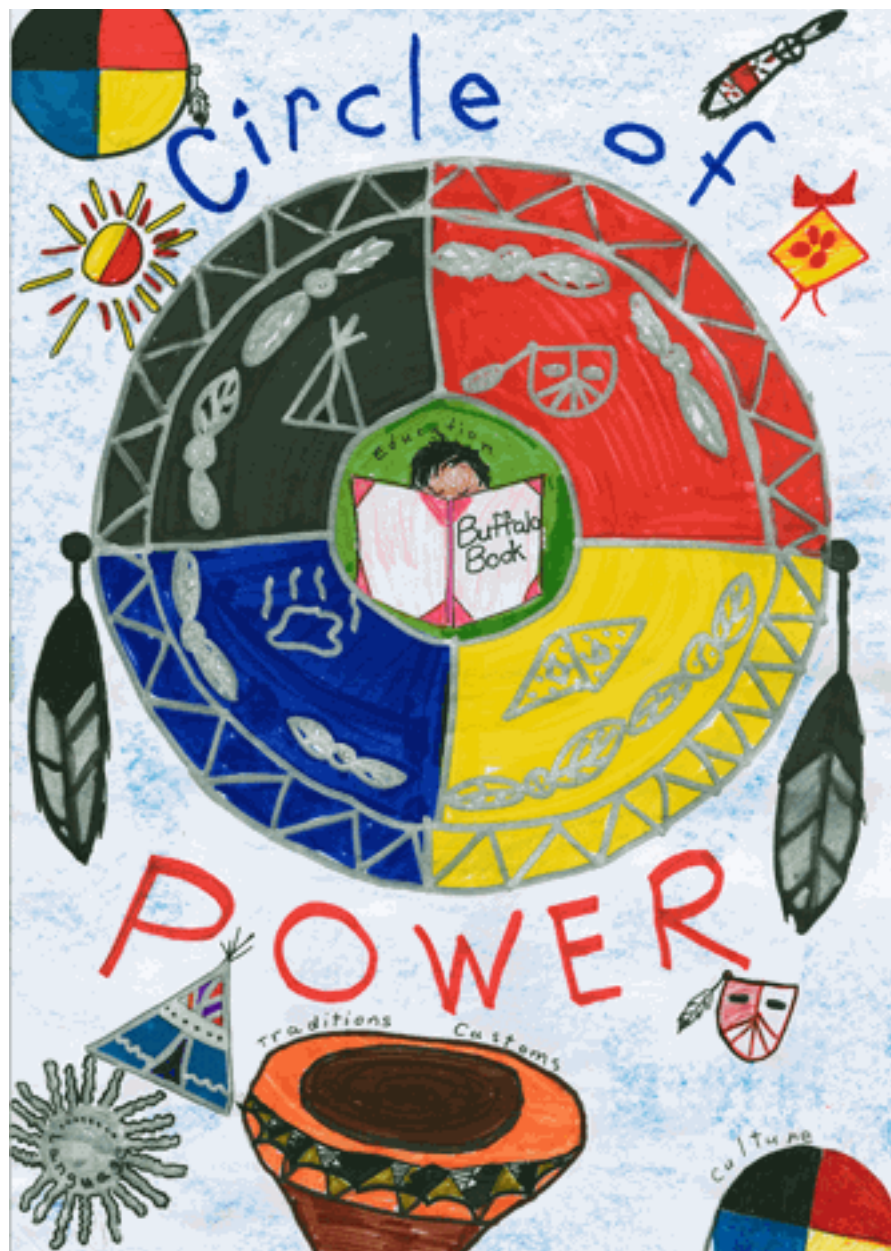
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National Indian Education Study: Part II

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