



## Chapter 3

# Integration of American Indian and Alaska Native Language and Culture

One purpose of NIES was to collect information about how native language and culture are integrated into AI/AN students' homes and schools. The findings in this chapter are based on the questionnaire responses of students, teachers, and school administrators, and describe the extent of AI/AN students' exposure to native language and culture in two broad contexts: homes and communities, and teachers and schools.

## How do AI/AN students describe their race/ethnicity?

All students selected for NIES were identified as AI/AN on school records collected at the time of the survey. The school records identify each student in one race/ethnicity category. However, students were also asked to self-report their race/ethnicity, including the option to identify more than one race (described in the Technical Notes). These two sources of student race/ethnicity data are cross-tabulated in table 3-1.

Twenty-six percent of fourth-graders and 17 percent of eighth-graders did not identify themselves as AI/AN (or AI/AN plus another race/ethnicity), but were classified as AI/AN by their schools. For other racial/ethnic groups, the percentages of fourth-graders whose self-identified race/ethnicity did not match school records ranged from 6 to 20 percent, and the percentages of eighth-graders ranged from 3 to 7 percent. Thus, AI/AN students, compared to students from other racial/ethnic groups, were less likely to identify themselves as their school-reported race/ethnicity.

Table 3-1. Percentage of students, by self-identified race/ethnicity, grade, and school-reported race/ethnicity: 2007

Grade and school-reported race/ethnicity	Self-identified race/ethnicity		
	AI/AN only	AI/AN and other <sup>1</sup>	Non-AI/AN
<b>Grade 4</b>			
AI/AN	47	27	26
Black, not Hispanic	72	20	7
Hispanic	†	89	11
White, not Hispanic	79	15	6
Asian/Pacific Islander	64	17	20
<b>Grade 8</b>			
AI/AN	53	31	17
Black, not Hispanic	79	18	3
Hispanic	†	97	3
White, not Hispanic	84	11	5
Asian/Pacific Islander	80	13	7

† Not applicable. Students who self-identified their ethnicity as Hispanic but did not respond to the race question are included in the "Hispanic and other" category.

<sup>1</sup> Includes students who selected AI/AN and Hispanic or AI/AN and at least one other race.

<sup>2</sup> Includes students who selected Black and Hispanic or Black and at least one other race.

<sup>3</sup> Includes students who selected Hispanic and at least one race category.

<sup>4</sup> Includes students who selected White and Hispanic or White and at least one other race.

<sup>5</sup> Includes students who selected Asian/Pacific Islander and Hispanic or Asian/Pacific Islander and at least one other race.

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 school-reported race/ethnicity was "Other." Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 National Indian Education Study.

## Do students who self-identify as AI/AN know the name of their tribe or group?

Students were asked if they knew the name of their tribe or group. Responses are presented in table 3-2 for only those students who identified themselves as AI/AN or AI/AN plus another race. Higher percentages of students who identified themselves as AI/AN only said they knew the name of their AI/AN group, compared to fourth- and eighth-graders who identified themselves as AI/AN and another race.

Table 3-2. Percentage of self-identified AI/AN students, by grade and students' responses to a question about the name of their AI/AN group: 2007

Do you know the name of your American Indian or Alaska Native group? (You may call your group a tribe, a nation, a village, a band, or a community.)	Grade 4		Grade 8	
	AI/AN only	AI/AN and other	AI/AN only	AI/AN and other
Yes	39*	23	50*	29
No	6*	3	3*	2
Not sure	19*	10	9*	6

\* Significantly different ( $p < .05$ ) from students in the "AI/AN and other" category.

NOTE: AI/AN = American Indian/Alaska Native. The "AI/AN and other" category includes students who identified themselves as AI/AN and at least one other race. Detail may not sum to totals because of rounding.

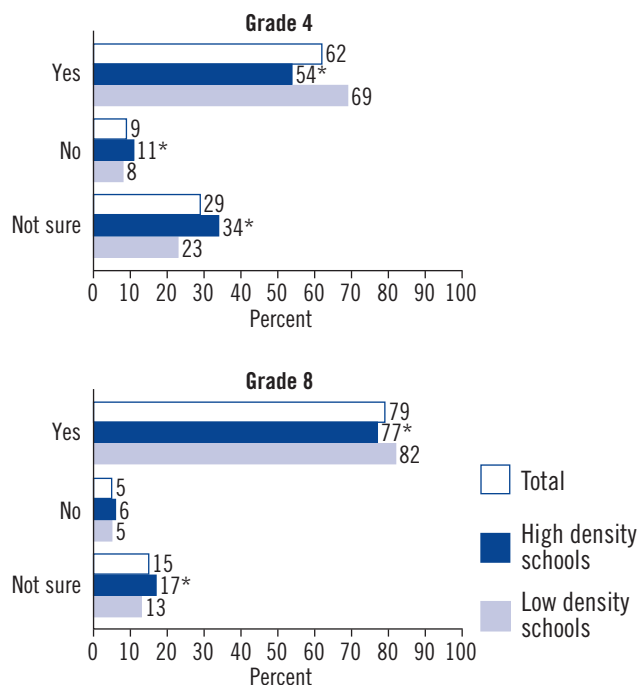
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

## Do AI/AN students know the name of their tribe or group?

Among self-identified AI/AN fourth-graders (those who identified themselves as AI/AN only or AI/AN and another race), 54 percent attending high density schools indicated knowing the name of their AI/AN group, as did 69 percent of their peers attending low density schools (figure 3-1). A higher percentage of fourth-grade students in high density schools than in low density schools indicated that they were “not sure.” Among self-identified AI/AN eighth-graders, 77 percent attending high density schools reported knowing the name of their tribe or group, as did 82 percent of their peers in low density schools.

Figure 3-1. **Percentage of fourth- and eighth-grade self-identified AI/AN students’ responses to a question about the name of their AI/AN group, by school density: 2007**

Do you know the name of your American Indian or Alaska Native group? (You may call your group a tribe, a nation, a village, a band, or a community.)



\* Significantly different ( $p < .05$ ) from low density schools.  
 NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent. Detail may not sum to totals because of rounding.  
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

Compared to 63 percent of self-identified AI/AN fourth-graders in public schools, 49 percent of their peers attending BIE schools indicated that they knew the name of their AI/AN group (table 3-3). Among self-identified AI/AN eighth-graders, 79 percent of public school students and 76 percent of BIE school students answered “yes” to this question.

Table 3-3. **Percentage of self-identified AI/AN students, by grade, type of school, and students’ responses to a question about the name of their AI/AN group: 2007**

Do you know the name of your American Indian or Alaska Native group? (You may call your group a tribe, a nation, a village, a band, or a community.)	Grade 4		Grade 8	
	Type of school		Type of school	
	Public	BIE	Public	BIE
Yes	63	49*	79	76*
No	10	12*	6	5
Not sure	28	39*	15	19*

\* Significantly different ( $p < .05$ ) from public schools.  
 NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Results are not shown for Department of Defense and private schools. Detail may not sum to totals because of rounding.  
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.



## Homes and Communities

### To what extent are students exposed to their AI/AN language at home?

Students come into contact with their cultural heritage in a variety of ways, including through the home and community. Sixty-one percent of fourth-graders and approximately 59 percent of eighth-graders who identified themselves as AI/AN or AI/AN plus another race reported being exposed to their native language at home at least once in a while (figure 3-2).

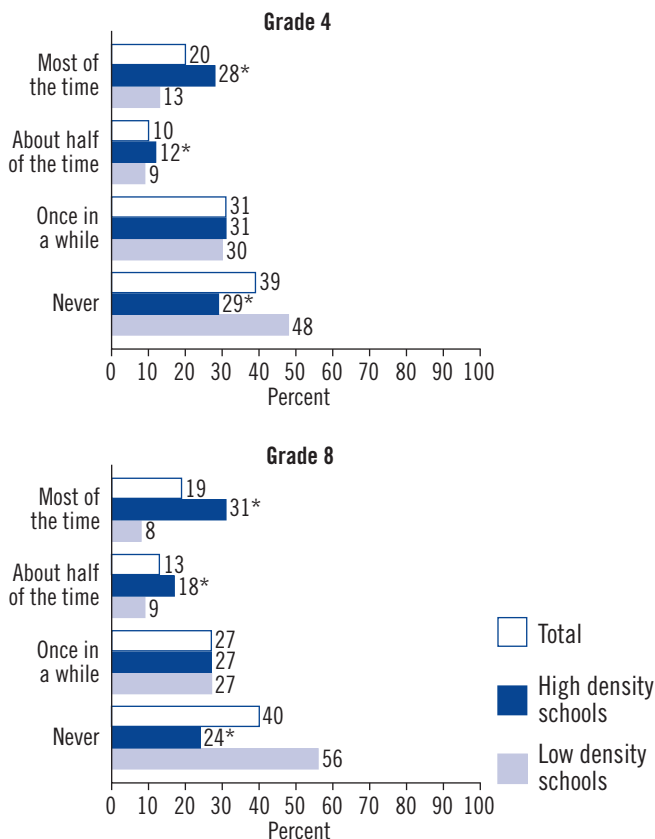
At both grades, the percentage of self-identified AI/AN students reporting that family members talked to each other in their native language “most of the

time” was higher for students attending high density schools than for their peers in low density schools.

Exposure to their native language at home occurred more frequently for self-identified AI/AN students attending BIE schools than for students attending public schools (table 3-4). For example, 41 and 42 percent of self-identified AI/AN students in BIE schools at grades 4 and 8, respectively, indicated that their native language was used at home “most of the time,” compared to 18 percent of fourth-graders and 16 percent of eighth-graders attending public schools.

Figure 3-2. Percentage of fourth- and eighth-grade self-identified AI/AN students’ responses to a question about exposure to their AI/AN language at home, by school density: 2007

How often do members of your family talk to each other in your American Indian or Alaska Native language?



\* Significantly different ( $p < .05$ ) from low density schools.  
 NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent. Detail may not sum to totals because of rounding.  
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

Table 3-4. Percentage of self-identified AI/AN students, by grade, type of school, and students’ responses to a question about exposure to their AI/AN language at home: 2007

How often do members of your family talk to each other in your American Indian or Alaska Native language?	Grade 4		Grade 8	
	Type of school		Type of school	
	Public	BIE	Public	BIE
Most of the time	18	41*	16	42*
About half of the time	10	15*	12	19*
Once in a while	31	29*	27	24*
Never	41	15*	45	14*

\* Significantly different ( $p < .05$ ) from public schools.  
 NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Results are not shown for Department of Defense and private schools. Detail may not sum to totals because of rounding.  
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

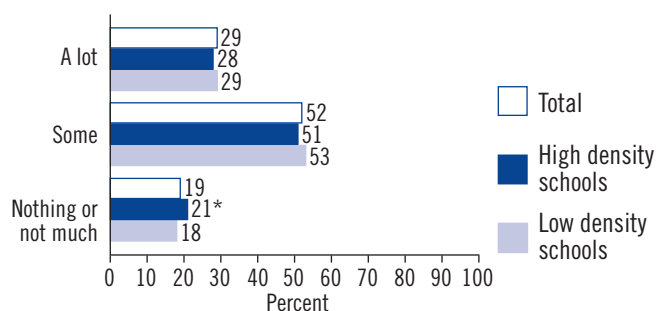


## How much do AI/AN students know about their tribe or group?

AI/AN students were asked how much they knew about their own tribe or group. One question was asked of fourth-graders, and two separate questions were asked of eighth-graders. Results are presented here for only those students who identified themselves as AI/AN only or AI/AN plus another race. Overall, 29 percent of self-identified AI/AN students in fourth grade reported that they knew “a lot” about their tribe or group (figure 3-3).

Figure 3-3. Percentage of fourth-grade self-identified AI/AN students’ responses to a question about knowledge of their AI/AN group, by school density: 2007

How much do you know about your American Indian tribe or Alaska Native group?



\* Significantly different ( $p < .05$ ) from low density schools.

NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

Among self-identified AI/AN fourth-graders, 30 percent in both BIE schools and public schools reported that they knew “a lot” about their tribe or group (table 3-5).

Table 3-5. Percentage of fourth-grade self-identified AI/AN students, by type of school and students’ responses to a question about knowledge of their AI/AN group: 2007

How much do you know about your American Indian tribe or Alaska Native group?	Type of school	
	Public	BIE
A lot	30	30
Some	52	48*
Nothing or not much	19	21*

\* Significantly different ( $p < .05$ ) from public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Results are not shown for Department of Defense and private schools. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

Eighth-graders were asked more detailed questions about the extent of their knowledge of their culture. Thirty-six percent of eighth-grade self-identified AI/AN

students attending high density schools reported that they knew “a lot” about their AI/AN history, with the corresponding 37 percent for AI/AN traditions. In both cases, these were higher percentages of students than in low density schools (table 3-6).

Table 3-6. Percentage of eighth-grade self-identified AI/AN students, by school density and students’ responses to questions about knowledge of their AI/AN history and traditions: 2007

Question and response choices	Total	School density	
		High	Low
How much do you know about your American Indian or Alaska Native history?			
A lot	32	36*	28
Some	54	50*	57
Nothing or not much	14	13	15
How much do you know about your American Indian or Alaska Native traditions?			
A lot	31	37*	26
Some	44	45	44
Nothing or not much	24	18*	30

\* Significantly different ( $p < .05$ ) from low density schools.

NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

A higher percentage of self-identified AI/AN eighth-graders in BIE schools than in public schools said they knew “a lot” about their AI/AN history (40 percent compared to 30 percent) and their AI/AN traditions (45 percent compared to 29 percent).

Table 3-7. Percentage of eighth-grade self-identified AI/AN students, by type of school and students’ responses to questions about knowledge of their AI/AN history and traditions: 2007

Question and response choices	Type of school	
	Public	BIE
How much do you know about your American Indian or Alaska Native history?		
A lot	30	40*
Some	55	47*
Nothing or not much	15	13*
How much do you know about your American Indian or Alaska Native traditions?		
A lot	29	45*
Some	45	42*
Nothing or not much	26	13*

\* Significantly different ( $p < .05$ ) from public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Results are not shown for Department of Defense and private schools. Detail may not sum to totals because of rounding.

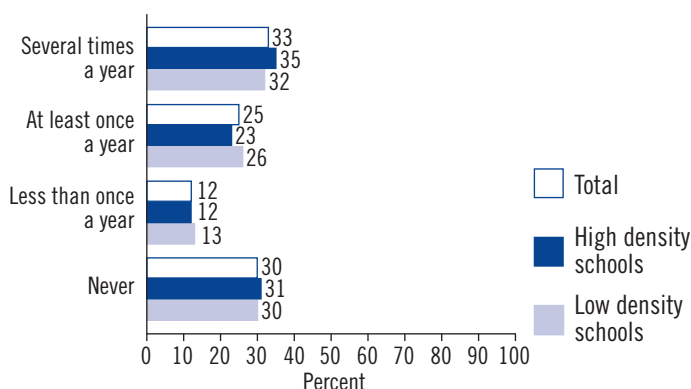
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

## To what extent do students participate in AI/AN ceremonies or gatherings?

When fourth-graders were asked about their attendance at AI/AN ceremonies and gatherings, 33 percent of self-identified AI/AN students reported attending such events “several times a year” (figure 3-4). Participation in these events did not differ significantly for self-identified AI/AN fourth-graders attending high and low density schools.

Figure 3-4. Percentage of fourth-grade self-identified AI/AN students’ responses to a question about attendance at AI/AN ceremonies and gatherings, by school density: 2007

How often do you go to American Indian or Alaska Native ceremonies or gatherings?



NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

Compared to their peers in public schools, a higher percentage of self-identified AI/AN fourth-graders in BIE schools reported attending AI/AN ceremonies or gatherings “several times a year” (42 percent compared to 32 percent, as shown in table 3-8).

Table 3-8. Percentage of fourth-grade self-identified AI/AN students, by type of school and students’ responses to a question about attendance at AI/AN ceremonies and gatherings: 2007

How often do you go to American Indian or Alaska Native ceremonies or gatherings?	Type of school	
	Public	BIE
Several times a year	32	42*
At least once a year	25	16*
Less than once a year	13	13
Never	30	29

\* Significantly different ( $p < .05$ ) from public schools.

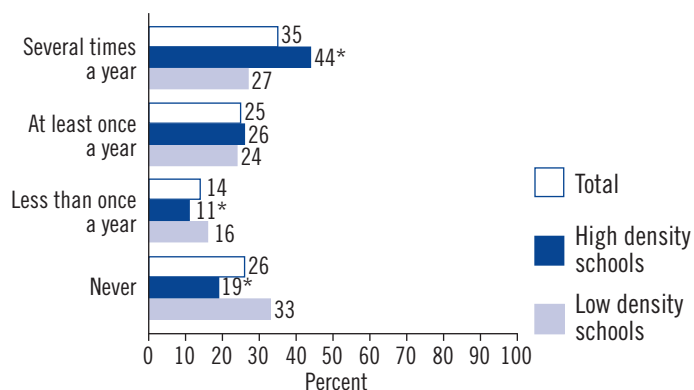
NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Results are not shown for Department of Defense and private schools. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

A more specific question was asked at grade 8 about participation in ceremonies and gatherings for people from the students’ own AI/AN group. A higher percentage of self-reported AI/AN eighth-graders in high density schools than in low density schools reported that they participated in such events “several times a year” (figure 3-5). Conversely, a lower percentage indicated that they “never” participated in AI/AN ceremonies and gatherings.

Figure 3-5. Percentage of eighth-grade self-identified AI/AN students’ responses to a question about participation in AI/AN ceremonies and gatherings, by school density: 2007

How often have you participated in ceremonies and gatherings for people from your American Indian or Alaska Native group?



\* Significantly different ( $p < .05$ ) from low density schools.

NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

A higher percentage of eighth-graders in BIE schools than their peers in public schools reported that they participated “several times a year” in ceremonies or gatherings for people from their AI/AN group (54 percent compared to 32 percent), and a lower percentage indicated that they “never” participated (table 3-9).

Table 3-9. Percentage of eighth-grade self-identified AI/AN students, by type of school and students’ responses to a question about participation in AI/AN ceremonies and gatherings: 2007

How often have you participated in ceremonies and gatherings for people from your American Indian or Alaska Native group?	Type of school	
	Public	BIE
Several times a year	32	54*
At least once a year	26	20*
Less than once a year	14	11*
Never	28	15*

\* Significantly different ( $p < .05$ ) from public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Results are not shown for Department of Defense and private schools. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

## How do AI/AN students describe their reading preferences?

Fourth- and eighth-grade AI/AN students were asked, “How often do you read for fun on your own time?” They were given four responses from which to choose: “Almost every day,” “Once or twice a week,” “Once or twice a month,” and “Never or hardly ever.” The data collected from the first two response categories are combined into “once a week or more,” and the data from the last two response categories are combined into “twice a month or less.” Responses are presented in tables 3-10 and 3-11 for only those students who identified themselves as AI/AN or AI/AN and another race.

Among self-identified AI/AN fourth-graders, a lower percentage of students attending high density schools (30 percent) than low density schools (43 percent) reported reading for fun “once a week or more” and answered “this is a lot like me” when asked whether they enjoyed reading about American Indians and Alaska Natives (table 3-10).

Students were also asked whether they enjoyed reading about people who are different from them. Lower percentages of self-identified AI/AN eighth-graders attending high density schools than low density schools reported reading for fun “once a week or more” or “twice a month or less” and answered “this is a lot like me.”

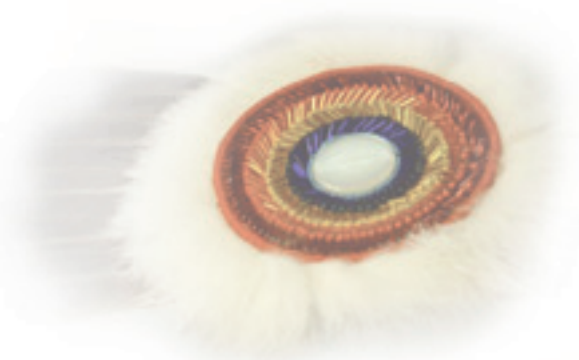
Table 3-10. Percentage of self-identified AI/AN students, by frequency in which they read for fun on their own time, school density, grade, and students’ responses to statements about reading: 2007

Grade, statements, and response choices	Frequency students read for fun on their own time					
	Once a week or more			Twice a month or less		
	Total	School density		Total	School density	
		High	Low		High	Low
<b>Grade 4</b>						
I enjoy reading about American Indians and Alaska Natives.						
This is a lot like me.	37	30*	43	12	12	12
This is a little like me.	25	25	24	10	11*	9
This is not like me.	10	13*	7	7	9*	5
I enjoy reading about people who are different from me.						
This is a lot like me.	28	27	28	7	8	6
This is a little like me.	30	27*	32	11	12*	10
This is not like me.	14	15	13	11	11	11
<b>Grade 8</b>						
I enjoy reading about American Indians and Alaska Natives.						
This is a lot like me.	24	22*	25	21	20	22
This is a little like me.	19	20	19	22	21	22
This is not like me.	5	6	5	9	11*	8
I enjoy reading about people who are different from me.						
This is a lot like me.	20	18*	22	10	8*	11
This is a little like me.	23	23	22	27	28	27
This is not like me.	6	7	4	15	17*	13

\* Significantly different ( $p < .05$ ) from low density schools.

NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.



Responses to the same questions for self-identified AI/AN students attending public schools and those attending BIE schools are shown in table 3-11. A lower percentage of fourth-grade students attending BIE schools (33 percent) than public schools (38 percent) reported reading for fun on their own time “once a week or more” and answered “this is a lot like me” when asked whether they enjoyed reading about American Indians and Alaska Natives.

A different pattern was evident at grade 8. The percentages of self-identified AI/AN students in BIE schools (24 percent) and in public schools (23 percent) who reported reading for fun on their own time “once a week or more” and answered “this is a lot like me” when asked whether they enjoyed reading about American Indians and Alaska Natives did not differ significantly.

Table 3-11. Percentage of self-identified AI/AN students, by frequency in which they read for fun on their own time, type of school, grade, and students’ responses to statements about reading: 2007

Grade, statements, and response choices	Frequency students read for fun on their own time			
	Once a week or more		Twice a month or less	
	Type of school		Type of school	
	Public	BIE	Public	BIE
<b>Grade 4</b>				
I enjoy reading about American Indians and Alaska Natives.				
This is a lot like me.	38	33*	12	8*
This is a little like me.	24	25	10	11*
This is not like me.	9	14*	7	9*
I enjoy reading about people who are different from me.				
This is a lot like me.	27	26	7	6*
This is a little like me.	30	27*	11	11
This is not like me.	14	19*	10	11
<b>Grade 8</b>				
I enjoy reading about American Indians and Alaska Natives.				
This is a lot like me.	23	24	20	20
This is a little like me.	19	22*	23	20*
This is not like me.	5	6	9	9
I enjoy reading about people who are different from me.				
This is a lot like me.	20	21	9	8*
This is a little like me.	22	24	28	25*
This is not like me.	5	7*	15	16

\* Significantly different ( $p < .05$ ) from public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Results are not shown for Department of Defense and private schools. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.





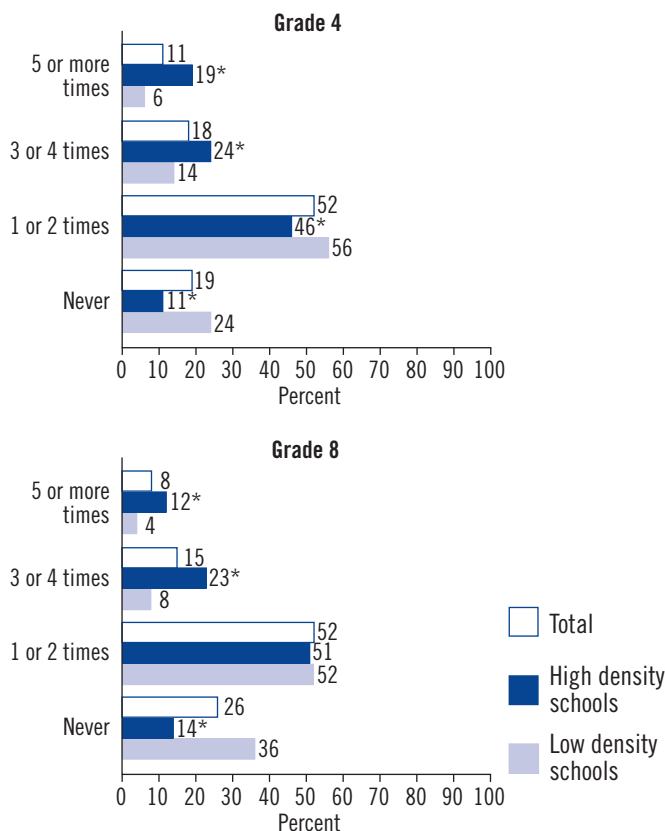
## How often do schools ask families to share histories and traditions as part of instruction?

The NIES school questionnaire asked school administrators how often in a typical school year their schools provided opportunities for families to share AI/AN histories and traditions as part of their school's instructional program.

Opportunities for sharing native histories and traditions differed by school density (figure 3-6). For example, school administrators of 43 percent of fourth-graders in high density schools reported that such opportunities occurred at least 3 times a year, compared to 20 percent of fourth-graders in low density schools.

Figure 3-6. Percentage of fourth- and eighth-grade AI/AN students, by school administrators' responses to a question about the use of students' native/family histories and traditions in instructional programs and school density: 2007

In a typical school year, how often does your school provide opportunities for students' families to share native or family histories and traditions as part of the instructional program?



\* Significantly different ( $p < .05$ ) from low density schools.  
 NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent. Detail may not sum to totals because of rounding.  
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

Responses from school administrators are shown in table 3-12 for students in public schools and BIE schools. At both grades 4 and 8, a higher percentage of students in BIE schools (about 59 and 63 percent) than in public schools (28 and 20 percent) had administrators who indicated that these opportunities occurred at least 3 times a year.

Table 3-12. Percentage of AI/AN students, by grade, type of school, and school administrators' responses to a question about the use of students' native/family histories and traditions in instructional programs: 2007

In a typical school year, how often does your school provide opportunities for students' families to share native or family histories and traditions as part of the instructional program?	Grade 4		Grade 8	
	Type of school		Type of school	
	Public	BIE	Public	BIE
5 or more times	11	23*	6	31*
3 or 4 times	17	36*	14	32*
1 or 2 times	53	30*	52	30*
Never	19	10*	28	7*

\* Significantly different ( $p < .05$ ) from public schools.  
 NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Results are not shown for Department of Defense and private schools. Detail may not sum to totals because of rounding.  
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

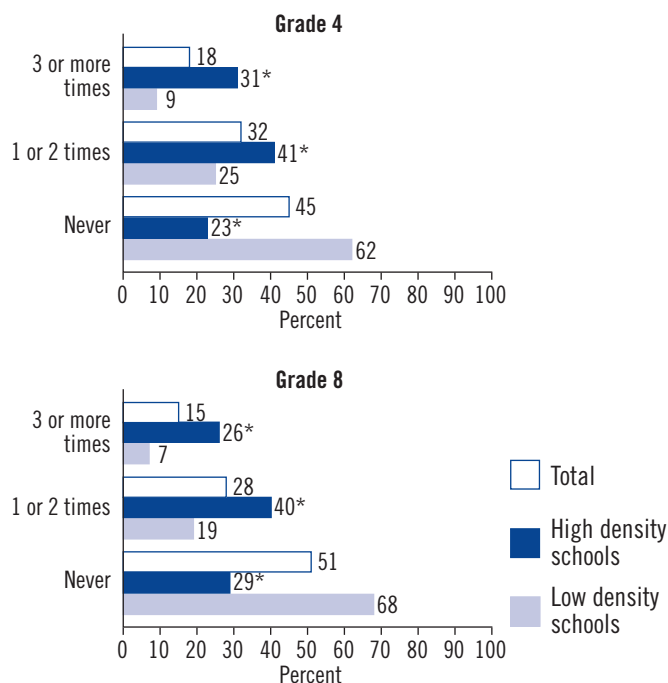


## How often do schools ask community representatives to share traditions and culture with students and staff?

School administrators also were asked how often representatives from the AI/AN community visited their schools to share AI/AN traditions and culture. At grade 4, administrators of 31 percent of students attending high density schools reported that such opportunities occurred in their schools “3 or more times” in the school year, compared to 9 percent for low density schools (figure 3-7).

A similar pattern between high and low density schools is seen at grade 8. Administrators of 26 percent of eighth-grade students attending high density schools reported opportunities for tribal or community representatives to share traditions and culture occurred “3 or more times” in the school year, compared to 7 percent for low density schools.

Figure 3-7. Percentage of fourth- and eighth-grade AI/AN students, by school administrators’ responses to a question about local tribe or AI/AN community involvement with school and school density: 2007



\* Significantly different ( $p < .05$ ) from low density schools.  
 NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent. Detail may not sum to totals because the response choice “I don’t know” is not shown.  
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

At both grades, administrators of a higher percentage of BIE school students than public school students reported 3 or more visits from local tribe or community representatives during the school year (table 3-13).

Table 3-13. Percentage of AI/AN students, by grade, type of school, and school administrators’ responses to a question about local tribe or AI/AN community involvement with school: 2007

So far this school year, how many times has a representative of a local tribe or AI/AN community visited the school to share AI/AN traditions and culture with students and staff?	Grade 4		Grade 8	
	Type of school		Type of school	
	Public	BIE	Public	BIE
3 or more times	17	34*	12	42*
1 or 2 times	32	29	28	28
Never	45	33*	54	21*

\* Significantly different ( $p < .05$ ) from public schools.  
 NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Results are not shown for Department of Defense and private schools. Detail may not sum to totals because the response choice “I don’t know” is not shown.  
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.



## Teachers and Schools

### To what extent do teachers of AI/AN students use native languages during instruction?

In addition to the cultural influences of their families and communities, students may also encounter their language and culture within their educational settings. Overall, 87 percent of fourth-grade students, 87 percent of eighth-grade reading/language arts students, and 90 percent of eighth-grade mathematics students had teachers who provided instruction entirely in English (figure 3-8). At both grades, however, a higher percentage of students in high density schools than in low density schools had teachers who reported “occasional use of AI/AN language(s)” in their instruction.

At both grades, a higher percentage of students in BIE schools than in public schools had teachers who reported “frequent use of AI/AN language(s)” to teach core subjects (table 3-14). For instance, 16 percent of fourth-grade BIE school students had teachers who used AI/AN language frequently, compared to 1 percent of public school students.

Table 3-14. Percentage of AI/AN students, by type of school, grade, and teachers’ responses to a question about the use of students’ AI/AN language(s) in class: 2007

To what extent do you use your students’ American Indian or Alaska Native language(s) to teach core subjects?	Type of school	
	Public	BIE
<b>Grade 4</b>		
Frequent use of AI/AN language(s)	1	16*
Occasional use of AI/AN language(s)	9	41*
Instruction entirely in English	90	43*
<b>Grade 8 reading/language arts</b>		
Frequent use of AI/AN language(s)	2	27*
Occasional use of AI/AN language(s)	7	33*
Instruction entirely in English	91	39*
<b>Grade 8 mathematics</b>		
Frequent use of AI/AN language(s)	2	14*
Occasional use of AI/AN language(s)	4	39*
Instruction entirely in English	94	47*

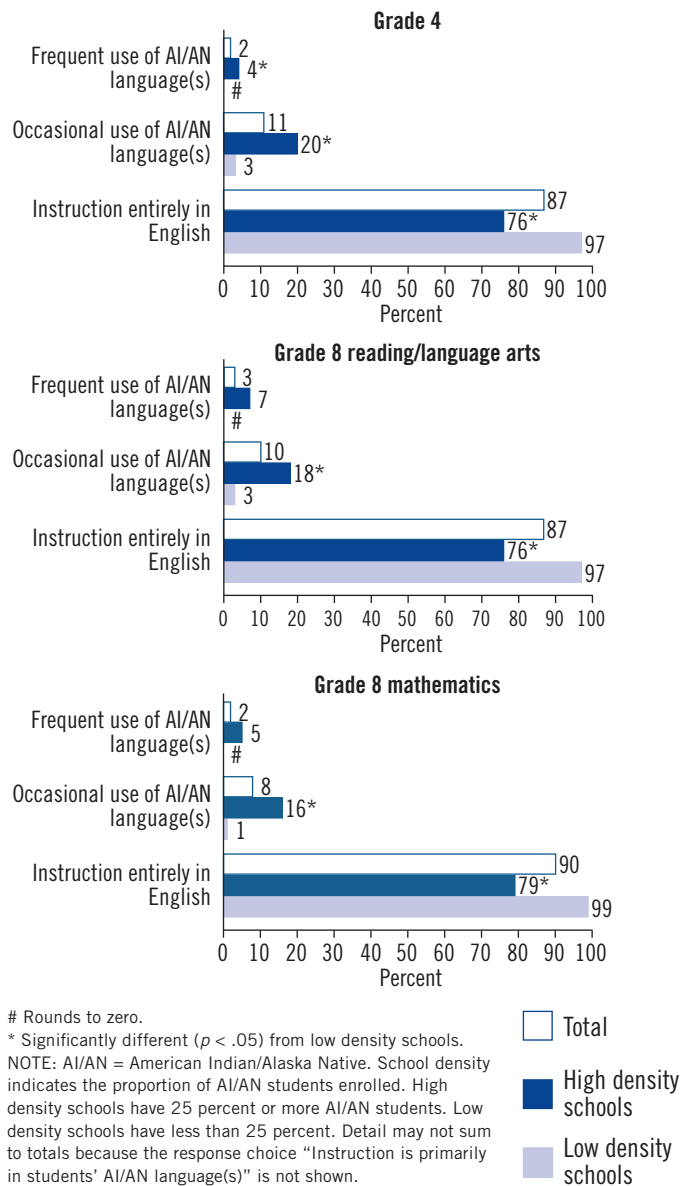
\* Significantly different ( $p < .05$ ) from public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Results are not shown for Department of Defense and private schools. Detail may not sum to totals because the response choice “Instruction is primarily in students’ AI/AN language(s)” is not shown.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

Figure 3-8. Percentage of fourth- and eighth-grade AI/AN students, by teachers’ responses to a question about the use of students’ AI/AN language(s) in class and school density: 2007

To what extent do you use your students’ American Indian or Alaska Native language(s) to teach core subjects?



## How often are AI/AN culture and history integrated into the curriculum?

Teachers were asked about the extent to which they integrated AI/AN culture and history into their curriculum. When compared to fourth- and eighth-grade AI/AN students attending low density schools, higher percentages of students attending high density schools had teachers who reported that they integrated AI/AN culture and history into their curriculum “at least once a week” (figure 3-9).

Higher percentages of BIE school students than public school students had teachers who reported integrating AI/AN culture and history into their curriculum. For example, higher percentages of fourth- and eighth-graders in BIE schools than in public schools had teachers who said the integration of AI/AN culture and history into their curriculum occurred “almost every day” (table 3-15).

Table 3-15. Percentage of AI/AN students, by type of school, grade, and teachers’ responses to a question about the integration of AI/AN culture and history in their curriculum: 2007

To what extent do you integrate American Indian or Alaska Native culture and history into your curriculum?	Type of school	
	Public	BIE
<b>Grade 4</b>		
Almost every day	5	19*
At least once a week	12	34*
At least once a month	20	30*
At least once a grading period	51	13*
Never	12	4*
<b>Grade 8 reading/language arts</b>		
Almost every day	4	31*
At least once a week	5	30*
At least once a month	14	31*
At least once a grading period	49	8*
Never	27	#*
<b>Grade 8 mathematics</b>		
Almost every day	1	10*
At least once a week	5	33*
At least once a month	5	20*
At least once a grading period	16	24*
Never	74	13*

# Rounds to zero.

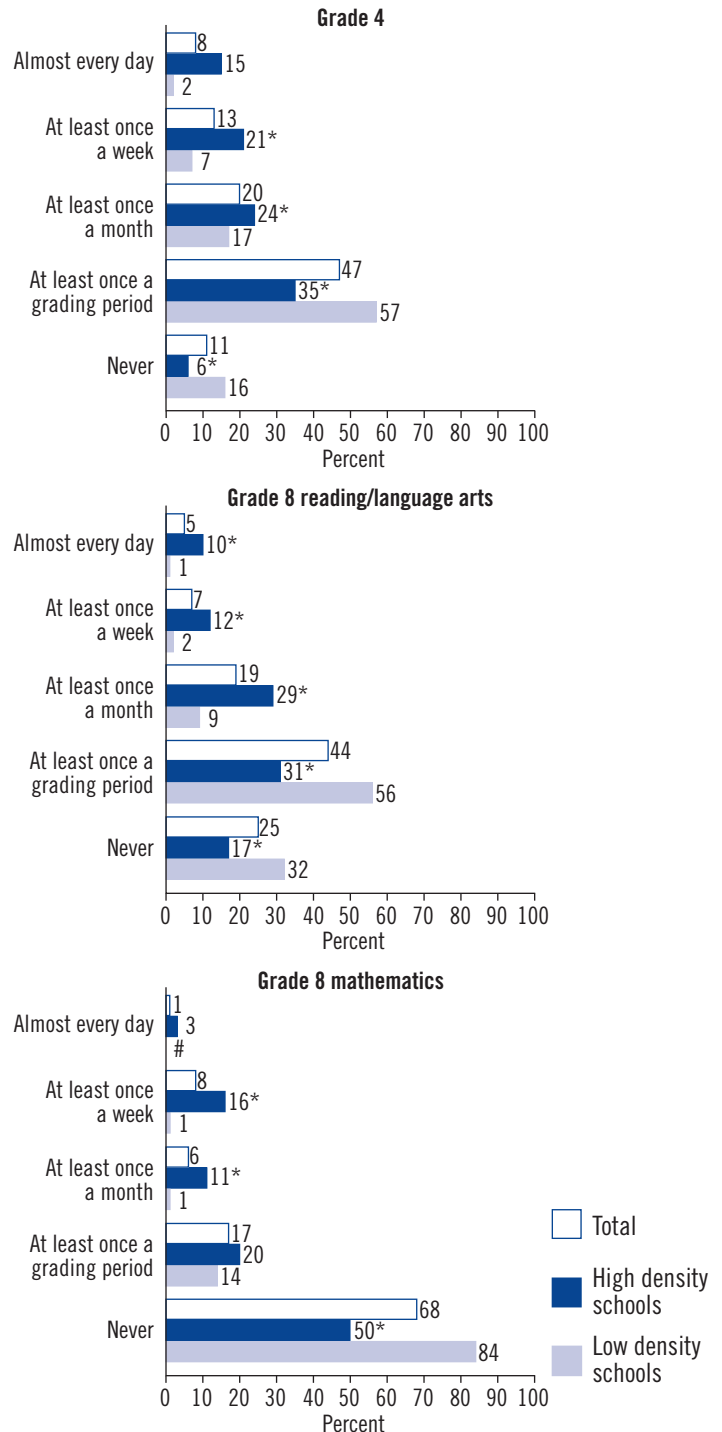
\* Significantly different ( $p < .05$ ) from public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Results are not shown for Department of Defense and private schools. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

Figure 3-9. Percentage of fourth- and eighth-grade AI/AN students, by teachers’ responses to a question about the integration of AI/AN culture and history in their curriculum and school density: 2007

To what extent do you integrate American Indian or Alaska Native culture and history into your curriculum?



# Rounds to zero.

\* Significantly different ( $p < .05$ ) from low density schools.

NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

## To what extent is reading/language arts instruction influenced by AI/AN content or cultural standards?

Teachers were asked the extent to which they rely on AI/AN content or cultural standards to plan their reading/language arts lessons. Overall, 3 percent of fourth-graders and 2 percent of eighth-graders had teachers who reported that they used AI/AN content or cultural standards “a lot” in planning reading/language arts lessons (table 3-16).

At both grades, higher percentages of students in high density schools than in low density schools had teachers who reported that they used AI/AN content or cultural standards either “some” or “a lot.”

Table 3-16. Percentage of AI/AN students, by school density, grade, and teachers’ responses to a question about the use of AI/AN content or cultural standards in planning reading/language arts lessons: 2007

How much do you rely on American Indian or Alaska Native content or cultural standards in planning reading/language arts lessons?	Total	School density	
		High	Low
<b>Grade 4</b>			
A lot	3	5*	#
Some	11	18*	5
A little	17	24*	10
Not at all/unaware of standards	70	53*	85
<b>Grade 8</b>			
A lot	2	4*	#
Some	10	17*	4
A little	16	24*	8
Not at all/unaware of standards	72	54*	88

# Rounds to zero.

\* Significantly different ( $p < .05$ ) from low density schools.

NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

Teachers’ reliance on AI/AN content or cultural standards for reading/language arts instruction was reported for higher percentages of BIE school students than for their peers in public schools (table 3-17). For example, 17 percent of eighth-grade BIE school students had teachers who reported using AI/AN content or cultural standards “a lot” when planning their reading/language arts lessons compared to 1 percent of their peers in public schools.

Table 3-17. Percentage of AI/AN students, by type of school, grade, and teachers’ responses to a question about the use of AI/AN content or cultural standards in planning reading/language arts lessons: 2007

How much do you rely on American Indian or Alaska Native content or cultural standards in planning reading/language arts lessons?	Type of school	
	Public	BIE
<b>Grade 4</b>		
A lot	2	9*
Some	10	27*
A little	16	30*
Not at all/unaware of standards	72	34*
<b>Grade 8</b>		
A lot	1	17*
Some	9	35*
A little	13	25*
Not at all/unaware of standards	76	22*

\* Significantly different ( $p < .05$ ) from public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education.

Results are not shown for Department of Defense and private schools. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

## To what extent is mathematics instruction influenced by AI/AN content or cultural standards?

Teachers were also asked the extent to which their mathematics instruction was influenced by AI/AN content or cultural standards. Overall, approximately 10 percent of fourth-graders and 6 percent of eighth-graders had teachers who reported that they used AI/AN content or cultural standards either “some” or “a lot” in planning mathematics lessons (table 3-18).

At both grades, higher percentages of students in high density schools than in low density schools had teachers who reported that they used “some” AI/AN content or

Table 3-18. Percentage of AI/AN students, by school density, grade, and teachers’ responses to a question about the use of AI/AN content or cultural standards in planning mathematics lessons: 2007

How much do you rely on American Indian or Alaska Native content or cultural standards in planning mathematics lessons?	Total	School density	
		High	Low
<b>Grade 4</b>			
A lot	2	4*	#
Some	8	15*	3
A little	15	24*	8
Not at all/unaware of standards	74	57*	89
<b>Grade 8</b>			
A lot	1	3	#
Some	5	9*	2
A little	9	15*	4
Not at all/unaware of standards	84	74*	93

# Rounds to zero.

\* Significantly different ( $p < .05$ ) from low density schools.

NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

cultural standards. A higher percentage of fourth-graders attending high density schools had teachers who reported using AI/AN content “a lot,” compared to fourth-graders in low density schools.

Compared to students attending public schools, a higher percentage of students in both grades who attended BIE schools had teachers who reported that they used AI/AN content or cultural standards either “some” or “a lot” to plan their mathematics lessons (table 3-19).

Table 3-19. Percentage of AI/AN students, by type of school, grade, and teachers’ responses to a question about the use of AI/AN content or cultural standards in planning mathematics lessons: 2007

How much do you rely on American Indian or Alaska Native content or cultural standards in planning mathematics lessons?	Type of school	
	Public	BIE
<b>Grade 4</b>		
A lot	2	8*
Some	8	21*
A little	15	32*
Not at all/unaware of standards	76	39*
<b>Grade 8</b>		
A lot	1	4*
Some	4	24*
A little	9	26*
Not at all/unaware of standards	86	47*

\* Significantly different ( $p < .05$ ) from public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education.

Results are not shown for Department of Defense and private schools. Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.



## Do AI/AN students receive instruction about their native cultures?

School administrators were asked whether AI/AN students in their schools received instruction on a variety of topics and issues related to their native cultures. For example, instruction on one such topic, culture and traditions, was provided to 65 percent of all AI/AN fourth-graders and 57 percent of eighth-graders (figure 3-10).

Differences between high and low density schools were seen across the two grades. For example, a higher percentage of AI/AN fourth-graders in high density schools had administrators who reported that their schools provided instruction about native “oral and written language” (70 percent), compared to fourth-graders in low density schools (23 percent).

A comparison of administrators’ responses for students attending public schools and those attending BIE schools is provided in table 3-20. Differences are again seen for both grades. Ninety-four percent of fourth-graders and 91 percent of eighth-graders attending BIE schools had administrators who said their students received instruction about native “oral and written language.” These percentages are higher than those for students attending public schools (39 and 35 percent).

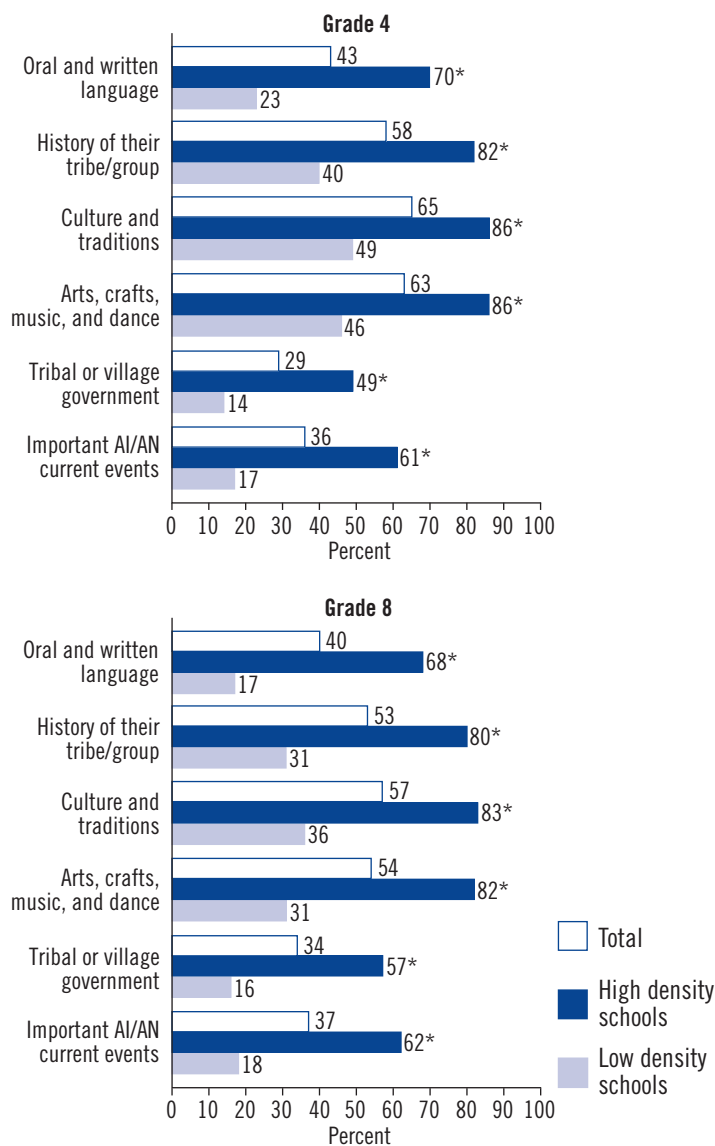
Table 3-20. Percentage of AI/AN students, by grade, type of school, and school administrators who answered “yes” to the response choices for a question about AI/AN cultural instruction in their schools: 2007

Do American Indian or Alaska Native students in your school receive instruction about their native cultures in any of the following areas?	Grade 4		Grade 8	
	Type of school		Type of school	
	Public	BIE	Public	BIE
Oral and written language	39	94*	35	91*
History of their tribe/group	56	90*	51	94*
Culture and traditions	63	97*	53	94*
Arts, crafts, music, and dance	62	96*	49	95*
Tribal or village government	26	72*	32	72*
Important AI/AN current events	33	78*	36	74*

\* Significantly different ( $p < .05$ ) from public schools.  
 NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. Results are not shown for Department of Defense and private schools.  
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

Figure 3-10. Percentage of fourth- and eighth-grade AI/AN students, by school administrators who answered “yes” to the response choices for a question about AI/AN cultural instruction in their schools and school density: 2007

Do American Indian or Alaska Native students in your school receive instruction about their native cultures in any of the following areas?



\* Significantly different ( $p < .05$ ) from low density schools.  
 NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent.  
 SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

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# Technical Notes

This section describes the procedures used for Part II of the 2007 National Indian Education Study (NIES).

## Development of 2007 NIES survey instruments

Questionnaires were developed for students at grades 4 and 8, their teachers, and their school administrators. A Technical Review Panel, assembled to advise NIES, oversaw the development of the questionnaires. In addition, pilot testing and in-depth think-aloud interviews with respondents were conducted to refine the questionnaires. 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.

The number of questions in each questionnaire is shown in table TN-1. Grade 8 teachers who taught both language arts and mathematics answered all 24 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: 2007

Type of questionnaire	Number of questions
Student, grade 4	17
Student, grade 8	21
Teacher, grade 4	18
Teacher, grade 8	24
School, grades 4 and 8	24

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

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/nies\\_2007/n0004.asp](http://nces.ed.gov/nationsreportcard/nies/nies_2007/n0004.asp).

## Sampling procedures

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. The sample selection for NIES took place in conjunction with the sampling activities for the 2007 National Assessment of Educational Progress (NAEP) assessments at grades 4 and 8.

The samples of AI/AN students participating in the 2007 NAEP reading and mathematics assessments represent augmentations of the sample of AI/AN students who would usually be selected by NAEP. This allows more detailed reporting of performance for this group. To increase the samples of Bureau of Indian Education (BIE)<sup>1</sup> schools over the numbers sampled in 2005, all BIE schools and students were included in the 2007 sample. The BIE population represents approximately 135 schools at grade 4 and 115 schools at grade 8. In terms of the number of students, the BIE population represents approximately 3,000 students at grade 4 and 3,100 students at grade 8.

Because the reporting of results at the state level was a goal of NIES Part I, schools in the following states were oversampled in 2007: Arizona, Minnesota, North Carolina, Oregon, and Washington. Schools with relatively large percentages (at least 10 percent) of AI/AN students were oversampled by factors ranging from 2 to 6 based on 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 which gives each unit in the population an equal chance of selection. The precision achieved by a sample selected in this way could be achieved by a smaller sample size (typically called the “effective” sample size) if sampling

<sup>1</sup> In the 2005 NIES, these were referred to as Bureau of Indian Affairs (BIA) schools.

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 II followed the two-stage procedure used for the 2007 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. These student lists were then used to draw the sample of students (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 II, the schools that reported having AI/AN students enrolled in fourth or eighth grade were identified. This subsample of schools consisted of approximately 94 percent public schools, 1 percent private schools, and 5 to 6 percent BIE schools at grades 4 and 8. 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 II. As is the case 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 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 13,000 AI/AN students at approximately 1,900 schools at grade 4 and 15,000 AI/AN students at 2,000 schools at grade 8 located throughout the United States. At grades 4 and 8, the sample consisted of 94 percent public schools, 5 to 6 percent BIE schools, and 1 percent private schools. From this sample, the questionnaires were completed by about 10,000 grade 4 students from 1,700 schools and 11,000 grade 8 students from 1,800 schools (table TN-2). Also responding to the survey were about 3,000 grade 4 teachers, 4,600 grade 8 teachers, 1,700 grade 4 school administrators, and 1,800 grade 8 school administrators associated with these students. Some school administrators responded for both grade 4 and grade 8.

Table TN-2. Number of participating schools with AI/AN students and number of participating AI/AN students, by grade and type of school: 2007

Type of school	Grade 4		Grade 8	
	Schools	Students	Schools	Students
Public	1,600	8,000	1,700	9,000
BIE	100	2,000	100	2,000
Private	10	‡	20	‡

‡ Reporting standards not met.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. For public and BIE schools, the numbers of schools are rounded to the nearest hundred, and the numbers of students are rounded to the nearest thousand. The numbers of private schools are rounded to the nearest ten. Numbers for Department of Defense schools are counted in the public school category.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 National Indian Education Study.

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 that would also allow comparisons between AI/AN students attending 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 400 high density schools at each grade, 1,500 low density schools at grade 4, and 1,600 low density schools at grade 8. In addition, the 2007 sample design allows the Part II survey data to be linked to the achievement data collected in NIES Part I.

The weighted school response rates were 88 percent at grade 4 and 90 percent at grade 8. The weighted school response rates by school type were as follows: at fourth grade, 90 percent for public schools and 80 percent for BIE schools; at eighth grade, 91 percent for public schools and 88 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 87 percent for grade 4 and 90 percent for grade 8. The unweighted school response rates by school type were as follows: at fourth grade, 89 percent for public schools and 80 percent for BIE schools; at eighth grade, 91 percent for public schools and 88 percent for BIE schools.

The weighted student response rates were 85 percent at grade 4 and 82 percent at grade 8. The weighted student response rates by school type were as follows: at fourth grade, 85 percent for public schools and 85 percent for BIE schools; at eighth grade, 82 percent for public schools and 83 percent for BIE schools. Private school results were not reported for either grade 4 or grade 8 due to insufficient sample size.

The unweighted student response rates were 81 percent at grade 4 and 78 percent at grade 8. The unweighted student response rates by school type were as follows: at fourth grade, 80 percent for public schools and 85 percent for BIE schools; at eighth grade, 77 percent for public schools and 83 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. Accordingly, at grade 4, completed questionnaires were obtained from schools for 88 percent of students and from teachers for 91 percent of students. At grade 8, completed school questionnaires were obtained for 90 percent of students, completed mathematics teacher questionnaires were obtained for 82 percent of students, and completed reading teacher questionnaires were obtained for 80 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.

To ensure that reported findings are based on samples that are representative of the target population, NCES established a response rate standard of 85 percent. The weighted student response rates for the NIES sample were 84.99 percent at grade 4 and 82.4 percent at grade 8. Because the weighted student response rates for both grades 4 and 8 failed to meet the NCES standard, student nonresponse bias analyses were conducted. These analyses showed that the response rate at both grades was lowest in the Pacific region (due in large measure to especially low response in Alaska) and especially among students with disabilities and English language learners. At grade 8, the response rate was

also lower among male students and those students who were relatively older. After weighting adjustments were made to account for differences in the response rates by subgroups, the only evidence of remaining bias was the fact that AI/AN students from low density schools were somewhat under-represented in the final sample at both grades. Thus, at grade 4, the weighted data showed 54.4 percent of the population being from low density schools, whereas in the full student sample it was 55.2 percent. The corresponding figures at grade 8 were 54.7 percent and 55.5 percent, respectively. Although 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.



## 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 concentrations 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 took account of 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 (NCES data collection contractor staff) visited the schools in January and February of 2007 to administer the 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 representatives 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.

## Definitions of demographic variables

Most of the variables used in this report are based directly on questions from the student, teacher, and school questionnaires. In chapter 3 of this report, *Integration of American Indian and Alaska Native Language and Culture*, the exact wording of the NIES question is embedded in the figure or table. The exact wording of all questions is available online at [http://nces.ed.gov/nationsreportcard/nies/nies\\_2007/n0004.asp](http://nces.ed.gov/nationsreportcard/nies/nies_2007/n0004.asp).

### RACE/ETHNICITY

Unless otherwise specified in this report, student race/ethnicity data are based on official schools 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 with more than one race/ethnicity as "other." 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.

The questionnaires completed by participating students and their teachers asked them to self-report their race/ethnicity. Students and teachers both completed the same

two questions. In compliance with guidelines set by the Office of Management and Budget for all federal data collection, the first question asked whether or not the respondent was Hispanic or Latino. The second question asked respondents to indicate “which of the following best describes you” and listed five race groups: White, Black or African American, Asian, American Indian or Alaska Native, and Native Hawaiian or other Pacific Islander. Respondents were instructed to mark all choices that applied. Based on responses to these two questions, teachers were classified as “AI/AN only,” “AI/AN plus at least one other race or ethnicity,” “White only,” and “other.” Students’ self-identifications were classified as “AI/AN only,” “AI/AN plus at least one other race or ethnicity,” or “non-AI/AN.”

### 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, suburban, 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 based on their physical address. The categories (“locale

codes”) are based on an address’s proximity to an urbanized area (a densely settled core with densely settled surrounding areas). This is a change from the original system based on metropolitan statistical areas. To distinguish the two systems, the new system is referred to as “urban-centric locale codes.” More details on the locale codes are available at [http://nces.ed.gov/ccd/rural\\_locales.asp](http://nces.ed.gov/ccd/rural_locales.asp).

### SCHOOL DENSITY

Throughout the report, results are reported separately for students attending schools with high or low density, that is, high or low proportions of AI/AN students. The Office of Indian Education (OIE) defines high density schools as those in which 25 percent or more of the students are AI/AN. Schools in which less than 25 percent of the students are AI/AN are considered low density schools.

### SCHOOL LUNCH PROGRAM

Information on student eligibility for the National School Lunch Program (NSLP) is collected as an indicator of socioeconomic status. 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, 2006 through June 30, 2007, for a family of four, 130 percent of the poverty level was \$26,000, and 185 percent was \$37,000.) As part of the Department of Agriculture’s National School Lunch Program, schools can receive cash subsidies and donated commodities in return for offering free or reduced-price lunches to eligible children. For more information on NSLP, visit <http://www.fns.usda.gov/cnd/lunch/>.



## SCHOOL FUNDING FOR AI/AN EDUCATION

Several types of school funding relevant to AI/AN education are surveyed in this report. Titles I, II, III, and VII funds are all authorized under the U.S. Elementary and Secondary Education Act, No Child Left Behind. Title I funds are intended for improving the academic achievement of the disadvantaged. Title II provides funds for preparing, training, and recruiting high quality teachers and principals. Title III addresses language instruction for English language learners and immigrant students, and Title VII is designated for American Indian, Native Hawaiian, and Alaska Native education. Impact Aid, Johnson-O'Malley, and Alaska Native Education Programs are also federal funding programs. Impact Aid is provided to local school districts that include within their boundaries parcels of land that are owned by the Federal Government or that have been removed from the local tax rolls by the Federal Government, including Indian lands. The Johnson-O'Malley program provides supplemental educational aid for AI/AN students through contracts with tribes, tribal organizations, school districts, and state education agencies. Alaska Native Education Programs provide grants to help meet the unique educational needs of Alaska Natives and to support the development of supplemental educational programs to benefit Alaska Natives.

## 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. When, for example, 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. 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 differences described in this report

have been determined to be statistically significant at the .05 level with adjustments for multiple comparisons.

Standard errors have been calculated for all estimates in this report and are available at <http://nces.ed.gov/nationsreportcard/nies/>. Two examples of data tables containing standard errors can be found in the Data Appendix.

## Variance estimation and tests of significance

Because of the complex sampling design,<sup>2</sup> 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 Student's *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.

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  $\alpha$  be the combined significance level desired. The procedure compares  $P(q)$  with  $\alpha$ ,  $P(q-1)$  with  $\alpha(q-1)/q$ , . . . ,  $P(1)$  with  $\alpha/q$ , stopping the comparisons with the largest  $j$  such that  $P(j) \leq \alpha j/q$ . Reject all hypotheses corresponding to  $P(1)$ , . . . ,  $P(j)$ .

## Comparisons to non-AI/AN students

Students who were selected for the 2007 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 these 2007 NAEP data.



<sup>2</sup> All BIE schools serving fourth- and/or eighth-grade students were sampled for this study. In addition, all public schools in North Dakota, grade 8, were sampled. Hence, these samples are census samples, which means that 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 any numerical difference between groups within these samples is an actual, significant difference, that is, not due to chance. Furthermore, for comparisons between a group within one of these samples and a group in a non-census sample (e.g., the larger NIES sample), single-population  $t$ -tests are conducted reflecting the fact that only one of the estimates is subject to uncertainty.

# Data Appendix

Additional data tables to support the findings in this report may be found at <http://nces.ed.gov/nationsreportcard/nies/>.

Table A-1. Percentage of AI/AN students and standard errors, by school density, grade, and frequency with which schools provide opportunities for students' families to share native or family histories and traditions as part of the instructional program: 2007

Grade and frequency of opportunities per year	Total	School density	
		High	Low
<b>Grade 4</b>			
5 or more times	11 (1.7)	19* (3.5)	6 (1.1)
3 or 4 times	18 (1.6)	24* (3.4)	14 (1.7)
1 or 2 times	52 (1.9)	46* (4.2)	56 (2.1)
Never	19 (1.6)	11* (2.7)	24 (1.9)
<b>Grade 8</b>			
5 or more times	8 (0.8)	12* (1.7)	4 (0.6)
3 or 4 times	15 (1.8)	23* (3.5)	8 (1.1)
1 or 2 times	52 (2.6)	51 (4.7)	52 (2.2)
Never	26 (1.8)	14* (3.1)	36 (2.0)

\* Significantly different ( $p < .05$ ) from low density schools.

NOTE: AI/AN = American Indian/Alaska Native. School density indicates the proportion of AI/AN students enrolled. High density schools have 25 percent or more AI/AN students. Low density schools have less than 25 percent. Standard errors of the estimates appear in parentheses. Detail may not sum to totals because of rounding. SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2007 National Indian Education Study.

Table A-2. Percentage of AI/AN students and standard errors, by type of school, grade, and student-reported number of pages a day they have to read in school and for homework: 2007

Grade and number of pages read a day	Type of school	
	Public	BIE
<b>Grade 4</b>		
More than 20	30 (0.7)	25* (0.0)
16–20	13 (0.6)	10* (0.0)
11–15	13 (0.6)	11* (0.0)
6–10	20 (0.7)	21 (0.0)
5 or fewer	24 (0.7)	34* (0.0)
<b>Grade 8</b>		
More than 20	20 (0.7)	21 (0.0)
16–20	12 (0.5)	12 (0.0)
11–15	14 (0.5)	16* (0.0)
6–10	23 (0.6)	24* (0.0)
5 or fewer	30 (0.8)	27* (0.0)

\* Significantly different ( $p < .05$ ) from public schools.

NOTE: AI/AN = American Indian/Alaska Native. BIE = Bureau of Indian Education. 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. SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2007 Mathematics Assessment.



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Student Artwork: *Our Dream* by Roderick Natani;  
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