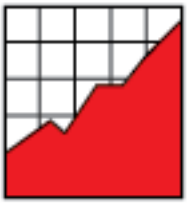
Technical Report 60

Characteristics of Low Performing Special Education and Non-special Education Students on Large-scale Assessments



NATIONAL CENTER ON EDUCATIONAL OUTCOMES

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Characteristics of Low Performing Special Education and Non-special Education Students on Large-scale Assessments

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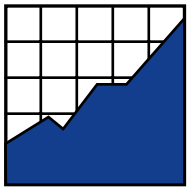

NATIONAL CENTER ON EDUCATIONAL OUTCOMES

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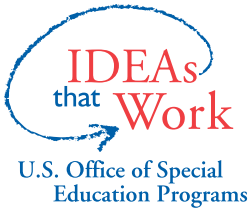

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Executive Summary

Federal legislation requires that all students participate in state assessments for accountability purposes. Most students with disabilities participate in the general assessment, with or without accommodations. Several states offer an additional assessment option for students with disabilities—the alternate assessment based on modified achievement standards (AA-MAS). In order to take the AA-MAS, students must have an Individualized Education Program (IEP) containing goals aligned with grade level content. Students must also be able to make significant progress, but not be expected to reach grade-level proficiency in the year covered by their IEP.

States that choose to offer an AA-MAS must also develop participation guidelines (subject to federal approval) that IEP teams can use to determine which special education students may participate in the assessment. Previous NCEO reports have demonstrated that the participation guidelines outlined by states with an AA-MAS assessment option differ. Many states target students with disabilities who score at the lowest levels on the regular state assessment as potential AA-MAS participants. Researchers who have examined the characteristics of low-performing students have concluded that low performing students are more often male, from racial or ethnic minority groups, receiving free or reduced price lunch, and receiving special education services. However, many students with low scores on standards-based assessments do not have disabilities.

The purpose of the current report is to investigate whether the characteristics of the lowest performing students in special education differ from the characteristics of the lowest performing students who are not in special education. The investigation in this report used data from low performing students in four states: Alabama, Hawaii, South Dakota, and Wisconsin. Achievement data were disaggregated by three demographic characteristics (gender, race/ethnicity, and income status) for students taking the reading or mathematics assessments in fifth or eighth grade. In addition, we tracked data for each student over three years to identify how students moved in and out of the low performing category (low performing was defined as the tenth percentile and below for this report) across time.

Results revealed that the demographic characteristics of students who performed at the lowest levels on the state assessment over several years were similar regardless of whether students received special education services. In both groups, the lowest performers were more likely to be students of racial or ethnic minority, and students from low-income backgrounds. However, students receiving special education services were more likely than their non-special education peers to score below the 10th percentile for several years in a row. Among students receiving special education, those from racial/ethnic minority backgrounds and low-income families were more likely than their peers to score at the lowest levels on state assessments for several consecutive years. These results suggest widespread issues with low achievement in minority and low income groups that states must address when assessing students for accountability purposes.

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Overview

Federal laws require states to include all students, including students in special education, in state assessments used for accountability purposes. Most students with disabilities participate in the general assessment, with or without accommodations (Altman, Thurlow, & Vang, 2010). Students with significant cognitive disabilities may participate in alternate assessments based on alternate achievement standards (AA-AAS) (Quenemoen, 2008). Several states offer an additional assessment option—alternate assessments based on modified achievement standards (AA-MAS) (Albus, Lazarus, Thurlow, & Cormier, 2009; Cortiella, 2007; U.S. Department of Education, 2007).

According to federal regulations, students who participate in an AA-MAS must have an Individualized Education Program (IEP). They also must be able to make significant progress, but not be expected to reach grade-level proficiency within the year covered by their IEP. The regulations require that students who participate in an AA-MAS have access to grade level content and they may be from any disability category (U.S. Department of Education, 2007). The AA-MAS is an optional assessment and many states do not offer it.

Federal regulations require states that offer an AA-MAS to develop participation guidelines (subject to federal approval) that IEP teams can use to determine which special education students may participate in this option. Research has shown that state participation policies differ, and that most states include previous poor performance on state assessments or multiple measures in their participation guidelines for AA-MAS (Lazarus, Hodgson, Price, & Thurlow, 2011).

In an effort to identify who might be potential AA-MAS participants if they were selected from among the lowest performing students, we embarked on a detailed longitudinal analysis of four states' assessment data. The analysis used three years of demographic and performance data. The four states—Alabama, Hawaii, South Dakota, and Wisconsin—are all members of a state consortium that studies ways to identify students who are eligible for an AA-MAS. Some of the analyses shown in this report were included in a previous NCEO Brief (Lazarus, Wu, Altman, & Thurlow, 2010). However, that brief examined the characteristics of all low performing students. It did not disaggregate the data reported to show the characteristics of special education students who may be eligible to take an AA-MAS.

This report examines the characteristics of low performing special education students. This approach is consistent with federal regulations which indicate that students must have an IEP to be eligible to take the AA-MAS. To provide additional context, we compared the data on low performing special education students to those of low performing non-special education students. For this analysis, **low performing** (LP) students were defined as students who scored at the 10th percentile or below on the statewide assessment in any one of the three years of

data we examined. Students who scored at the 10th percentile or below for all three years were identified as **persistently low performing** (PLP) students. Three research questions guide the investigations presented in this report:

1. Are the demographic characteristics of persistently low performing special education students different from the characteristics of persistently low performing students who are not in special education?

2. Are special education students who were low performing in the first year more or less likely to move out of the low performing group than non-special education students? Is there any variation in movement by content area (reading vs. math)?

3. Are low performing special education students in some demographic subgroups more or less likely to move out of the low performing group than their low performing peers who are not in special education?

Related Research

Since the AA-MAS assessment option was made available to states in 2007, several studies have been conducted to identify the population of students who might qualify to take the AA-MAS. States have found this to be a difficult task because many students with low scores on standards-based assessments do not have identified disabilities (Lazarus & Quenemoen, 2011; Marion, Gong, & Simpson, 2006).

Some of the earliest research on the characteristics of low-performing students was conducted in Colorado. In an effort to learn more about the characteristics of students "in the gap," a study committee in Colorado conducted research focusing on students with IEPs who scored at the lowest levels on the general state assessment, but who were not eligible for the state's alternate assessment for students with significant cognitive disabilities (HB 05-1246 Study Committee, 2005). The study committee found that students "in the gap" were more often American Indian, African American, or Hispanic than "non-gap" students. Male students outnumbered female students "in the gap" by nearly two to one. The committee noted that there was a small percentage of students who scored at the lowest levels on the state assessment, and did not have an IEP. However, these students were mentioned only briefly in the report and their demographic characteristics were not examined.

The characteristics of low-performing students have been studied in other states as well. Hess, McDivitt, and Fincher (2008) examined research conducted in Georgia on the characteristics of students who might qualify for an AA-MAS. In examining the population of students within the state who were "persistently low performing" (defined as those students scoring at the low-

est performance level on the regular state assessment for three consecutive years), it was found that these students were more often African American, male, receiving free and reduced lunch, and often had an IEP and/or mild intellectual disabilities.

Research on the characteristics of low performers in the New England Compact states included teacher judgments about this population. It was found that though the group of lowest performers included students with and without disabilities, more than half of the group had IEPs. Additionally, students who performed poorly on standardized tests but received higher teacher judgments were far less likely to have an IEP (Bechard & Godin, 2007). Lazarus and Quenemoen (2011) concluded that the results of these related studies (e.g., Colorado, Georgia, New England Compact states) indicate that the lowest performing students are often from historically underserved populations such as students of ethnic minority background, students of low socioeconomic status, or students in special education.

The Center on Education Policy has issued a series of reports in which they investigated achievement differences among subgroups on state tests. The multi-state results have shown that females tend to outperform males in reading and that the gap is not narrowing (Chudowsky & Chudowsky, 2010). Additional analyses focused on differences between the performance of students from different racial/ethnic backgrounds, students with low socio-economic status (Chudowsky, Chudowsky & Kober, 2009), and students in special education (Chudowsky & Chudowsky, 2009). Performance gains were seen in each of these subgroups at all achievement levels. Achievement gaps narrowed for Latino and African American students to a greater extent than for students from other racial/ethnic groups (Kober, Chudowsky, & Chudowsky, 2010). The authors note that test data for students in special education were imprecise, so interpretations of these data provided only a rough indicator of the achievement trends of these students. Notably, none of these analyses examined students with more than one of these characteristics (e.g., low-income students in special education).

A number of National Center on Educational Outcomes (NCEO) investigations of assessment data reported on state websites showed that students in special education score proficient at different rates across states and that achievement gaps between this population and students without disabilities also vary extensively between states (Albus, Thurlow, & Bremer, 2009; Thurlow, Bremer, & Albus, 2008; VanGetson & Thurlow, 2007). Also, an analysis of assessment performance of students in special education within states compared to the state targets for this subgroup showed that states were making gains but were challenged to keep up with the ambitious targets that they had set (Altman, Rogers, Bremer, & Thurlow, 2010).

These findings raise the question of whether the characteristics of the lowest performing students in special education differ from the characteristics of the lowest performing non-special education students. This question will be investigated in depth in this report. This analysis is also

distinctive in its investigation of the movement of students in various demographic subgroups across performance levels.

Method

Procedures

Preparation of Data Sets

The data for the current study are based on students who took the regular statewide assessment in reading or mathematics and had valid scores for three consecutive years. In Alabama, Hawaii, and South Dakota, we selected students who were in grades 5 and 8 during the 2006-07 school year and then collected assessment data for these same students in the previous two years as well (2005-2006 and 2004-2005). In Wisconsin, we followed a similar procedure beginning with fifth and eighth graders in the 2007-2008 school year and following their scores backward for two years (2006-2007 and 2005-2006).

For each state, the older test scores were merged with the scores from the most recent year in order to examine student performance across time. Demographic information such as income-level, race/ethnicity, and gender were based on the characteristics in the most recent year of data.

Identifying Low-performing Students

For the purposes of this report, we identified fifth and eighth grade low performing students whose scale score on state reading or math assessments was at or below the tenth percentile. To make this determination, we examined the cumulative frequency distributions of scale scores for reading and math tests in each year of the available data. Any student who had a score less than or equal to the 10% cut point was classified as low performing for that particular assessment and year. For three years, we tracked the performance of all students who were identified as low performing in the first year of our data set. (For a table comparing the cut scores across states, see Appendix A, Table A1). Students who were not identified as low performing in the first year of three years of data collection were excluded from this analysis.

Defining Variables and Terms

All of the analyses in this report compare low performing non-special education students to low-performing special education students to determine whether there are demographic and performance differences in low performing students between these two groups. We perform the same analyses at grades five and eight and for reading and math assessments.

States' definitions of demographic variables vary considerably. In this report, we only selected the demographic variables available across most, or all, of the states. The research cited in the literature review section of this paper suggested that students who are low performing are more likely to be males, students of color, and low-income students (cf. HB 05-1246 Study Commit-

tee, 2005; Hess, McDivitt, & Fincher, 2008). For that reason we focused our analyses on these groups of students. For purposes of clarity we chose to use the terms "white" and "non-white" students for these analyses.

In other instances, we ran data using a variable from state databases as an indicator of a demographic characteristic but we chose not to use the data variable name in our discussions of tables and figures. For example, we used the term "Free/Reduced Lunch," representing students who are eligible for free or reduced price lunches at school, as indicator of students from low-income backgrounds. Our figures and tables present data for students who receive free or reduced lunch but our text explaining those figures refers to low-income students.

Identifying Movement Categories

Some of the analyses in this document examine whether students identified as low performing in year one of our data set moved out of the low performing group in subsequent years. To clearly communicate the results of these movement analyses we use the term "initially low performing" to mean students who were in the bottom 10th percentile the first year of our analyses, but not in the second, or third years. We use the term "persistently low performing" (PLP) to indicate students who were in the bottom 10th percentile all three years of our analyses.

Analyses

Descriptive analyses were performed to explore the characteristics of low performing students in special education and not in special education. We performed crosstabs to provide the information by selected demographic variables, and performance groups at grades five and eight and for reading and math assessments.

Participants

Table 1 shows the total number of non-special education and special education students in each state who had three years of test results for reading and math assessments. The grade levels listed in the table are the grades students were in during the final year of analysis.

Of the four states in this study, Wisconsin had the largest number of students with three years of data. For example, for fifth grade reading 45,467 non-special education students and 6,383 special education students are included in this analysis. South Dakota had the fewest students with three years of data. Of the 5th graders, 6,916 non-special education students had three years of reading assessment scores and 1,014 special education students had three years of reading scores. In each of the four states, the number of students with three years of data for the reading assessment is slightly different from in the math assessment.

Table 1. Number of Grade 5 and 8 Special Education and Non-Special Education Students with Three Years of Data on the State Reading and Math Assessments

		Alabama		Hawaii		South Dakota		Wisconsin	
Grade	Subject	Non-SpEd	SpEd	Non-SpEd	SpEd	Non-SpEd	SpEd	Non-SpEd	SpEd
5	Reading	35706	3578	10377	1182	6916	1014	45467	6383
	Math	35666	3579	10372	1179	6967	1028	45577	6551
8	Reading	36410	3829	9954	1335	7793	893	48936	7140
	Math	36335	3805	9950	1336	7794	893	48918	7155

Note: The numbers in this table are based on school years 2004-05 through 2006-07 for Alabama, Hawaii, and South Dakota. The data for Wisconsin is based on school years 2005-06 through 2007-08.

Results

Research Question 1: Are the demographic characteristics of persistently low performing special education students different from the characteristics of persistently low performing non-special education students?

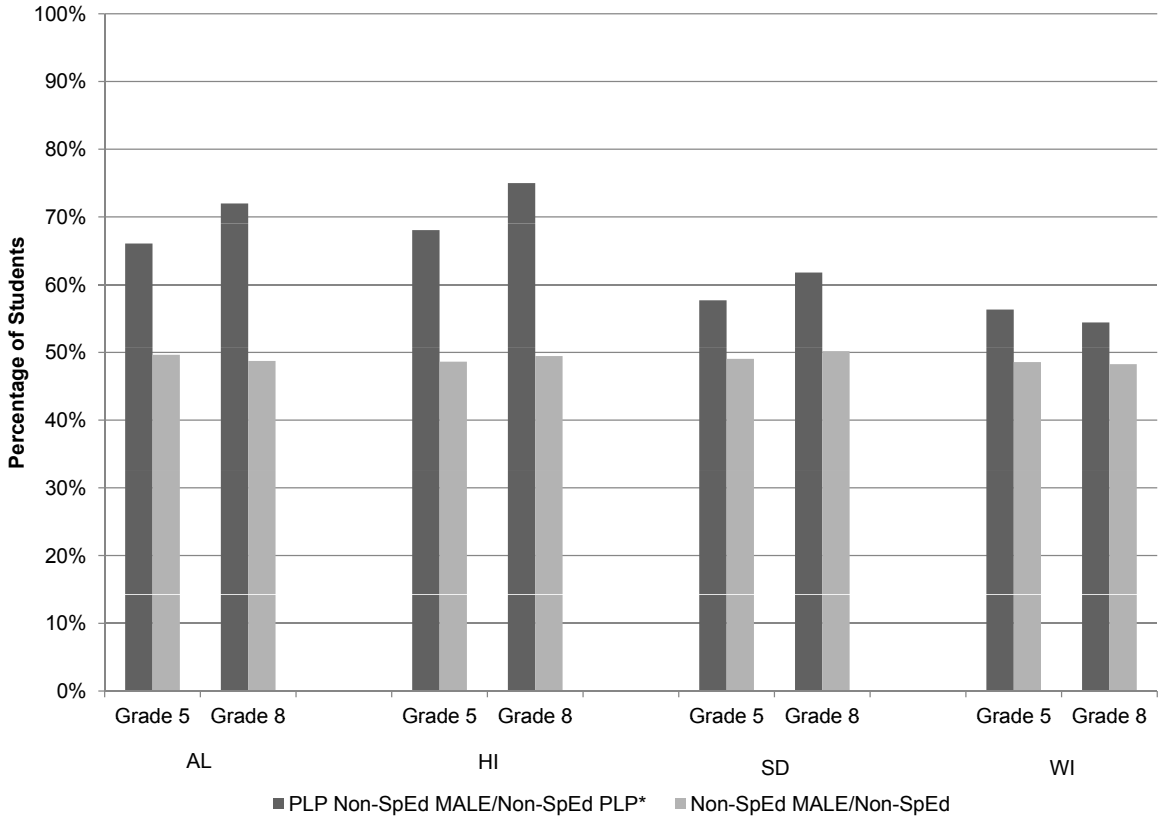
As the discussion of Figures 1 through 12 will highlight, the demographic characteristics of persistently low performing students in these four states are more complex than previous research findings have suggested. Findings for gender are mixed and do not show a consistent pattern across tests, across the persistently low performing versus total population of students, or across special education and non-special education students. There is, however, a clear pattern of a greater percentage of non-white and low income students in the persistently low performing groups, regardless of whether those students are in special education or not. The tendency for the persistently low-performing group to have a higher percentage of non-white students is magnified in the non-special education group on both the reading and math assessments. Similarly, our findings suggest that the increased percentage of low income students is magnified in the persistently low-performing non-special education group compared to the special education group.

Gender

Reading. To answer our first research question, we began by examining the gender of persistently low performing students (i.e., below the 10th percentile for three consecutive years) in both non-special education and special education. Figure 1 shows the percentage of males in the persistently low performing non-special education population on the reading test at fifth and eighth grade compared to the percentage of males in the total non-special education population in those same grades (see Appendix A, Table A2 for more detail). Looking at the data in this way allows us to see whether the proportion of males

in the persistently low performing non-special education group relates in some way to the proportion of males in the non-special education population. For example, in Alabama approximately 66% of the grade 5 persistently low performing non-special education students were male, compared with about 50% of the students in the total grade 5 non-special education population.

Figure 1. Percentage of Non-Special Education Grades 5 and 8 Males in the Persistently Low Performing Group on the State Reading Test Compared to the Percentage of Males Among all Non-Special Education Students



*PLP: Persistently Low Performing students were students who scored at the 10th percentile or below for three consecutive years.

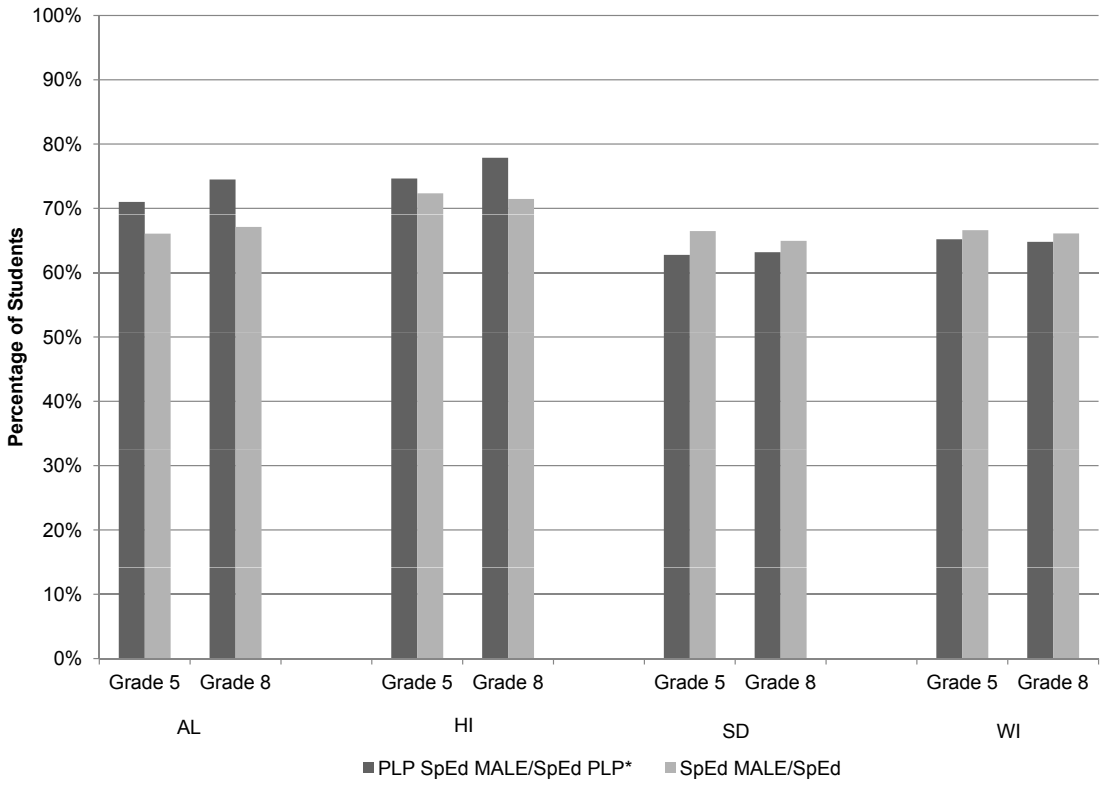
In Figure 1 we see that across states males represented approximately 50% of the total non-special education group taking the reading test (shown in the lighter bars). The percentage of males in the non-special education group (shown in the darker bars) was similar at fifth and eighth grade. The percentage of males in the persistently low performing non-special education group ranged from 54% in Wisconsin at grade 8 to 75% in Hawaii at grade 8 and did show small variations (10% or less) across grades (See Appendix A, Table A2 for more detail).

In all four states there was a larger percentage of males in the persistently low performing non-special education group compared to the total non-special education population taking the reading test. The size of these differences varied. In South Dakota for grade 5 and in Wisconsin

at both grades, the size of the difference was small (10% or less). In South Dakota for grade 8, and in Alabama and Hawaii at both grades, the size of the difference was large (more than 10%).

Figure 2 presents similar data to Figure 1 for the special education students. This figure shows, for example, that in Alabama 72% of the grade 5 persistently low performing special education students (darker bar) was male, compared with about 65% of the students in the total grade 5 special education population (lighter bar).

Figure 2. Percentage of Special Education Grades 5 and 8 Males in the Persistently Low Performing Group on the State Reading Test Compared to the Percentage of Males Among all Special Education Students



*PLP: Persistently Low Performing students were students who scored at the 10th percentile or below for three consecutive years.

Figure 2 indicates that males represented more than half of the overall special education population taking the reading test at fifth and eighth grades (lighter bars). The percentage of males in the special education population ranged from a low of 65% for South Dakota eighth graders to a high of 72% for Hawaii fifth graders (see Appendix A, Table A3 for detail). The percentage of males in the total special education population was fairly similar at grades five and eight for each state with only small (10% or less) variations evident. The percentage of males in the subgroup of persistently low performing special education students (darker bars) ranged from a

low of 63% in South Dakota at both grades to a high of 78% in Hawaii at grade 8. This percentage was similar at grades 5 and 8 with only small differences (10% or less).

The percentage of males varied in the persistently low performing special education student group (darker bars) compared to the total special education group (lighter bars). In two states, Alabama and Hawaii, there was a slightly higher percentage of males in the group of persistently low performing special education students than there was in the total group of special education students. In the other two states, South Dakota and Wisconsin, the percentage of males in the persistently low performing special education students was similar to the percentage of males in the total special education population. The size of these differences was small (10% or less)

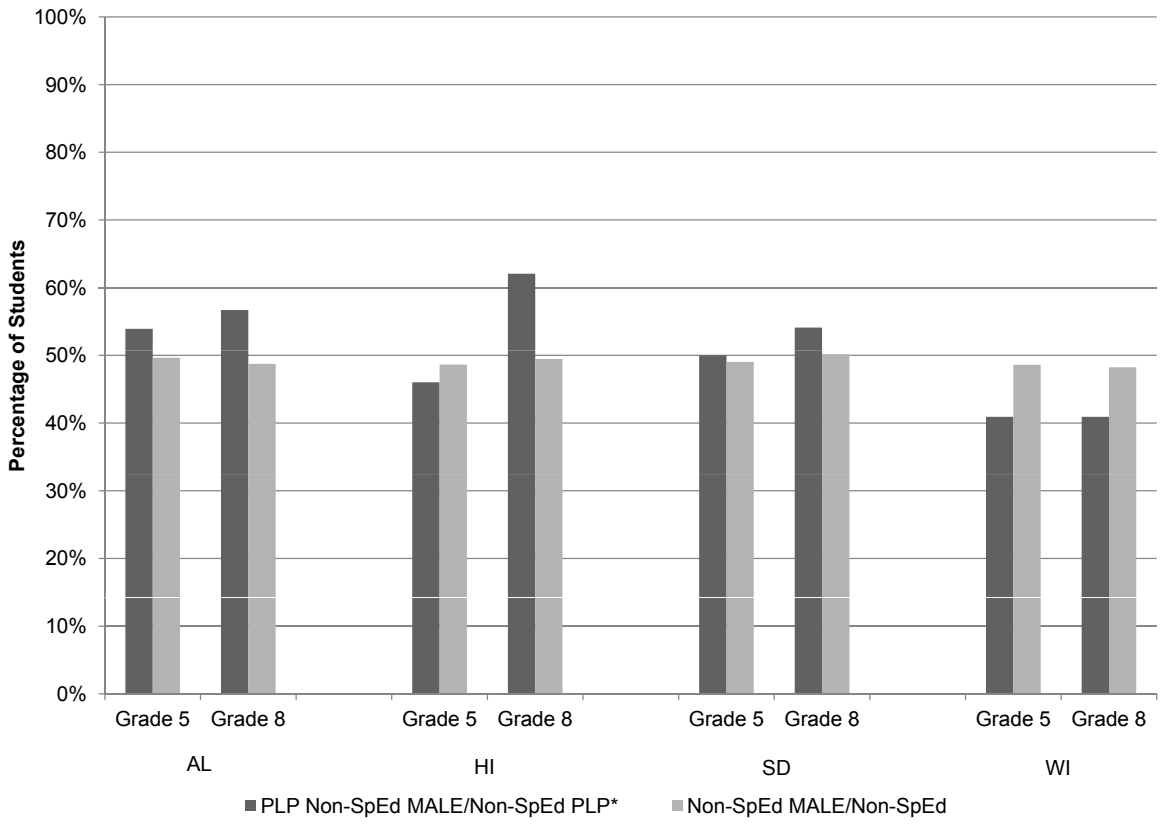
Math. Figures 3 and 4 examine mathematics data for the same states at the same grades. Figure 3 presents fifth and eighth grade non-special education data, while Figure 4 presents the special education data (see Appendix A, Tables A4 and A5 for more detail).

Figure 3 shows the percentage of males in the persistently low-performing non-special education population on the math test at fifth and eighth grade compared to the percentage of males in the total non-special education population in those same grades. For example, in Alabama approximately 50% of the students in the grade 5 non-special education group were male (shown by the lighter bar). In comparison, 54% of the grade 5 persistently low performing non-special education students (shown by the darker bar) were male.

Across the four states shown in Figure 3, males represented roughly half, 48% to 50%, of the fifth and eighth grade non-special education population taking the math test (lighter bars). In comparison, the percentage of males in the persistently low performing group of non-special education students (darker bars) ranged from a low of 41% in Wisconsin at both grades to a high of 62% in Hawaii at eighth grade. With the exception of Hawaii, the difference in the percentage of males across grades within a group was typically small (10% or less). Hawaii showed a large difference (more than 10%) from grade 5 to grade 8 in the percentage of males in the persistently low performing non-special education group.

There was no consistent pattern when we compared the percentage of males in the persistently low performing non-special education population (darker bars) to the percentage of males in the total non-special education population (lighter bars). Two states, Alabama and South Dakota, had a greater percentage of males in the persistently low performing non-special education group than in the entire non-special education population. In contrast, Wisconsin had a smaller percentage of males in the persistently low performing population than in the total non-special education population. In the remaining state, Hawaii, the pattern differed across grades. At fifth grade, the percentage of males was slightly smaller in the persistently low performing group in Hawaii than it was in the total non-special education group. In contrast, at eighth grade the

Figure 3. Percentage of Grades 5 and 8 Males in the Non-Special Education Persistently Low Performing Group on the State Math Test Compared to the Percentage of Males Among Non-Special Education Students

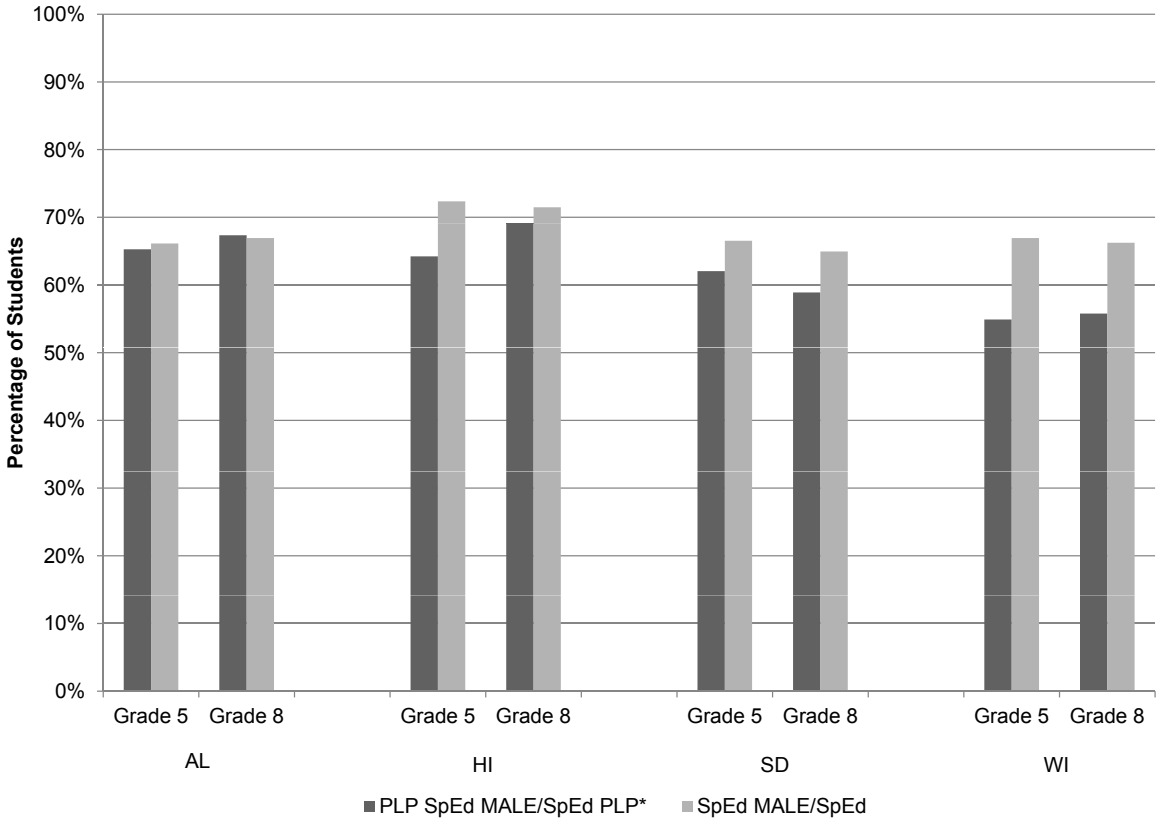


*PLP: Persistently Low Performing students were students who scored at the 10th percentile or below for three consecutive years.

percentage of males in the non-special education persistently low performing group was 13% greater than the percentage in the total non-special education population. Other than in Hawaii at eighth grade, most states in Figure 3 did not show a large difference (i.e. greater than 10%) in the percentage of males across grades in the same group.

Figure 4 provides the percentage of males in the persistently low performing special education group on the math test and in the total special education group. The data in this figure indicate that more than half (65% to 72%) of all special education students taking the math test were male (lighter bars). Similarly, more than half (55% to 69%) of persistently low performing special education students (darker bars) were male. Except for in Wisconsin at grade 5, there did not appear to be a sizeable difference (larger than 10%) in the percentage of males in either group across grade levels.

Figure 4. Percentage of Special Education Grades 5 and 8 Males in the Persistently Low Performing Group on the State Math Test Compared to the Percentage of Males Among all Special Education Students



*PLP: Persistently Low Performing students were students who scored at the 10th percentile or below for three consecutive years.

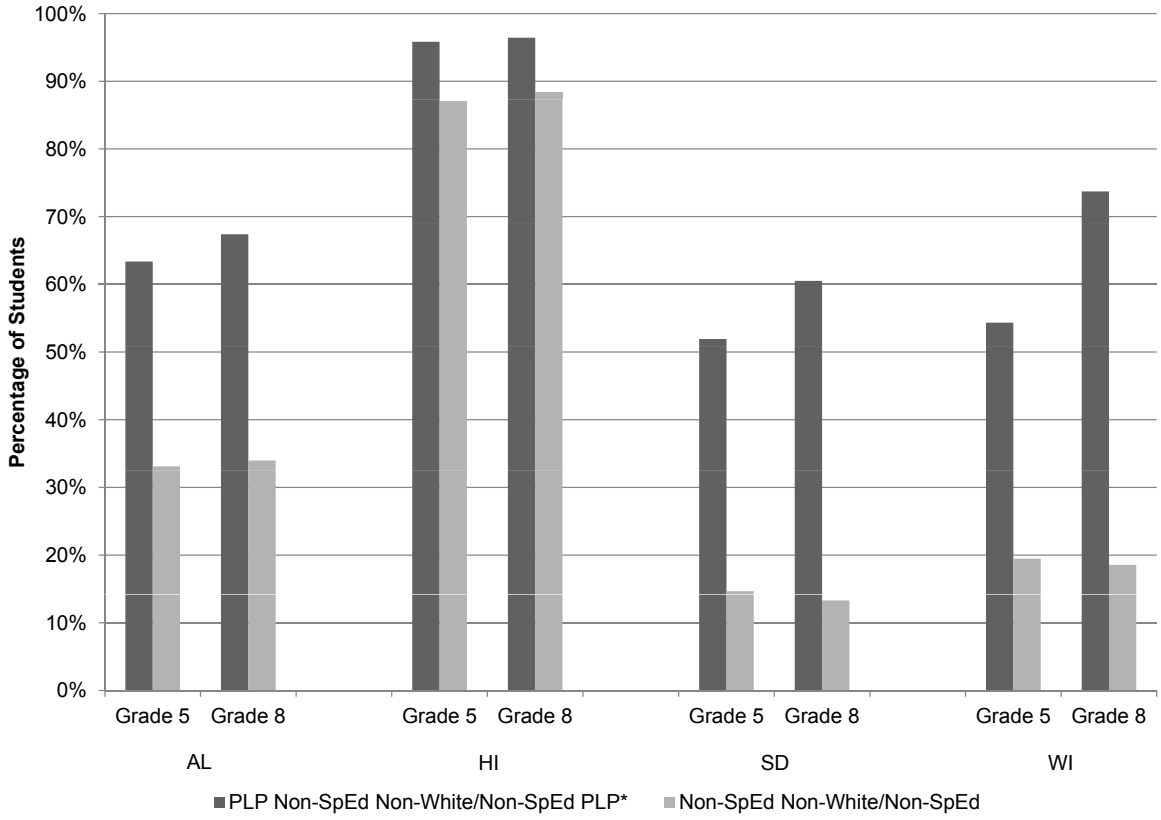
On the math tests the percentage of males in the persistently low performing special education group (darker bars) was either similar to, or smaller than, the percentage in the total special education population (lighter bars) on the math test. Alabama had roughly the same percentage of males in the two groups at each grade. In Wisconsin at grade 5 there was a large (greater than 10%) difference in the percentage of males in the two groups, with a smaller percentage in the persistently low performing special education group (55%) compared to the total population (67%). In the remaining states the difference in the percentage of males across groups within one grade level was small (10% or less).

Race/Ethnicity

Reading. Another demographic variable that we examined was the race/ethnicity of persistently low performing students. The data in these figures are labeled "white" and "non-white students." Figures five and six highlight these data from the reading assessments at

grades 5 and 8. Figure 5 presents the non-special education data and Figure 6 presents the special education data (see Appendix A, Tables A6 and A7 for more detail).

Figure 5. Percentage of Non-Special Education Grades 5 and 8 Non-White Students in the Persistently Low Performing Group on the State Reading Test Compared to the Percentage of Non-White Students Among all Non-Special Education Students



*PLP: Persistently Low Performing students were students who scored at the 10th percentile or below for three consecutive years.

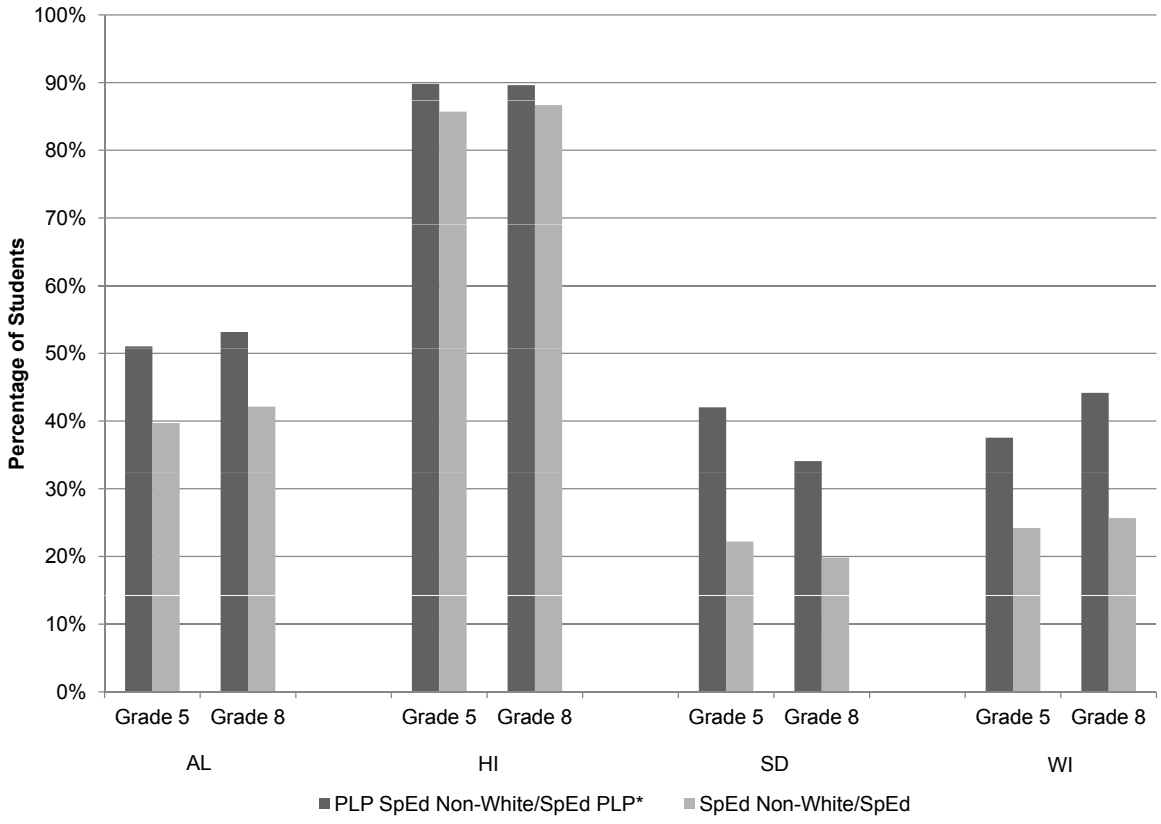
Figure 5 shows that there was a great deal of variability in the percentage of non-white students in both groups on the reading assessment. In the total non-special education group the percentage of students who were non-white ranged from a low of approximately 13% to 15% in South Dakota to a high of 87% to 88% in Hawaii (lighter bars). Differences across grades were minimal (10% or less). The range in the percentage of non-white students in the persistently low performing non-special education group was slightly smaller with a low of 52% non-white students at grade 5 in South Dakota to a high of 96% in Hawaii at both grades 5 and 8 (darker bars). There were some differences in the percentage of males across grades for this population, but the size of the differences varied from small (10% or less) in Alabama, Hawaii, and South Dakota, to large (greater than 10%) in Wisconsin. When examining Figure 5, we caution

the reader to keep in mind that small group sizes can affect the appearance of the magnitude of changes in student demographics.

Persistently low performing non-special education students in all states were more likely to be non-white compared to the total population of non-special education students. In Alabama, South Dakota, and Wisconsin there were substantially larger differences (30% or larger) in the percentage of non-white students in the persistently low performing group (darker bars) compared to the total non-special education group (lighter bars). In Hawaii there was a small (less than 10%) difference in the percentage of non-white students across the two groups.

Figure 6 provides a look at the percentage of non-white students in the persistently low performing group and in the total population of special education students (see Appendix A, Table A7 for more detail). Figure 6 indicates that the amount of racial and ethnic diversity varied considerably in the total special education population (lighter bars) and the persistently low performing special education group (darker bars) of the four project states. The percentage of non-white students in the total special education population at grades 5 and 8 (lighter bars) ranged from

Figure 6. Percentage of Special Education Grades 5 and 8 Non-White Students in the Persistently Low Performing Group on the State Reading Test Compared to the Percentage of Non-White Students Among all Special Education Students



*PLP: Persistently Low Performing students were students who scored at the 10th percentile or below for three consecutive years.

roughly 20% in South Dakota at grade 8 to 87% in Hawaii. This range is similar to the range in the percentage of non-white non-special education students taking the reading test (See Figure 5). In the persistently low performing special education group (darker bars) the percentage of males ranged from 34% in South Dakota at grade 8 to 90% in Hawaii at grade 5.

Across states, the percentage of non-white students in the persistently low performing special education group was consistently higher than the percentage of non-white students in the total special education population. In some states such as Hawaii, the size of this difference was relatively small (less than 10%) and in others such as South Dakota it was relatively large (more than 10%). Again, we caution the reader to keep in mind that the size of the total student population and state demographics play a role in the size of this difference.

Comparing bars across grade levels, the percentages in Figure 6 do not highlight any sizeable differences (e.g., 10% or above) between fifth and eighth grade in the percentage of non-white students in the persistently low performing special education students on the state reading assessment.

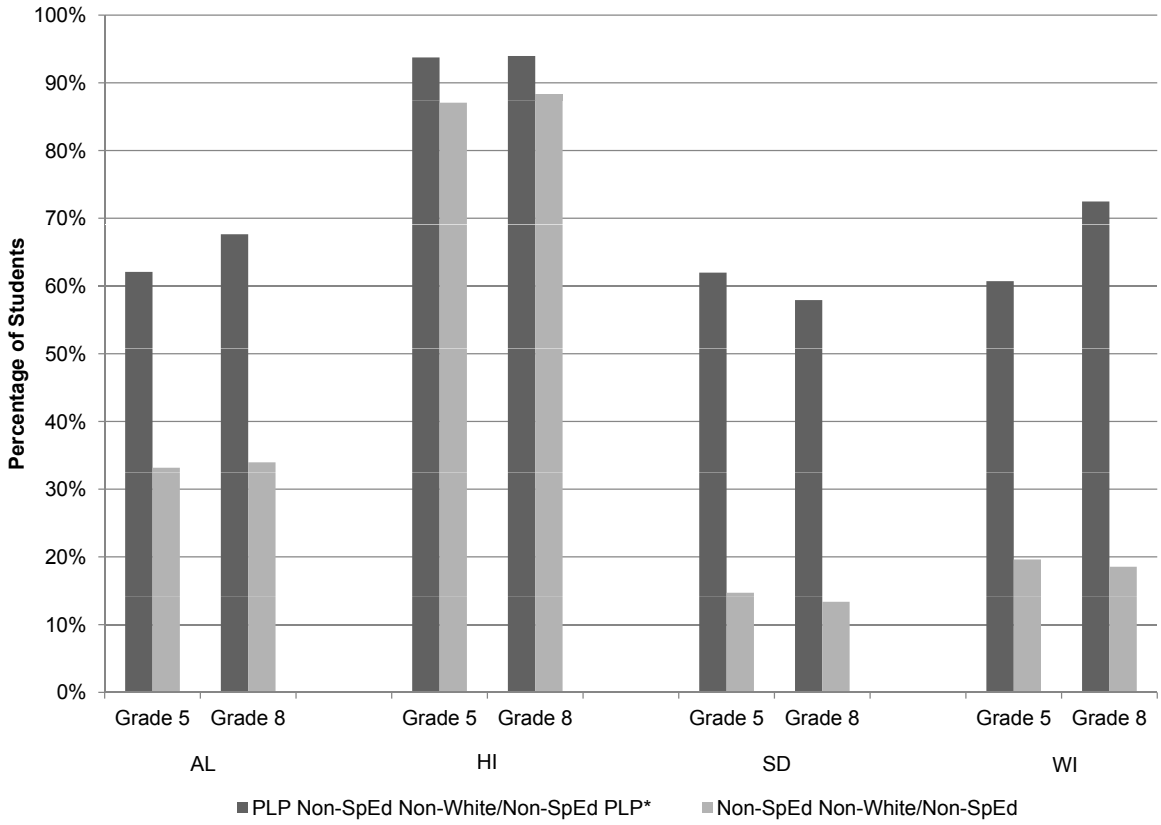
Math. Figures 7 and 8 present similar data to Figures 5 and 6 but they show data for math instead of reading. Figure 7 includes the non-special education data and Figure 8 includes the special education data (see Appendix A, Tables A8 and A9 for more detail).

Figure 7 shows that there was a great deal of variability across states in the percentage of non-white students in the non-special education group taking the math test. The percentage of non-white students in the total non-special education population (lighter bars) ranged from a low of 13% to 15% in South Dakota to a high of 87% to 88% in Hawaii. The percentage of non-white students in the persistently low performing non-special education group (darker bars) ranged from 58% in South Dakota at grade 8 to about 94% in Hawaii at both grades.

In each state, the percentage of non-white students in the persistently low performing non-special education group (darker bars) was greater than the percentage in the total non-special education population at the same grade. In Alabama, South Dakota, and Wisconsin the size of this difference was quite large (approximately 30%). In Hawaii the difference between the percentages of non-white students in the two groups was fairly small (less than 10%). As with previous figures, the size of these differences should be interpreted cautiously because it relates to the size of the student population in each state and to that state's overall student demographics.

Except for Wisconsin, there were only small differences (<10%) across grades in the percentage of non-white non-special education students who were persistently low performing on the math test.

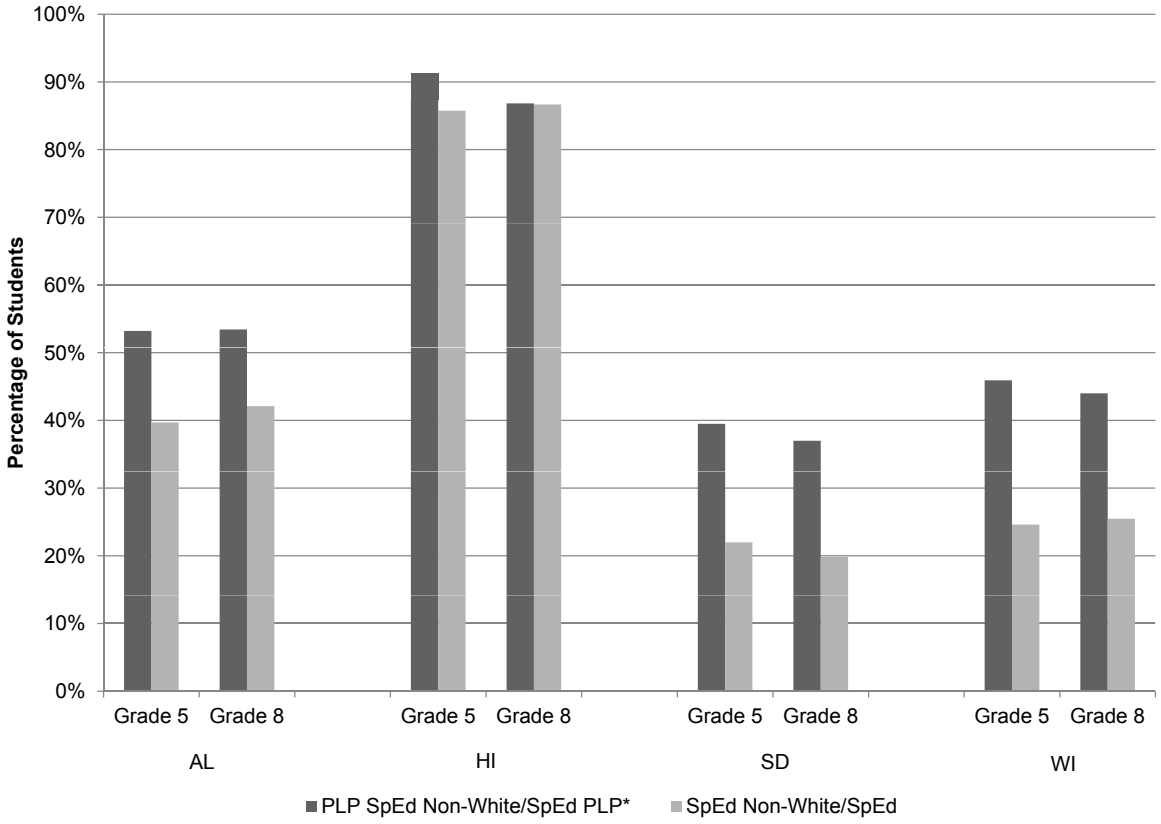
Figure 7. Percentage of Non-Special Education Grades 5 and 8 Non-White Students in the Persistently Low Performing Group on the State Math Test Compared to the Percentage of Non-White Students Among all Non-Special Education Students



*PLP: Persistently Low Performing students were students who scored at the 10th percentile or below for three consecutive years.

Figure 8 shows similar data for the fifth and eighth grade special education population on the math test. As shown in this figure, the percentage of non-white students in the total special education population taking the math test (lighter bars) varied a great deal across the four states. The range in the percentage of non-white special education students stretched from a low of 37% in South Dakota at grade eight to a high of 86% in Hawaii at grade 8. The percentage of non-white students in the persistently low performing group of special education students was also extremely variable. South Dakota, with 37% at grade 8, had the smallest percentage of non-white persistently low performers. Hawaii, with approximately 91% at grade 5, had the largest percentage of non-white persistently low performers in special education. The substantial number of non-white students in special education in Hawaii reflects the overall diversity of the state's total student population.

Figure 8. Percentage of Special Education Grades 5 and 8 Non-White Students in the Persistently Low Performing Group on the State Math Test Compared to the Percentage of Non-White Students Among all Special Education Students



*PLP: Persistently Low Performing students were students who scored at the 10th percentile or below for three consecutive years.

For most states there is a general pattern of a larger percentage of non-white students in the persistently low performing special education population (darker bar) compared to the total special education population (lighter bar) on the math test. With the variations in the overall degree of student diversity the size of this difference fluctuated. There was no difference in the percentage of non-white students in the two groups for Hawaii's eighth grade. A small difference (less than 10%) existed for Hawaii's fifth grade. In the remaining three states there were large (greater than 10%) differences between the percentage of non-white students in the persistently low performing special education group and in the total population of special education students.

There was a small difference (10%) across grade levels in the percentage of non-white special education and persistently low performing special education students.

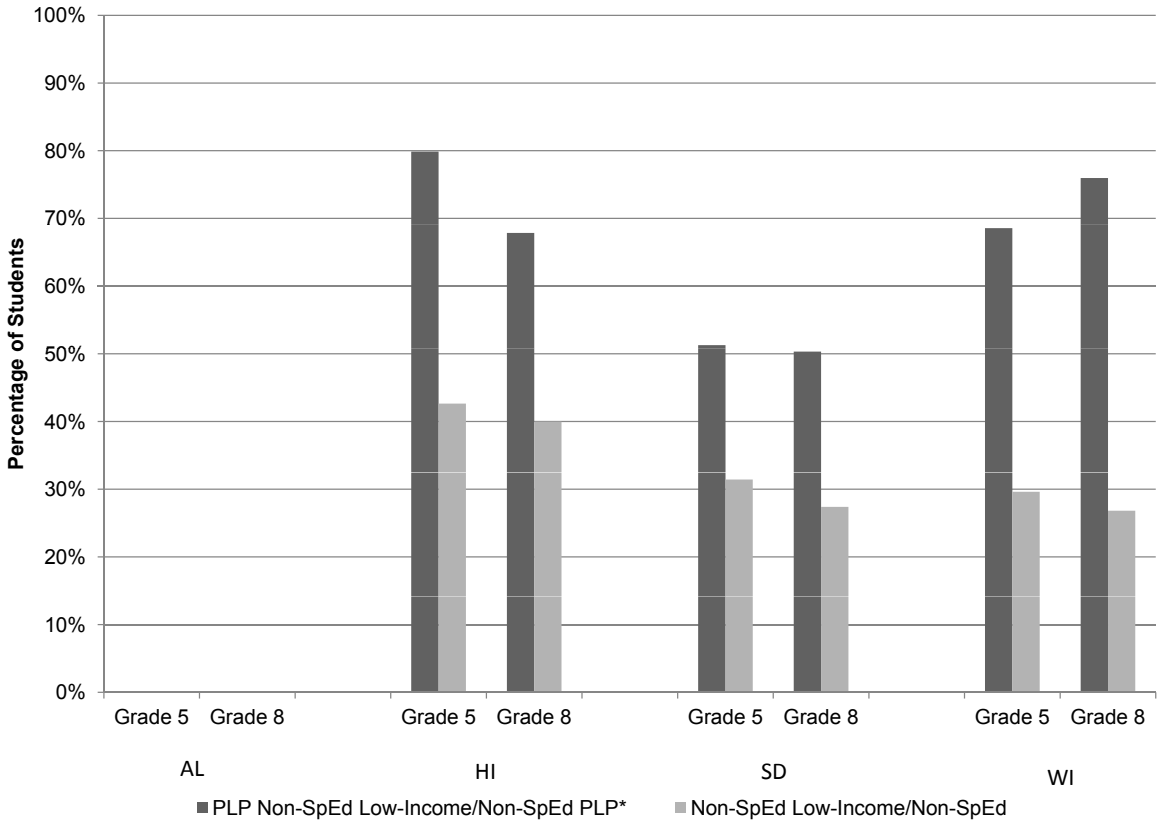
Low-income Background

Reading. The final student characteristic that we investigated in our analyses was income level. Figures 9 and 10 present the percentages of low-income students in the persistently low

performing and total populations of special education and non-special education students. The data variable used for these analyses was the percent of students receiving free or reduced lunch at school. Students receive free or reduced lunch at school on the basis of their family's income level. Alabama did not have data on free or reduced lunch status in the state database. Therefore, the column for Alabama is left blank in the figures in this section. Figure 9 presents the non-special education data at grades 5 and 8, and Figure 10 presents the special education data at grades 5 and 8 (see Appendix A, Tables A10 and A11 for more detail).

In Figure 9 the percentage of low-income students in the non-special education population (lighter bars) ranged from 27% for South Dakota and Wisconsin eighth graders to 43% for Hawaii's fifth graders (lighter bars). In the persistently low performing non-special education group (darker bars) the percentage ranged from 50% in South Dakota at eighth grade to 80% in Hawaii at fifth grade. For the most part, differences across grades within either group were small (10% or less) except in Hawaii where there were 12% more low income persistently low performing students in fifth grade compared to eighth grade (i.e., a large difference).

Figure 9. Percentage of Non-Special Education Grades 5 and 8 Low-Income Students in the Persistently Low Performing Group on the State Reading Test Compared to the Percentage of Low-income Students Among all Non-Special Education Students

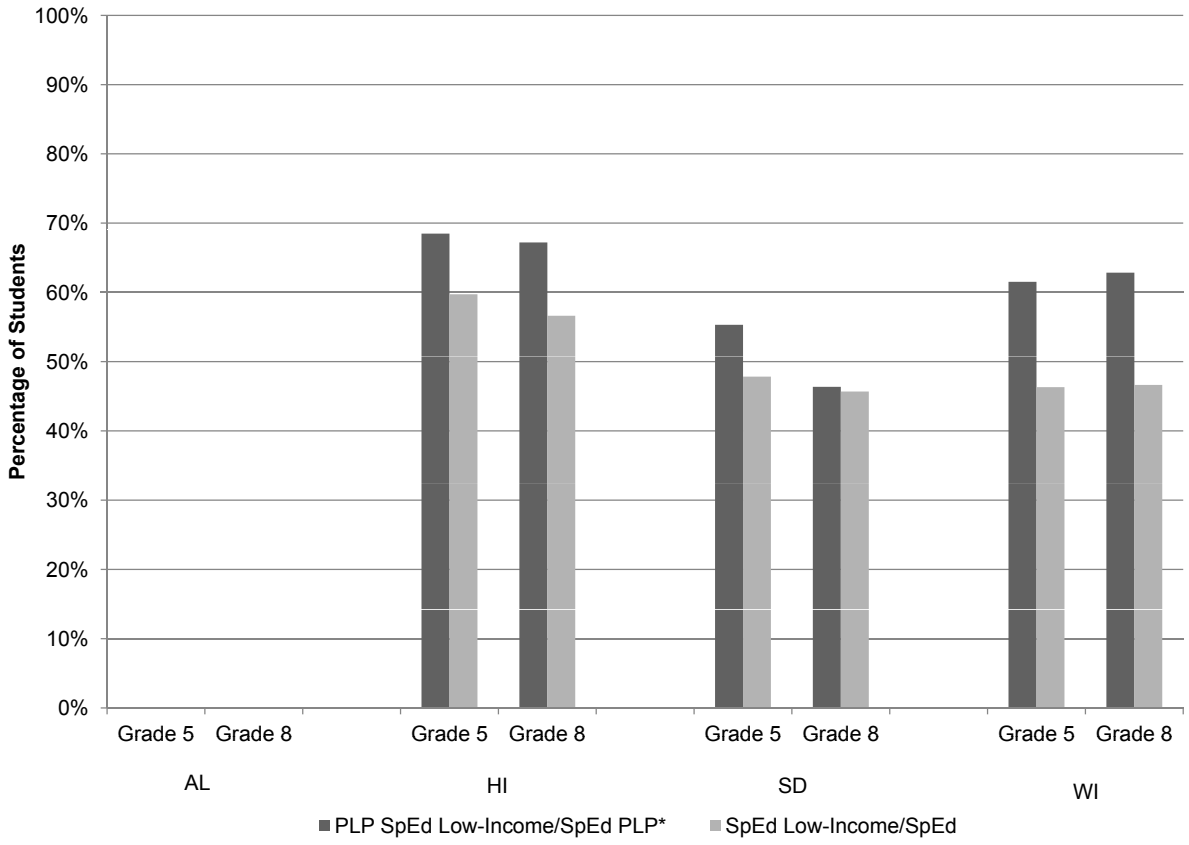


*PLP: Persistently Low Performing students were students who scored at the 10th percentile or below for three consecutive years.

In the figure we can see a consistent pattern of higher percentages of low-income students in the persistently low performing non-special education population (darker bars) compared to the total non-special education population (lighter bars). The differences in the percentage of low income students across the two groups were sizeable (greater than 20%) for the three states with data.

Figure 10 presents the data for fifth and eighth grade special education students on the reading assessment. There were varying percentages of low income students in the special education population overall and in the persistently low performing special education group. Low income students represent slightly less than half (46% to 48%) of the total special education population (lighter bars) in South Dakota and Wisconsin, but more than half of the population (57% to 60%) in Hawaii. In the persistently low performing special education group (darker bars) in South Dakota, low income students made up about half (46% and 55%) of the students while in both Wisconsin and Hawaii they made up greater than 60% of the group. Differences across grade levels in the percentage of low-income persistently low performing special education students were minimal (10% or less) and represented some increases and some decreases.

Figure 10. Percentage of Special Education Grades 5 and 8 Low-Income Students in the Persistently Low Performing Group on the State Reading Test Compared to the Percentage of Low-Income Students Among all Special Education Students

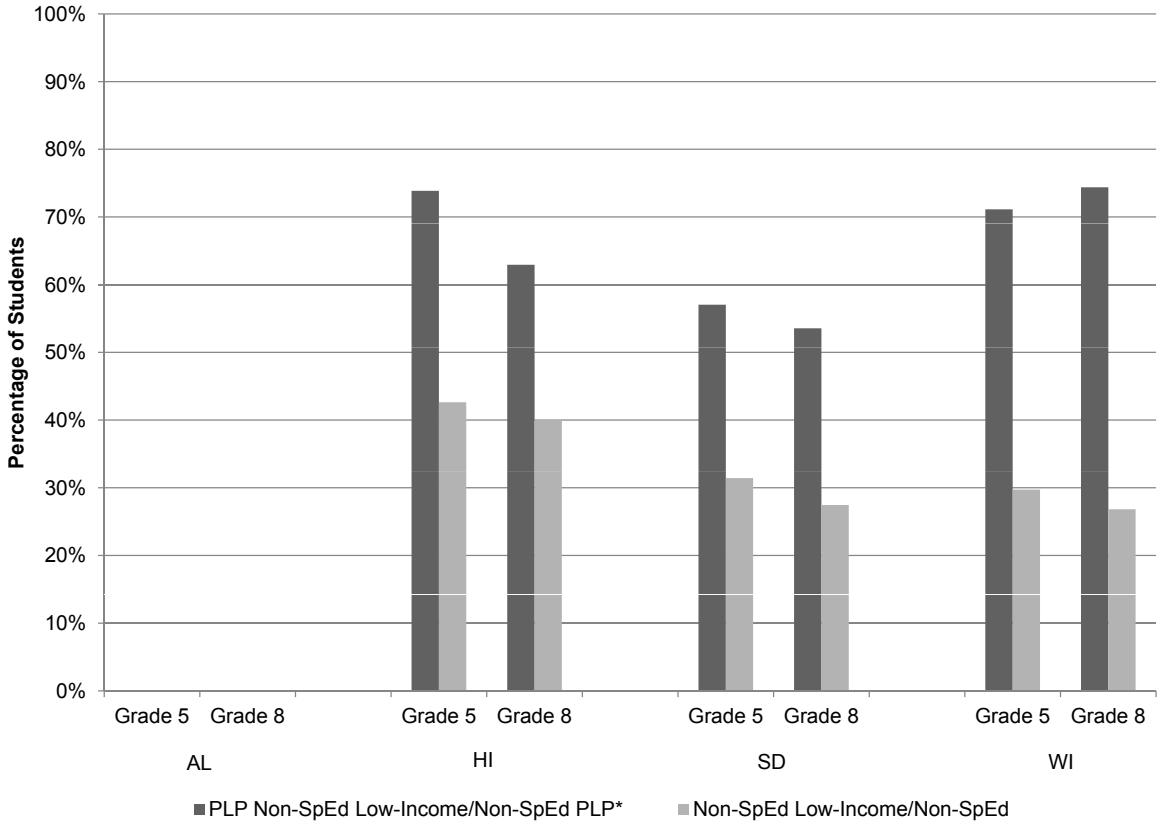


*PLP: Persistently Low Performing students were students who scored at the 10th percentile or below for three consecutive years.

In all three states with income data, there was a greater percentage of low income students in the persistently low performing special education group compared to the total special education population. However, the magnitude of the difference varied. In Wisconsin the size of the difference was large (greater than 10%) while in the other two states, South Dakota and Hawaii, it was small (10% or less).

Math. Figures 11 and 12 contain graphs that show the percentages of low-income students in the persistently low performing student groups on the state math test. Figure 11 shows the non-special education group, and Figure 12 shows the special education group (see Appendix A, Tables A12 and A13 for more detail).

Figure 11. Percentage of Non-Special Education Grades 5 and 8 Low-Income Students in the Persistently Low Performing Group on the State Math Test Compared to the Percentage of Low-Income Students Among all Non-Special Education Students



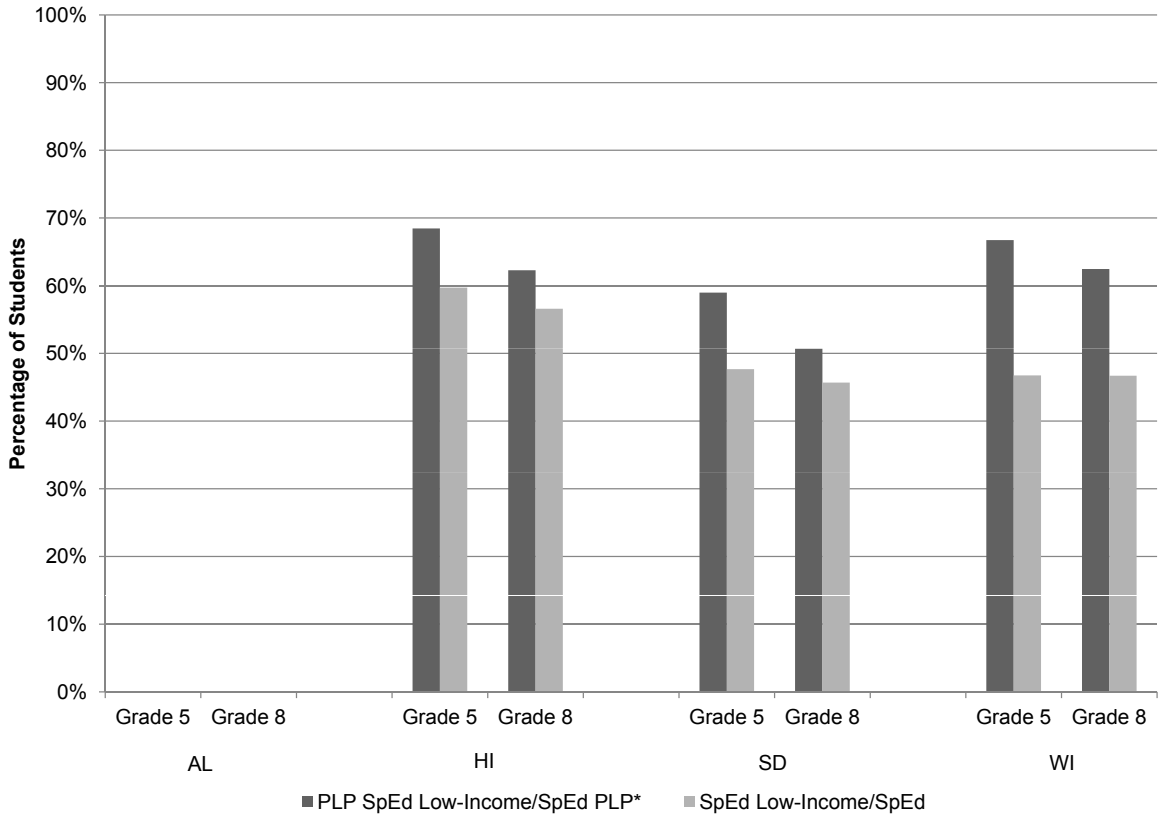
*PLP: Persistently Low Performing students were students who scored at the 10th percentile or below for three consecutive years.

Figure 11 highlights the varying percentages of low income students in the total non-special education and persistently low performing non-special education groups on the math test. The percentage of low income students in the total population (lighter bars) ranged from 27% for South Dakota and Wisconsin eighth graders, to 43% for Hawaii fifth graders. In comparison, the percentage of low income students in the subgroup of persistently low performers (darker bars) ranged from 54% in South Dakota at eighth grade to 74% in Hawaii at fifth grade and Wisconsin at eighth grade. Differences within a group across grades were typically small (10% or less) except in Hawaii where there was a large difference (greater than 10%) with fewer low income students in the persistently low performing group at grade 8 compared to grade 5.

In each of the three states with data on family income, the percentage of low income students in the persistently low performing non-special education group was substantially higher, 26% to 47% more, than the percentage of low-income non-special education students overall.

Figure 12 shows data for all special education students and persistently low performing special education students taking the state math test at grades 5 and 8.

Figure 12. Percentage of Special Education Grades 5 and 8 Low-Income Students in the Persistently Low Performing Group on the State Math Test Compared to the Percentage of Low-Income Students Among all Special Education Students



*PLP: Persistently Low Performing students were students who scored at the 10th percentile or below for three consecutive years.

On the math test, the percentage of low-income students in the total special education population (lighter bars) varied from just under 50% in South Dakota and Wisconsin to over 57% to 60% in Hawaii. These percentages did show small differences (10% or less) across grades in two of the three states with income data. In the subgroup of persistently low performing special education students, those from low income backgrounds represented between 51% (South Dakota, grade 8) and 68% (Hawaii grade 5) of the group. Again, there were small differences across grades (10% or less).

Across the three states with data, there was a larger percentage of low-income students in the persistently low performing group of special education students (darker bars) than there was in the total special education population (lighter bars). The size of this difference varied from small (10% or less) in Hawaii at both grades and South Dakota at grade 8 to large (more than 10%) in South Dakota at grade 5 and Wisconsin at both grades.

Conclusion for Research Question 1

The discussion of Figures 1-12 highlighted that there are more nuances to the demographic data on persistently low performers in special education and non-special education settings than previous research has suggested. If we use the percentage of students with a particular demographic characteristic in the total population as our point of comparison for the persistently low performers we see that there are mixed findings on whether or not there are more males in the persistently low performing subgroup of either non-special education or special education students. Patterns varied for males on the reading test versus the math test and for special education students versus non-special education students. In comparison, there were clear indications that persistently low performers, in both the special education and non-special education groups, were more likely to be non-white and low-income than their higher performing peers. These results were true on the reading and the math test. There were few consistent differences in the demographic make-up of the groups across grade levels.

Although we did not specifically compare variations in the demographic characteristics of a group taking the math test versus the reading test, we did note that for gender, there were different patterns of gender representation across the two tests for the non-special education group.

Research Question 2: Are special education students more or less likely to move out of the persistently low performing group than non-special education students? Is there any variation in movement by content area?

As Tables 2 and 3, along with Figures 13 through 16, will demonstrate, low performing special education students were more likely to be identified as persistently low performing across three years than their non-special education peers at the same grade. There were no major differences in the percentages of students moving out of the low performing groups for mathematics

compared to reading and patterns were similar across grades. These findings are described in more detail in the sections that follow.

Overall Movement Out of the Low-performing Category

Table 2 shows the total number of all fifth and eighth grade students who were identified as low performing (i.e., at or below the 10th percentile) in the first year in our data set. We grouped the students into what we call "movement categories" according to the years in which they were identified as low performing.

In the left-hand column of the table, Persistently Low Performing (PLP) students are those who were low performing in each of the three years in our data set. In the middle two rows under "Movement Category" for each grade are students who were identified as low performing twice within three consecutive years, including the first year. In the last row in each grade, "Initially low performing" students are those who were identified as low performing only in the first year of our data set. The second and third years these students obtained a score above the 10th percentile.

Table 2. Total Number and Percentage of Fifth Grade and Eighth Grade Low Performing Students in Different Movement Categories in the Reading Assessment

		AL		HI		SD		WI	
Grade	**Movement Category**	Count	%	Count	%	Count	%	Count	%
5	Persistently low performing	1,778	48.4	566	47.1	344	40.1	2,200	42.0
	Low performing in year 1 and 3	333	9.1	145	12.1	96	11.2	584	11.1
	Low performing in year 1 and 2	598	16.3	196	16.3	182	21.2	976	18.6
	Initially low performing	962	26.2	295	24.5	236	27.5	1,479	28.2
	Total	**3,671**	**100.0**	**1,202**	**100.0**	**858**	**100.0**	**5,239**	**100.0**
8	Persistently low performing	1,740	43.8	478	42.2	377	41.1	2,757	48.3
	Low performing in year 1 and 3	343	8.6	144	12.7	114	12.4	689	12.1
	Low performing in year 1 and 2	824	20.8	200	17.7	186	20.3	873	15.3
	Initially low performing	1,064	26.8	310	27.4	240	26.2	1,389	24.3
	Total	**3,971**	**100.0**	**1,132**	**100.0**	**917**	**100.0**	**5,708**	**100.0**

In Table 2 students who were persistently low performers (i.e., low performing for three years) made up the largest percentage of all low performing students on the reading test (from 40.1% to 48.4%). Students who were initially low performing in year one and scored higher than the tenth percentile in years two and three represented the next largest group (24.3% to 28.2%).

There were no obvious differences across grade levels in the percentage of students who fell into a particular movement category on the reading assessment.

We also looked at the total number of students in each state who fell into a particular performance category in math (see Table 3) to see whether there were any differences across grade levels.

Table 3. Total Number and Percentage of Fifth Grade and Eighth Grade Low Performing Students in Different Movement Categories in the Math Assessment

		AL		HI		SD		WI	
Grade	**Movement Category**	Count	%	Count	%	Count	%	Count	%
5	Persistently low performing	1,616	40.6	531	43.8	337	42.2	2,071	39.9
	Low performing in year 1 and 3	393	9.9	172	14.2	109	13.7	603	11.6
	Low performing in year 1 and 2	733	18.4	196	16.2	131	16.4	931	17.9
	Initially low performing	1,239	31.1	314	25.9	221	27.7	1,587	30.6
	Total	**3,981**	**100.0**	**1,213**	**100.0**	**798**	**100.0**	**5,192**	**100.0**
8	Persistently low performing	1,201	28.2	450	39.4	402	41.0	2,630	46.0
	Low performing in year 1 and 3	600	14.1	143	12.5	119	12.1	672	11.7
	Low performing in year 1 and 2	1,162	27.3	264	23.1	198	20.2	975	17.0
	Initially low performing	1,293	30.4	285	25.0	262	26.7	1,444	25.2
	Total	**4,256**	**100.0**	**1,142**	**100.0**	**981**	**100.0**	**5,721**	**100.0**

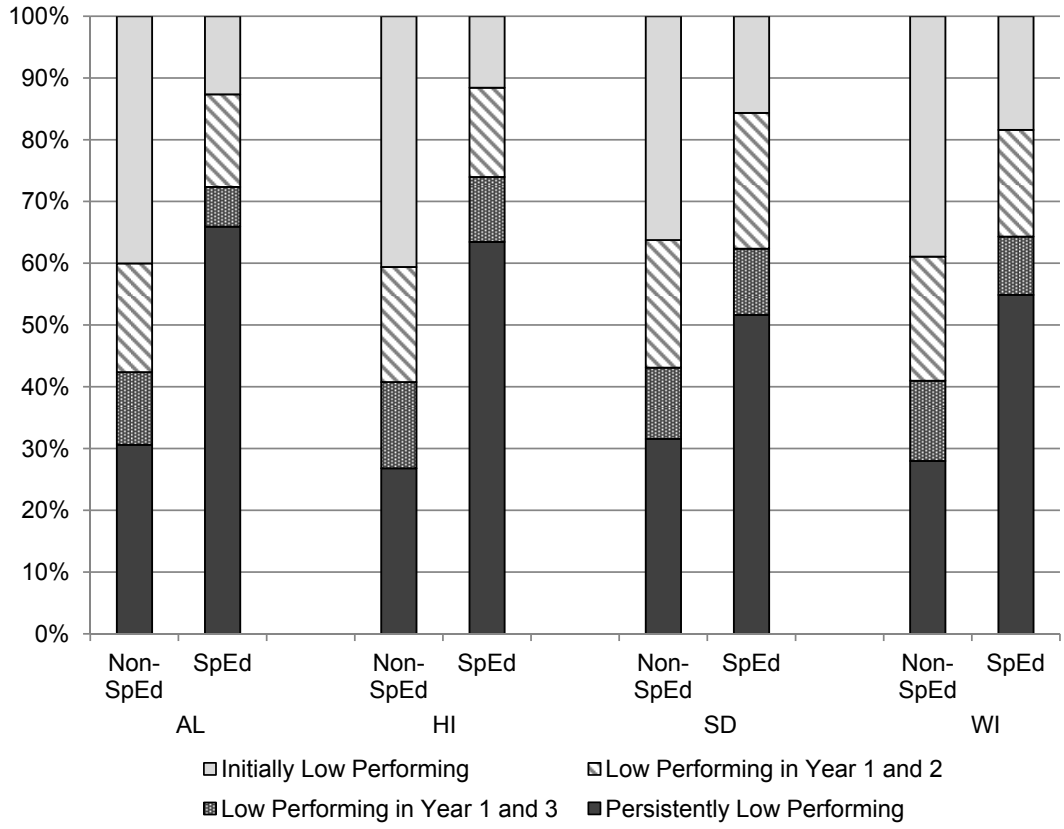
As Table 3 shows, in math there was some variability in the percentage of students within a particular performance group across grades and states, but persistently low performing students still represented the largest group of low performers in most cases. Similar to reading, the second largest group of low performers was typically those who were initially low performing in year one of the data and who scored above the tenth percentile in years two and three. The one exception to this pattern was the state of Alabama, where a large difference (greater than 10%) was observed in the percentage of persistently low performing students at grade eight compared to grade five. In the same state a small difference (10% or less) was observed in the percentage of low performing in years one and two students.

Movement on the Reading Test

Figure 13 uses stacked bar charts to represent the percentage of non-special education and special education fifth graders in each state and the movement category into which they fell on the state reading test (see Appendix B, Table B1 for more detail). This figure includes all fifth grade students who were identified as low performing (i.e., at or below the 10th percentile) in year one (2005-2006 in Wisconsin; 2004-2005 in all other states) of our data set. The non-special

education bar is on the left side of each column and the special education bar is on the right side. The darkest colored tier, at the bottom, shows the percentage of students in either general or special education who were persistently low performing (i.e., below the 10th percentile each of three years). The second tier from the bottom is the percentage of students who were low performing in years one and three only. The third tier from the bottom shows the students who were low performing in years one and two only, followed by the students who were initially low performing (i.e., low performing only in year one).

Figure 13. Percentage of Fifth Grade Non-Special Education and Special Education Low Performing Students in Each Movement Category on the Reading Test



The left-hand bar of each state in Figure 13, shows that on the state reading assessment a higher overall percentage of fifth grade special education students were identified as persistently low performing compared to their non-special education peers (right-hand bar in each state). Across the four states, 27% to 32% of low performing non-special education fifth graders on the reading test were persistently low performing. In contrast, 52% to 66% of low performing fifth grade special education students (the right hand bar in each column) were persistently low performing.

Of the students who initially scored below the tenth percentile, non-special education students were more likely to move out of the low-performing category over time in comparison to the

special education students. These students are represented by the top two tiers of each bar. Adding together these two tiers for each state, a range of 57% to 60% of non-special education students who were initially low performing were no longer low performing by year three on the reading test. They scored above the 10th percentile in years two and three. In contrast, only 26% to 38% of fifth grade special education students who were initially low performing (see the top two tiers of the right hand bar in each column) were no longer low performing by year three.

Figure 14 shows comparable data for all eighth grade students who took the reading assessment and who were identified as low performing in year one of our data set (see Appendix B, Table B1 for more detail). Similar to Figure 13, each state's column includes a bar for non-special education students on the left side, and a bar for special education students on the right side. The bottom tier of each bar represents the students who continued to be identified as low performing in each of the three years (i.e., persistently low performing). The second and third tiers represent the percentage of students identified as low performing in only two out of the three years. The top tier of each bar represents the percentage of students who were identified as low performing only in year one (i.e., initially low performing). By years two and three these students scored at or above the 10th percentile on the reading assessment.

Figure 14. Percentage of Eighth Grade Non-Special Education and Special Education Low Performing Students in Each Movement Category on the Reading Test

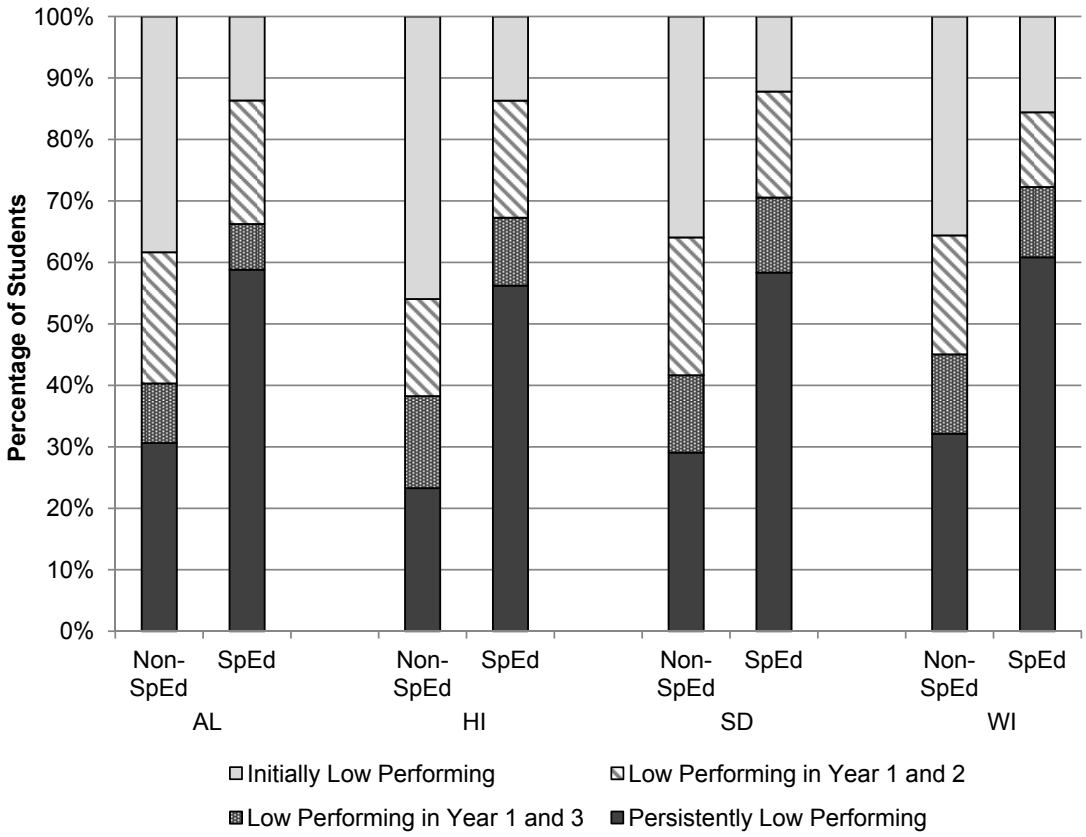


Figure 14 indicates that for eighth graders taking the state reading assessment, a greater percentage of special education students were identified as persistently low performing compared to their non-special education peers. Twenty-three percent to 32% of non-special education students who were low performing in the first year of the data set (see the left hand bar in each column) were persistently low performing across three years. In contrast, 56% to 61% of eighth grade special education students (see the right hand bar in each column) were persistently low performing.

Of the eighth grade students who initially scored below the tenth percentile, special education students were less likely than their non-special education peers to score above the tenth percentile in reading in later years. Fifty-five percent to 62% of eighth grade non-special education students who were low performing (see left-hand bars in each column) in year one moved out of the low-performing group by year three on the reading test. In contrast, only 28% to 34% of eighth grade special education students who were initially identified as low performing (see the right hand bars in each column) moved out of the low performing group by year three.

Movement on the Math Test

Figures 15 and 16 show the percentage of non-special education and special education fifth and eighth graders in the various movement categories on the state math test (see Appendix B, Table B2 for more details). Figure 15 presents all fifth grade students who took the state math assessment and were identified as low performing in year one of our data set. The tiers within each bar indicate the percentage of those students who either remained low performing in each subsequent year, or moved out of the low-performing group at least temporarily. Each state's column includes a bar for non-special education students on the left side, and a bar for special education students on the right side. The bottom tier of each bar represents the students who were persistently low performing. The two middle tiers represent the percentage of students identified as low performing twice within three consecutive years, including the first year of data collection. The top tier of each bar represents the percentage of students who were identified as low performing only in year one. In years two and three these students scored above the 10th percentile on the math test.

Figure 15 shows that on the fifth grade math test a greater percentage of low performing special education students were persistently low performing compared to their non-special education peers. Between 26% and 32% of fifth grade non-special education students who were initially identified as low performing in math (the left-hand bar in each column) were persistently low performing. In contrast, 51% to 61% of low performing fifth grade special education students were persistently low performing.

Of the students who were low performing, non-special education students were more likely than special education students to score higher than the tenth percentile at some time during the three-year period. Between 53% and 64% percent of initially low performing non-special educa-

tion students moved out of the low-performing group by year three (see the top two tiers of the left-hand bar in each state). In contrast, only 27% to 37% of low performing special education students moved out of the low-performing group on the math test by year three.

Figure 15. Percentage of Fifth Grade Non-Special Education and Special Education Low Performing Students in Each Movement Category on the Math Test

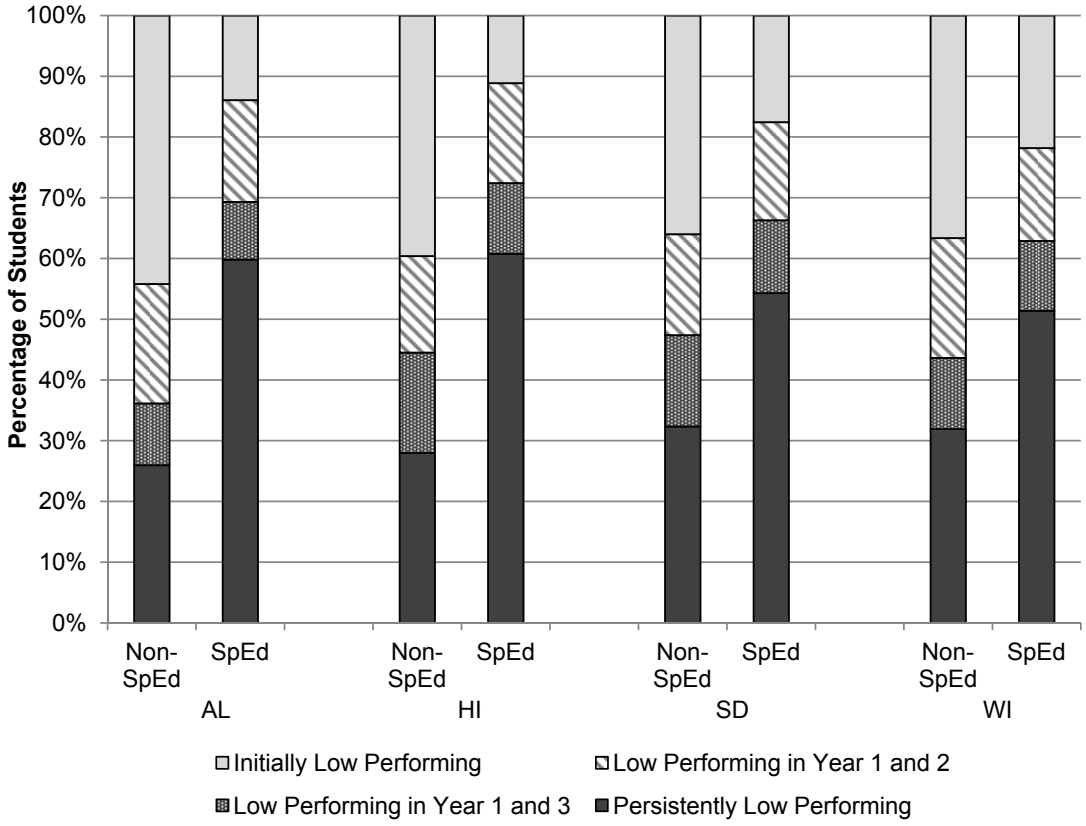
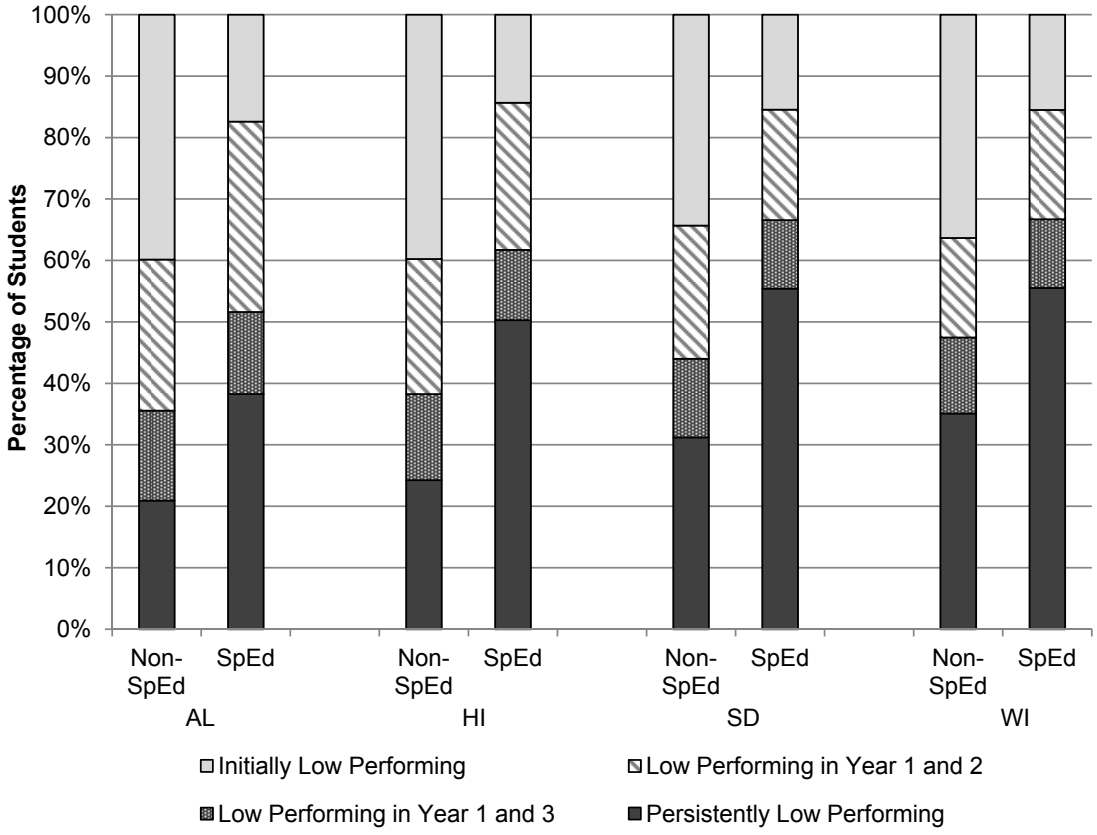


Figure 16 presents data for eighth grade non-special education and special education students who took the state math test.

Figure 16 shows that on the eighth grade math test a greater percentage of low performing special education students were persistently low performing over a three year period compared to non-special education students. Twenty-one percent to 35% of eighth grade non-special education students who were initially identified as low performing in math (the left hand bar in each column) were persistently low performing. In contrast, 38% to 56% of low performing special education students were persistently low performing across three years.

Figure 16. Percentage of Eighth Grade Non-Special Education and Special Education Low Performing Students in Each Movement Category on the Math Test



Examining all of the low performing students who made some kind of movement in their test scores, initially low performing non-special education students were much more likely than their special education peers to score above the tenth percentile in years two or three. For non-special education students, 52% to 65% of the low performing eighth graders in math (the right hand column) in year one had moved out of the low-performing group by year three. In contrast, only 33% to 48% of low-performing students in special education (the left hand column) moved out of the low-performing group by year three.

Conclusion for Research Question 2

The discussion of Tables 5 and 6 and Figures 13-16 indicate that low performing special education students tend to stay low performing (i.e., become persistently low performing) more frequently than the low-performing non-special education students in the same grade level. These results were true for both reading and math and for fifth grade as well as eighth grade.

Although our analyses did not specifically compare the percentages of persistently low performing students on the reading versus the math test, we did note that there appear to be some large

differences in the percent of either special education or non-special education persistently low performers across tests.

Research Question #3: Are low performing special education students in some demographic groups more or less likely to move out of the low performing group than their peers in non-special education?

For this research question, which contains multi-categorical analyses, we narrowed the focus solely to fifth grade reading data because the data are extremely complex. The fifth grade math data generally show similar patterns (see Appendix C, Tables C4, C5, and C6 for more details).

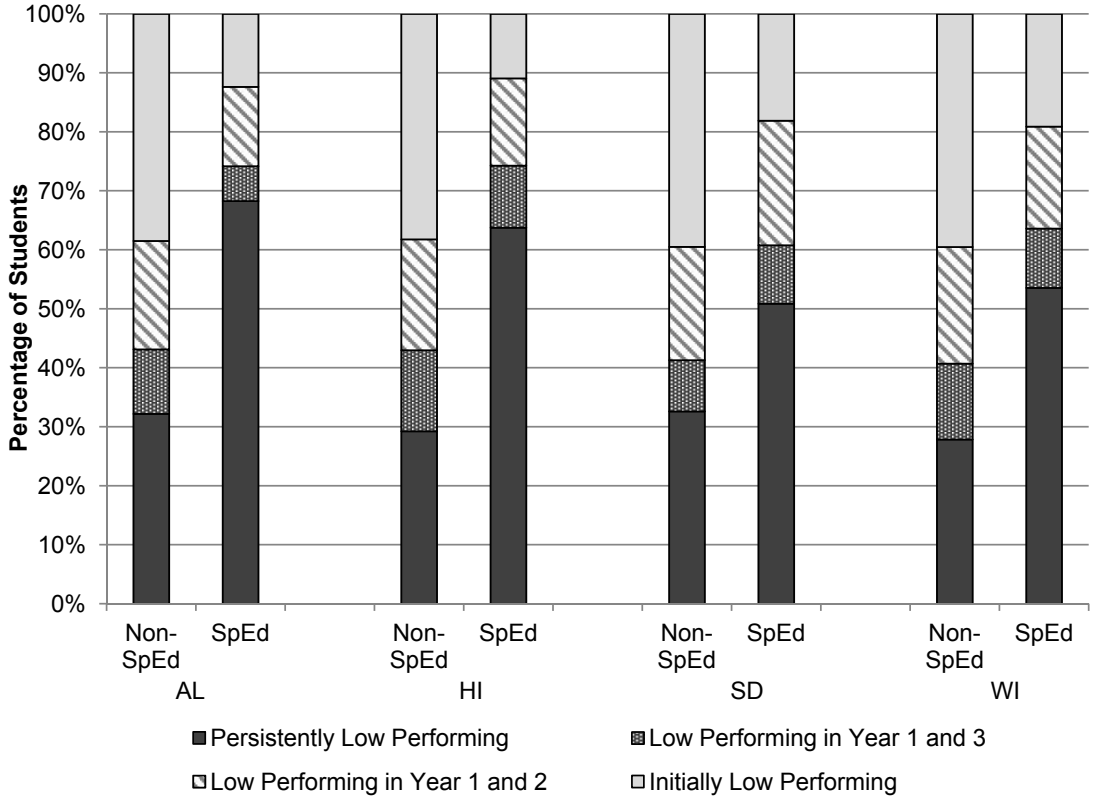
The discussion of Figures 17 through 19 indicate that low-performing special education students who were male, non-white and low income were more likely than their non-special education peers to be identified as persistently low performing on the reading test (i.e., low performing for all three years of the data analysis). In this section we provide more detailed description of the data to support this finding.

Gender

Figure 17 provides data for all fifth grade male students who took the state reading assessment and were identified as low performing in year one of our data set (see Appendix C, Table C1 for more detail). Each state's column includes a bar for non-special education male students on the left side, and a bar for special education male students on the right side. Each bar is then divided into tiers that represent performance levels. The bottom tier of each bar represents the persistently low performing students (i.e., those identified as low performing in each of the three years). The two middle tiers of each bar represent the percentage of students identified as low performing in the first year of the dataset, and in one additional year. Thus, the students in the middle tiers were not low performing in one year of the study. The top tier of each bar represents the percentage of students who were identified as low performing only in year one. After the first year, these students moved out of the low performing group.

Figure 17 shows that on the state reading assessment a greater percentage of low performing special education males were persistently low performing across three years in comparison to their non-special education peers. Twenty-eight percent to 33% of fifth grade low performing non-special education males (the left hand bar in each column), were persistently low performing. In comparison, 51% to 68% of low performing males in special education (the bottom tier of the right-hand bar) were persistently low performing. The percentage of persistently low performing males in special education was higher in Alabama (68%) and Hawaii (64%) compared to Wisconsin (54%) and South Dakota (51%).

Figure 17. Percentage of Fifth Grade Male Non-Special Education and Special Education Low Performing Students in Each Movement Category on the Reading Test



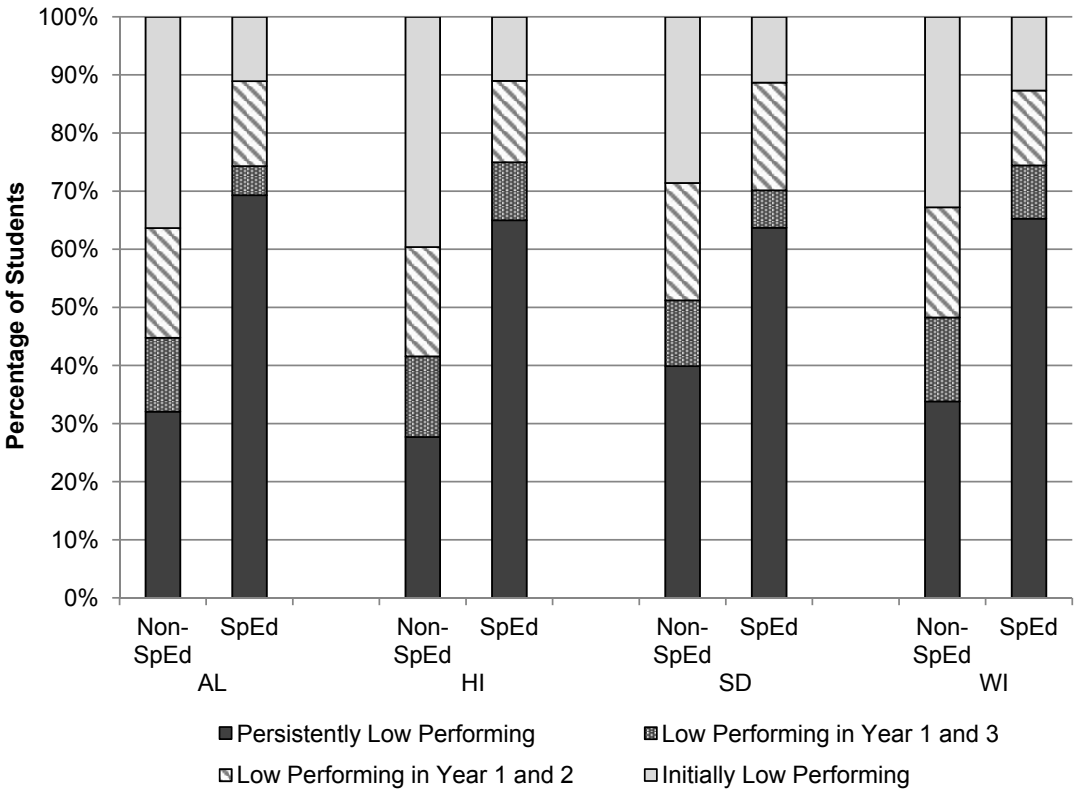
A larger percentage of low-performing males in the non-special education group, compared to those in special education, moved out of the low-performing group on the reading test by year three. Across states, roughly 57% to 60% of fifth grade non-special education low-performing male students (left-hand bar of each column) scored higher than the 10th percentile by year three. A much smaller percentage of low-performing male students in special education (right-hand bar of each column) moved out of the low-performing group by year three (26% to 39%).

Race/Ethnicity

Figure 18 presents all fifth grade non-white students who took the state reading assessment and were identified as low performing in year one of our data set (see Appendix C, Table C2 for more detail). Each state's column includes a bar for non-white non-special education students on the left side, and a bar for non-white students in special education on the right side. Each bar is then divided into tiers that correspond to the different performance groups. The bottom tier of each bar represents the students who were persistently low performing. The two middle tiers of each bar represent the percentage of students identified as low performing in the first year of the dataset, and in one additional year, indicating that they were not low performing in one year out of three. The top tier of each bar represents the percentage of students who were

identified as low performing only in year one. After the first year, these students were no longer low performing (i.e., achieved at or above the 10th percentile).

Figure 18. Percentage of Fifth Grade Non-White Non-Special Education and Special Education Low Performing Students in Each Movement Category on the Reading Test



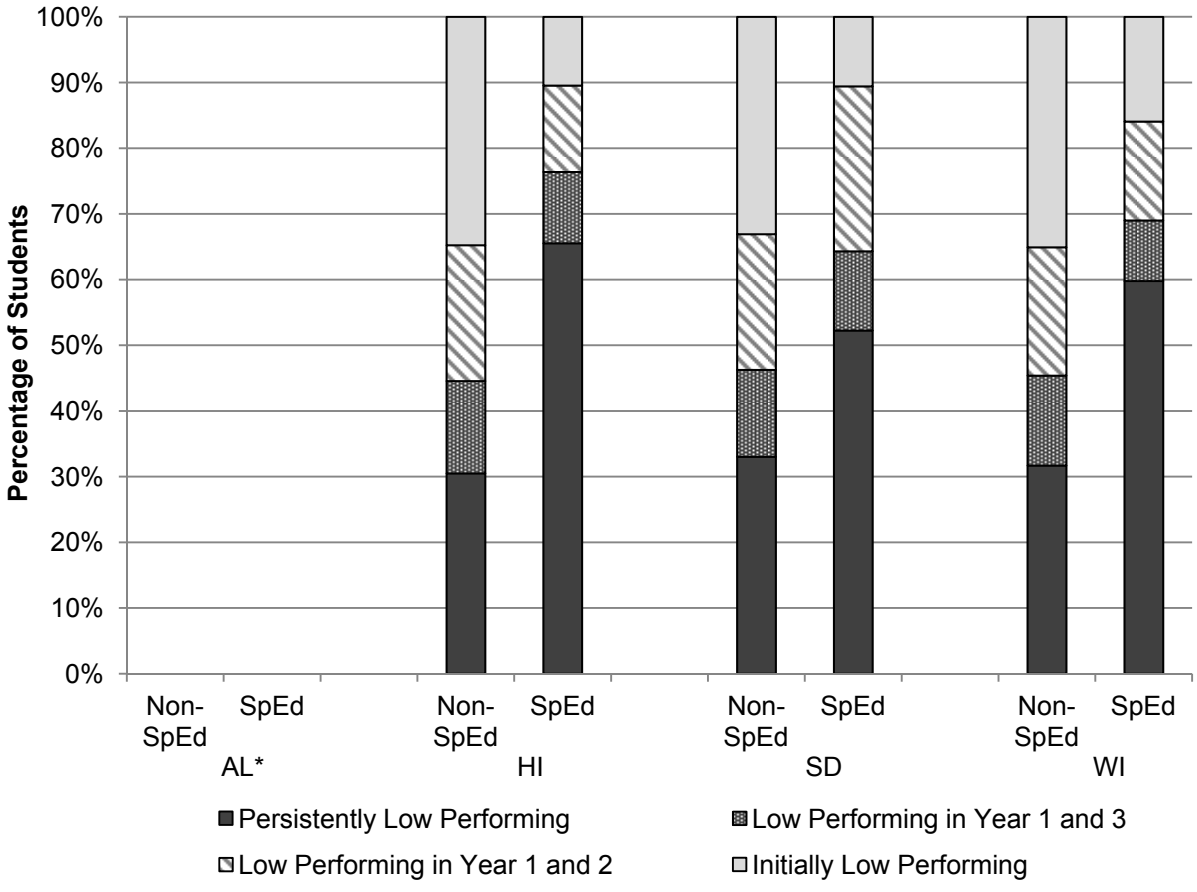
In Figure 18 we can see that, of the fifth grade low-performing students, a larger percentage of non-white students in special education (right-hand bar in each column) were persistently low performing compared to their non-special education peers (left-hand bars). Twenty-eight percent to 40% of low performing non-white non-special education students were persistently low performing. In comparison, the right-hand bar in each state shows that 64% to 69% of low performing non-white students in special education were persistently low performing.

The top two tiers of each bar, representing students moving out of the low performing category after year 1, illustrate that a larger percentage of non-special education students move out of the low performing category over time, in comparison to their special education peers. Of the fifth grade low-performing students, 49% to 59% of non-white non-special education students moved out of the low performing group by year three. In contrast, the right hand bar shows that only 26% to 30% of non-white low-performing students in special education moved out of the low performing group by year three.

Income Level

Figure 19 illustrates the movement of all fifth grade low-income students who took the state reading assessment and were identified as low performing in year one of our data set (see Appendix C, Table C3 for more detail). Similar to previous figures, each state's column includes a bar for non-special education low-income students on the left side, and a bar for low-income students in special education on the right side. The bottom tier of each bar represents the students who continued to be identified as low performing in each of the three years (i.e., persistently low performing). The two middle tiers of each bar represent the percentage of students identified as low performing in the first year of the dataset and in one additional year, indicating that they were not low performing in one year out of three. The top tier represents the percentage of students who were identified as low performing only in year one. After the first year, these students were no longer low performing.

Figure 19. Percentage of Fifth Grade Low-Income Non-Special Education and Special Education Low Performing Students in Each Movement Category on the Reading Test



*Alabama does not have income data available.

Figure 19 shows that, of fifth grade low performing low-income students, a larger percentage in special education (right hand bar in each column) were persistently low performing compared to their non-special education peers (left-hand bar in each column). Thirty-one percent to 33% of fifth grade low performing low income non-special education students were persistently low performing. In contrast, 52% to 66%, of low performing low income students in special education were identified as persistently low performing.

Of the low performing low income students, those who were not in special education were more likely than those in special education to score higher than the tenth percentile by year three. Looking at the top two tiers of the left-hand bar in each state we can see that 54% to 56% of low income non-special education students moved out of the low-performing group by year three compared to 23% to 36% of low income special education students.

Conclusion for Research Question 3

The discussion of Figures 17 through 19 indicates that there are some identifiable patterns of movement in the low performing group on the reading assessments that are different for students from certain demographic categories. Low performing special education students who are male, non-white and low income are be more likely to become persistently low performing. Their non-special education classmates from the same demographic groups are more likely to score in the low performing range once and move out of the group in later years.

Discussion and Conclusions

The results of this study suggest three key findings. First, the demographic characteristics of persistently low performing students were generally similar regardless of whether students received special education services. In both groups, the lowest performers were more likely to be non-white students and students from low-income backgrounds. The data from the four states we studied did not conclusively show a pattern of more persistently low performing males, compared to females, across all content areas and grade levels. Second, of the students who were identified as low performing in the first year of our data, special education students were more likely than their non-special education peers to remain low performing across the three years of the study. Non-special education students were more likely to score higher in subsequent years while the special education students' scores remained relatively unchanged. Third, looking at only the low performing special education students, those who were non-white and from low income backgrounds were more likely than their white, higher-income level peers, to be identified as persistently low performing across three years. The findings for males were less consistent.

There are some important implications of these findings for K-12 standards-based assessment and instruction. The results show that many low performing students on state assessments do

not have disabilities, and therefore would not be eligible to take an alternate assessment based on modified achievement standards (AA-MAS). Because low performing non-special education students are not eligible for the AA-MAS, state departments of education should consider other actions to help these students succeed in the grade-level standards-based curriculum. There is a wide-ranging variety of system-level factors that might play into differential performance patterns by particular subgroups of students. These factors include: school poverty levels and resource availability, teacher availability, teacher qualifications and training, student attendance, student health, school violence, an emphasis on remedial instruction rather than grade-level standards-based instruction, a teacher-student culture and relationship gap, and appropriate state assessment design and implementation for a particular population of students (cf. Archibald, 2006; Belfiore, Auld, & Lee, 2005; Cooper & Jackson, 2011; Goodwin, Englert, & Cicchinelli, 2003; Jackson, 2011). It is not within the scope of this report to address all the possible ways in which state departments of education and policymakers might address issues related to low levels of academic achievement by low income and minority students with, and without, disabilities. However, from an assessment fairness perspective (cf. Goodwin et al., 2002) there are three key issues state departments of education could investigate when faced with data showing differential achievement outcomes of this magnitude for certain subgroups of students:

1. Examine whether existing assessment items function differently for some groups of students compared to others. Test items should be designed to allow the greatest possible number of students to demonstrate their knowledge and skills in the grade-level content. Barriers such as biased test content or inaccessible test item formats should be identified and attended to early.

2. Examine whether correct test participation and administration policies and procedures are adhered to. Are all students participating in the appropriate state assessments according to state-determined participation criteria? Do students receive the test accommodations that they need as indicated by their IEPs, or more generally by state accommodations policies if accommodations are offered to any student? Are accommodations administered correctly?

3. Examine whether all students have had sufficient opportunity to learn the grade-level standards-based content that is measured on the state test. Are high academic expectations the norm for all students or only for some? For the lowest performing students on the state assessment, how well are their curricula aligned with grade-level standards? If students are instructed in classrooms where curricula are well-aligned with state standards, what strategies are teachers using to get to know the skills and interests of their low-income, non-white students so that content instruction can build on students' strengths and develop their academic potential? A part of addressing students' opportunity to learn would also include investigation of the progress monitoring and feedback processes educators use to

adapt daily instruction and provide targeted interventions for specific students who have learning challenges.

Federal legislation describing the AA-MAS option states that students with disabilities who are being considered as possible candidates for participation in the AA-MAS must have access to grade-level content (U.S. Department of Education, 2007). Further research is needed to get a better understanding of whether low performing students with disabilities have access to grade-level content—though preliminary evidence indicates that some may not have access (see, for example, Altman, Cormier, Lazarus & Thurlow, 2011; Lazarus et al., 2011).Taking steps to ensure that all low performing students with disabilities have access to grade level content is a crucial part of improving their academic outcomes. Improving the opportunity to learn for low performing students with disabilities can also have far-reaching effects that improve academic outcomes for low performing students who are not in special education and vice versa (see Telfer, 2011). Given that students with disabilities may move in and out of special education status repeatedly over time (cf. Ysseldyke & Bielinski, 2002), our data indicate the importance of addressing the instruction and assessment needs of all low performing students simultaneously, regardless of which assessment they take.

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Appendix A

Tables Supporting Research Question 1

Table A1. 10th Percentile Cut Scores by State, Content Area, Test Year, and Grade

State	Year	5th Grade		8th Grade	
		Math	Reading	Math	Reading
Alabama	2005	569	570	615	611
	2006	589	590	621	622
	2007	601	600	647	628
South Dakota	2005	579	588	629	624
	2006	599	601	642	637
	2007	621	614	665	652
Wisconsin	2006	377	418	458	445
	2007	415	425	485	457
	2008	435	431	482	468
Hawaii	2005	175	210	158	194
	2006	171	220	165	202
	2007	241	257	231	257

Table A2. Percentage of Students in the Non-Special Education Population by Gender an Different Performance Group on the Reading Assessment across States

Grade	State	Gender	Persistently low performing		Potentially persistently low performing		Low performing		10th or above all three years		Total	
			Count	%	Count	%	Count	%	Count	%	Count	%
Grade 5	Alabama	Female	189	34%	340	36%	858	39%	16,594	52%	17,981	50%
		Male	368	66%	605	64%	1,369	61%	15,383	48%	17,725	50%
	Hawaii	Female	46	32%	98	36%	260	39%	4,926	53%	5,330	51%
		Male	98	68%	174	64%	403	61%	4,372	47%	5,047	49%
	South Dakota	Female	66	42%	111	46%	235	45%	3,112	52%	3,524	51%
		Male	90	58%	128	54%	288	55%	2,886	48%	3,392	49%
	Wisconsin	Female	307	44%	552	46%	1,109	46%	21,418	52%	23,386	51%
		Male	396	56%	652	54%	1,325	54%	19,708	48%	22,081	49%
Grade 8	Alabama	Female	181	28%	310	29%	900	37%	17,274	54%	18,665	51%
		Male	465	72%	754	71%	1,549	63%	14,977	46%	17,745	49%
	Hawaii	Female	28	25%	65	27%	293	39%	4,645	52%	5,031	51%
		Male	84	75%	177	73%	452	61%	4,210	48%	4,923	49%
	South Dakota	Female	60	38%	115	44%	234	43%	3,473	51%	3,882	50%
		Male	97	62%	145	56%	306	57%	3,363	49%	3,911	50%
	Wisconsin	Female	366	46%	519	45%	1,034	45%	23,401	52%	25,320	52%
		Male	437	54%	625	55%	1,281	55%	21,273	48%	23,616	48%

Table A3. Percentage of Students in the Special Education Population by Gender and Different Performance Group on the Reading Assessment across States

Grade	State	Gender	Persistently low performing		Potentially persistently low performing		Low performing		10th or above all three years		Total	
			Count	%	Count	%	Count	%	Count	%	Count	%
Grade 5	Alabama	Female	354	29%	238	38%	195	34%	427	37%	1,214	34%
		Male	867	71%	390	62%	371	66%	736	63%	2,364	66%
	Hawaii	Female	107	25%	56	24%	62	31%	102	32%	327	28%
		Male	315	75%	180	76%	141	69%	219	68%	855	72%
	South Dakota	Female	70	37%	64	36%	57	30%	149	32%	340	34%
		Male	118	63%	115	64%	131	70%	310	68%	674	66%
	Wisconsin	Female	521	35%	330	33%	345	34%	935	32%	2,131	33%
		Male	976	65%	667	67%	660	66%	1,949	68%	4,252	67%
Grade 8	Alabama	Female	279	26%	200	28%	273	38%	507	39%	1,259	33%
		Male	815	74%	521	72%	452	62%	782	61%	2,570	67%
	Hawaii	Female	81	22%	88	30%	72	28%	140	34%	381	29%
		Male	285	78%	210	70%	188	72%	271	66%	954	71%
	South Dakota	Female	81	37%	58	35%	55	31%	119	36%	313	35%
		Male	139	63%	107	65%	120	69%	214	64%	580	65%
	Wisconsin	Female	688	35%	407	37%	367	32%	958	32%	2,420	34%
		Male	1,266	65%	686	63%	766	68%	2,002	68%	4,720	66%

Table A4. Percentage of Students in the Non-Special Education Population by Gender and Different Performance Group on the Math Assessment across States

Grade	State	Gender	Persistently low performing		Potentially persistently low performing		Low performing		10th or above all three years		Total	
			Count	%	Count	%	Count	%	Count	%	Count	%
Grade 5	Alabama	Female	271	46%	467	42%	1,313	47%	15,909	51%	17,960	50%
		Male	317	54%	644	58%	1,476	53%	15,269	49%	17,706	50%
	Hawaii	Female	95	54%	142	45%	359	48%	4,732	52%	5,328	51%
		Male	81	46%	176	55%	386	52%	4,401	48%	5,044	49%
	South Dakota	Female	71	50%	116	53%	248	53%	3,116	51%	3,551	51%
		Male	71	50%	102	47%	220	47%	3,023	49%	3,416	49%
	Wisconsin	Female	579	59%	802	57%	1,543	55%	20,503	51%	23,427	51%
		Male	401	41%	607	43%	1,264	45%	19,878	49%	22,150	49%
Grade 8	Alabama	Female	223	43%	634	42%	1,707	46%	16,061	52%	18,625	51%
		Male	292	57%	870	58%	2,008	54%	14,540	48%	17,710	49%
	Hawaii	Female	44	38%	109	39%	351	46%	4,525	52%	5,029	51%
		Male	72	62%	173	61%	419	54%	4,257	48%	4,921	49%
	South Dakota	Female	84	46%	137	48%	267	53%	3,396	50%	3,884	50%
		Male	99	54%	147	52%	238	47%	3,426	50%	3,910	50%
	Wisconsin	Female	556	59%	688	57%	1,321	54%	22,757	51%	25,322	52%
		Male	385	41%	527	43%	1,114	46%	21,570	49%	23,596	48%

Table A5. Percentage of Students in the Special Education Population by Gender and Different Performance Group on the Math Assessment across States

Grade	State	Gender	Persistently low performing		Potentially persistently low performing		Low performing		10th or above all three years		Total	
			Count	%	Count	%	Count	%	Count	%	Count	%
Grade 5	Alabama	Female	357	35%	247	37%	228	36%	380	30%	1,212	34%
		Male	671	65%	429	63%	401	64%	866	70%	2,367	66%
	Hawaii	Female	127	36%	62	24%	61	25%	76	23%	326	28%
		Male	228	64%	192	76%	184	75%	249	77%	853	72%
	South Dakota	Female	74	38%	57	37%	62	37%	151	29%	344	33%
		Male	121	62%	96	63%	105	63%	362	71%	684	67%
	Wisconsin	Female	492	45%	370	40%	374	34%	930	27%	2,166	33%
		Male	599	55%	544	60%	733	66%	2,509	73%	4,385	67%
Grade 8	Alabama	Female	224	33%	351	33%	305	33%	378	33%	1,258	33%
		Male	462	67%	708	67%	620	67%	757	67%	2,547	67%
	Hawaii	Female	103	31%	95	30%	79	28%	104	26%	381	29%
		Male	231	69%	227	70%	205	72%	292	74%	955	71%
	South Dakota	Female	90	41%	70	38%	59	36%	94	29%	313	35%
		Male	129	59%	116	62%	106	64%	229	71%	580	65%
	Wisconsin	Female	747	44%	500	40%	371	33%	798	26%	2,416	34%
		Male	942	56%	744	60%	754	67%	2,299	74%	4,739	66%

Table A6. Percentage of Students in the Non-Special Education Population by Race/Ethnicity and Different Performance Group on the Reading Assessment across States

Grade	State	Race/Ethnicity	Persistently low performing		Potentially persistently low performing		Low performing		10th or above all three years		Total	
			Count	%	Count	%	Count	%	Count	%	Count	%
Grade 5	Alabama	White	204	37%	343	36%	1,001	45%	22,342	70%	23,890	67%
		Non-White	353	63%	602	64%	1,227	55%	9,640	30%	11,822	33%
	Hawaii	White	6	4%	19	7%	41	6%	1,275	14%	1,341	13%
		Non-White	138	96%	253	93%	622	94%	8,023	86%	9,036	87%
	South Dakota	White	75	48%	142	59%	376	72%	5,309	89%	5,902	85%
		Non-White	81	52%	97	41%	147	28%	689	11%	1,014	15%
	Wisconsin	White	321	46%	644	53%	1,458	60%	34,192	83%	36,615	81%
		Non-White	382	54%	560	47%	976	40%	6,934	17%	8,852	19%
Grade 8	Alabama	White	211	33%	432	41%	1,082	44%	22,327	69%	24,052	66%
		Non-White	436	67%	633	59%	1,369	56%	9,936	31%	12,374	34%
	Hawaii	White	4	4%	14	6%	44	6%	1,095	12%	1,157	12%
		Non-White	108	96%	228	94%	701	94%	7,761	88%	8,798	88%
	South Dakota	White	62	39%	148	57%	409	76%	6,138	90%	6,757	87%
		Non-White	95	61%	112	43%	131	24%	698	10%	1,036	13%
	Wisconsin	White	211	26%	463	40%	1,295	56%	37,889	85%	39,858	81%
		Non-White	592	74%	681	60%	1,020	44%	6,785	15%	9,078	19%

Table A7. Percentage of Students in the Special Education Population by Race/Ethnicity and Different Performance Group on the Reading Assessment across States

Grade	State	Race/Ethnicity	Persistently low performing		Potentially persistently low performing		Low performing		10th or above all three years		Total	
			Count	%	Count	%	Count	%	Count	%	Count	%
Grade 5	Alabama	White	598	49%	334	53%	339	60%	887	76%	2,158	60%
		Non-White	623	51%	294	47%	227	40%	277	24%	1,421	40%
	Hawaii	White	43	10%	33	14%	27	13%	66	21%	169	14%
		Non-White	379	90%	203	86%	176	87%	255	79%	1,013	86%
	South Dakota	White	109	58%	130	73%	155	82%	395	86%	789	78%
		Non-White	79	42%	49	27%	33	18%	64	14%	225	22%
	Wisconsin	White	935	62%	714	72%	749	75%	2,441	85%	4,839	76%
		Non-White	562	38%	283	28%	256	25%	443	15%	1,544	24%
Grade 8	Alabama	White	513	47%	377	52%	428	59%	899	70%	2,217	58%
		Non-White	582	53%	345	48%	297	41%	390	30%	1,614	42%
	Hawaii	White	38	10%	34	11%	37	14%	69	17%	178	13%
		Non-White	328	90%	264	89%	223	86%	342	83%	1,157	87%
	South Dakota	White	145	66%	116	70%	156	89%	299	90%	716	80%
		Non-White	75	34%	49	30%	19	11%	34	10%	177	20%
	Wisconsin	White	1,091	56%	789	72%	886	78%	2,541	86%	5,307	74%
		Non-White	863	44%	304	28%	247	22%	419	14%	1,833	26%

Table A8. Percentage of Students in the Non-Special Education Population by Race/Ethnicity and Different Performance Group on the Math Assessment across States

Grade	State	Race/Ethnicity	Persistently low performing		Potentially persistently low performing		Low performing		10th or above all three years		Total	
			Count	%	Count	%	Count	%	Count	%	Count	%
Grade 5	Alabama	White	223	38%	424	38%	1,332	48%	21,863	70%	23,842	67%
		Non-White	365	62%	688	62%	1,457	52%	9,320	30%	11,830	33%
	Hawaii	White	11	6%	18	6%	78	10%	1,234	14%	1,341	13%
		Non-White	165	94%	300	94%	667	90%	7,899	86%	9,031	87%
	South Dakota	White	54	38%	114	52%	320	68%	5,454	89%	5,942	85%
		Non-White	88	62%	104	48%	148	32%	685	11%	1,025	15%
	Wisconsin	White	385	39%	684	49%	1,740	62%	33,827	84%	36,636	80%
		Non-White	595	61%	725	51%	1,067	38%	6,554	16%	8,941	20%
Grade 8	Alabama	White	167	32%	514	34%	1,719	46%	21,604	71%	24,004	66%
		Non-White	349	68%	991	66%	1,997	54%	9,010	29%	12,347	34%
	Hawaii	White	7	6%	13	5%	58	8%	1,079	12%	1,157	12%
		Non-White	109	94%	269	95%	712	92%	7,704	88%	8,794	88%
	South Dakota	White	77	42%	144	51%	361	71%	6,170	90%	6,752	87%
		Non-White	106	58%	140	49%	144	29%	652	10%	1,042	13%
	Wisconsin	White	259	28%	484	40%	1,364	56%	37,739	85%	39,846	81%
		Non-White	682	72%	731	60%	1,071	44%	6,588	15%	9,072	19%

Table A9. Percentage of Students in the Special Education Population by Race/Ethnicity and Different Performance Group on the Math Assessment across States

Grade	State	Race/Ethnicity	Persistently low performing		Potentially persistently low performing		Low performing		10th or above all three years		Total	
			Count	%	Count	%	Count	%	Count	%	Count	%
Grade 5	Alabama	White	481	47%	368	54%	361	57%	949	76%	2,159	60%
		Non-White	547	53%	308	46%	268	43%	298	24%	1,421	40%
	Hawaii	White	31	9%	31	12%	34	14%	72	22%	168	14%
		Non-White	324	91%	223	88%	211	86%	253	78%	1,011	86%
	South Dakota	White	118	61%	103	67%	128	77%	453	88%	802	78%
		Non-White	77	39%	50	33%	39	23%	60	12%	226	22%
	Wisconsin	White	590	54%	601	66%	832	75%	2,916	85%	4,939	75%
		Non-White	501	46%	313	34%	275	25%	523	15%	1,612	25%
Grade 8	Alabama	White	320	47%	519	49%	531	57%	834	73%	2,204	58%
		Non-White	367	53%	541	51%	394	43%	301	27%	1,603	42%
	Hawaii	White	44	13%	38	12%	36	13%	60	15%	178	13%
		Non-White	290	87%	284	88%	248	87%	336	85%	1,158	87%
	South Dakota	White	138	63%	142	76%	142	86%	294	91%	716	80%
		Non-White	81	37%	44	24%	23	14%	29	9%	177	20%
	Wisconsin	White	946	56%	843	68%	860	76%	2,684	87%	5,333	75%
		Non-White	743	44%	401	32%	265	24%	413	13%	1,822	25%

Table A10. Percentage of Students in the Non-Special Education Population by Income Level and Different Performance Group on the Reading Assessment across States

Grade	State	Income Level	Persistently low performing		Potentially persistently low performing		Low performing		10th or above all three years		Total	
			Count	%	Count	%	Count	%	Count	%	Count	%
Grade 5	Alabama	Not in Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Hawaii	Not in Low-Income	29	20%	72	26%	244	37%	5,607	60%	5,952	57%
		Low-Income	115	80%	200	74%	419	63%	3,691	40%	4,425	43%
	South Dakota	Not in Low-Income	76	49%	120	50%	286	55%	4,261	71%	4,743	69%
		Low-Income	80	51%	119	50%	237	45%	1,737	29%	2,173	31%
	Wisconsin	Not in Low-Income	221	31%	476	40%	1,110	46%	30,196	73%	32,003	70%
		Low-Income	482	69%	728	60%	1,324	54%	10,930	27%	13,464	30%
Grade 8	Alabama	Not in Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Hawaii	Not in Low-Income	36	32%	94	39%	306	41%	5,539	63%	5,975	60%
		Low-Income	76	68%	148	61%	439	59%	3,317	37%	3,980	40%
	South Dakota	Not in Low-Income	78	50%	134	52%	320	59%	5,127	75%	5,659	73%
		Low-Income	79	50%	126	48%	220	41%	1,709	25%	2,134	27%
	Wisconsin	Not in Low-Income	193	24%	368	32%	1,067	46%	34,184	77%	35,812	73%
		Low-Income	610	76%	776	68%	1,248	54%	10,490	23%	13,124	27%

N/A = Alabama free or reduced lunch data were not available.

Table A11. Percentage of Students in the Special Education Population by Income Level and Different Performance Group on the Reading Assessment across States

Grade	State	Income Level	Persistently low performing		Potentially persistently low performing		Low performing		10th or above all three years		Total	
			Count	%	Count	%	Count	%	Count	%	Count	%
Grade 5	Alabama	Not in Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Hawaii	Not in Low-Income	133	32%	88	37%	86	42%	169	53%	476	40%
		Low-Income	289	68%	148	63%	117	58%	152	47%	706	60%
	South Dakota	Not in Low-Income	84	45%	70	39%	107	57%	268	58%	529	52%
		Low-Income	104	55%	109	61%	81	43%	191	42%	485	48%
	Wisconsin	Not in Low-Income	576	38%	468	47%	506	50%	1,877	65%	3,427	54%
		Low-Income	921	62%	529	53%	499	50%	1,007	35%	2,956	46%
Grade 8	Alabama	Not in Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Hawaii	Not in Low-Income	120	33%	115	39%	116	45%	228	55%	579	43%
		Low-Income	246	67%	183	61%	144	55%	183	45%	756	57%
	South Dakota	Not in Low-Income	118	54%	84	51%	88	50%	195	59%	485	54%
		Low-Income	102	46%	81	49%	87	50%	138	41%	408	46%
	Wisconsin	Not in Low-Income	726	37%	528	48%	629	56%	1,927	65%	3,810	53%
		Low-Income	1,228	63%	565	52%	504	44%	1,033	35%	3,330	47%

N/A = Alabama free or reduced lunch data were not available.

Table A12. Percentage of Students in the Non-Special Education Population by Income Level and Different Performance Group on the Math Assessment across States

Grade	State	Income Level	Persistently low performing		Potentially persistently low performing		Low performing		10th or above all three years		Total	
			Count	%	Count	%	Count	%	Count	%	Count	%
Grade 5	Alabama	Not in Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Hawaii	Not in Low-Income	46	26%	100	31%	264	35%	5,540	61%	5,950	57%
		Low-Income	130	74%	218	69%	481	65%	3,593	39%	4,422	43%
	South Dakota	Not in Low-Income	61	43%	99	45%	236	50%	4,381	71%	4,777	69%
		Low-Income	81	57%	119	55%	232	50%	1,758	29%	2,190	31%
	Wisconsin	Not in Low-Income	283	29%	497	35%	1,339	48%	29,911	74%	32,030	70%
		Low-Income	697	71%	912	65%	1,468	52%	10,470	26%	13,547	30%
Grade 8	Alabama	Not in Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Hawaii	Not in Low-Income	43	37%	124	44%	335	44%	5,469	62%	5,971	60%
		Low-Income	73	63%	158	56%	435	56%	3,314	38%	3,980	40%
	South Dakota	Not in Low-Income	85	46%	130	46%	284	56%	5,156	76%	5,655	73%
		Low-Income	98	54%	154	54%	221	44%	1,666	24%	2,139	27%
	Wisconsin	Not in Low-Income	241	26%	402	33%	1,096	45%	34,062	77%	35,801	73%
		Low-Income	700	74%	813	67%	1,339	55%	10,265	23%	13,117	27%

N/A = Alabama free or reduced lunch data were not available.

Table A13. Percentage of Students in the Special Education Population by Income Level and Different Performance Group on the Math Assessment across States

Grade	State	Income Level	Persistently low performing		Potentially persistently low performing		Low performing		10th or above all three years		Total	
			Count	%	Count	%	Count	%	Count	%	Count	%
Grade 5	Alabama	Not in Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Hawaii	Not in Low-Income	112	32%	96	38%	89	36%	178	55%	475	40%
		Low-Income	243	68%	158	62%	156	64%	147	45%	704	60%
	South Dakota	Not in Low-Income	80	41%	61	40%	86	51%	311	61%	538	52%
		Low-Income	115	59%	92	60%	81	49%	202	39%	490	48%
	Wisconsin	Not in Low-Income	363	33%	374	41%	547	49%	2,205	64%	3,489	53%
		Low-Income	728	67%	540	59%	560	51%	1,234	36%	3,062	47%
Grade 8	Alabama	Not in Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Low-Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Hawaii	Not in Low-Income	126	38%	120	37%	107	38%	227	57%	580	43%
		Low-Income	208	62%	202	63%	177	62%	169	43%	756	57%
	South Dakota	Not in Low-Income	108	49%	93	50%	95	58%	189	59%	485	54%
		Low-Income	111	51%	93	50%	70	42%	134	41%	408	46%
	Wisconsin	Not in Low-Income	634	38%	547	44%	592	53%	2,041	66%	3,814	53%
		Low-Income	1,055	62%	697	56%	533	47%	1,056	34%	3,341	47%

N/A = Alabama free or reduced lunch data were not available.

Appendix B

Tables Supporting Research Question 2

Table B1. Percentage of Non-Special Education and Special Education Low Performing Students on the Reading Assessment by Grade across States

Grade	Group	Performance Group	Alabama		Hawaii		South Dakota		Wisconsin	
			Count	%	Count	%	Count	%	Count	%
Grade 5	Non-Special Education	Persistently low performing	557	31%	144	27%	156	32%	703	28%
		Low performing in year 1 and 3	214	12%	75	14%	57	12%	326	13%
		Low performing in year 1 and 2	320	18%	100	19%	102	21%	505	20%
		Initially Low performing	728	40%	218	41%	179	36%	977	39%
		Total	1,819	100 %	537	100 %	494	100 %	2,511	100%
	Special Education	Persistently low performing	1,221	66%	422	63%	188	52%	1,497	55%
		Low performing in year 1 and 3	119	6%	70	11%	39	11%	258	9%
		Low performing in year 1 and 2	278	15%	96	14%	80	22%	471	17%
		Initially Low performing	234	13%	77	12%	57	16%	502	18%
		Total	1,852	100 %	665	100 %	364	100 %	2,728	100%
Grade 8	Non-Special Education	Persistently low performing	647	31%	112	23%	157	29%	803	32%
		Low performing in year 1 and 3	205	10%	72	15%	68	13%	322	13%
		Low performing in year 1 and 2	451	21%	76	16%	121	22%	483	19%
		Initially Low performing	810	38%	221	46%	194	36%	889	36%
		Total	2,113	100 %	481	100 %	540	100 %	2,497	100%
	Special Education	Persistently low performing	1,095	59%	366	56%	220	58%	1,954	61%
		Low performing in year 1 and 3	138	7%	72	11%	46	12%	367	11%
		Low performing in year 1 and 2	374	20%	124	19%	65	17%	390	12%
		Initially Low performing	254	14%	89	14%	46	12%	500	16%
		Total	1,861	100 %	651	100 %	377	100 %	3,211	100%

Table B2. Percentage of Non-Special Education and Special Education Low Performing Students on the Math Assessment by Grade across States

Grade	Group	Performance Group	Alabama		Hawaii		South Dakota		Wisconsin	
			Count	%	Count	%	Count	%	Count	%
Grade 5	Non-Special Education	Persistently low performing	588	26%	176	28%	142	32%	980	32%
		Low performing in year 1 and 3	230	10%	104	17%	66	15%	359	12%
		Low performing in year 1 and 2	445	20%	100	16%	73	17%	606	20%
		Initially Low performing	1,000	44%	249	40%	158	36%	1,124	37%
		Total	2,263	100%	629	100%	439	100%	3,069	100%
	Special Education	Persistently low performing	1,028	60%	355	61%	195	54%	1,091	51%
		Low performing in year 1 and 3	163	9%	68	12%	43	12%	244	11%
		Low performing in year 1 and 2	288	17%	96	16%	58	16%	325	15%
		Initially Low performing	239	14%	65	11%	63	18%	463	22%
		Total	1,718	100%	584	100%	359	100%	2,123	100%
Grade 8	Non-Special Education	Persistently low performing	516	21%	116	24%	183	31%	941	35%
		Low performing in year 1 and 3	361	15%	67	14%	75	13%	332	12%
		Low performing in year 1 and 2	606	25%	105	22%	127	22%	434	16%
		Initially Low performing	982	40%	190	40%	201	34%	973	36%
		Total	2,465	100%	478	100%	586	100%	2,680	100%
	Special Education	Persistently low performing	687	38%	334	50%	219	55%	1,689	56%
		Low performing in year 1 and 3	240	13%	76	11%	44	11%	340	11%
		Low performing in year 1 and 2	556	31%	159	24%	71	18%	541	18%
		Initially Low performing	312	17%	95	14%	61	15%	471	15%
		Total	1,795	100%	664	100%	395	100%	3,041	100%

Appendix C

Tables Supporting Research Question 3

Table C1. Percentage of Grade 5 Non-Special Education and Special Education Low Performing Students on the Reading Assessment by Gender across States

Group	Gender	Performance Group	Alabama		Hawaii		South Dakota		Wisconsin	
			Count	%	Count	%	Count	%	Count	%
Non-Special Education	Male	Persistently low performing	368	32%	98	29%	90	33%	396	28%
		Low performing in year 1 and 3	125	11%	46	14%	24	9%	183	13%
		Low performing in year 1 and 2	210	18%	63	19%	53	19%	281	20%
		Initially Low performing	440	39%	128	38%	109	40%	562	40%
	Female	Persistently low performing	189	28%	46	23%	66	30%	307	28%
		Low performing in year 1 and 3	89	13%	29	14%	33	15%	143	13%
		Low performing in year 1 and 2	110	16%	37	18%	49	23%	224	21%
		Initially Low performing	288	43%	90	45%	70	32%	415	38%
Special Education	Male	Persistently low performing	867	68%	315	64%	118	51%	976	54%
		Low performing in year 1 and 3	75	6%	52	11%	23	10%	183	10%
		Low performing in year 1 and 2	171	14%	73	15%	49	21%	315	17%
		Initially Low performing	157	12%	54	11%	42	18%	348	19%
	Female	Persistently low performing	354	61%	107	63%	70	53%	521	58%
		Low performing in year 1 and 3	44	8%	18	11%	16	12%	75	8%
		Low performing in year 1 and 2	107	18%	23	14%	31	24%	156	17%
		Initially Low performing	77	13%	23	14%	15	11%	154	17%

Table C2. Percentage of Grade 5 Non-Special Education and Special Education Low Performing Students on the Reading Assessment by Race/Ethnicity across States

Group	Race/ Ethnicity	Performance Group	Alabama		Hawaii		South Dakota		Wisconsin	
			Count	%	Count	%	Count	%	Count	%
Non-Special Education	Non-White	Persistently low performing	353	32%	138	28%	81	40%	382	34%
		Low performing in year 1 and 3	140	13%	68	14%	23	11%	163	14%
		Low performing in year 1 and 2	208	19%	92	19%	41	20%	214	19%
		Initially Low performing	400	36%	195	40%	58	29%	370	33%
	White	Persistently low performing	204	29%	—	—	75	26%	321	23%
		Low performing in year 1 and 3	74	10%	—	—	34	12%	163	12%
		Low performing in year 1 and 2	111	16%	—	—	61	21%	291	21%
		Initially Low performing	328	46%	23	52%	121	42%	607	44%
Special Education	Non-White	Persistently low performing	621	69%	379	65%	79	64%	562	65%
		Low performing in year 1 and 3	45	5%	56	10%	—	—	79	9%
		Low performing in year 1 and 2	131	15%	82	14%	23	19%	111	13%
		Initially Low performing	99	11%	67	12%	14	11%	109	13%
	White	Persistently low performing	598	63%	43	53%	109	45%	935	50%
		Low performing in year 1 and 3	73	8%	14	17%	31	13%	179	10%
		Low performing in year 1 and 2	147	15%	14	17%	57	24%	360	19%
		Initially Low performing	134	14%	10	12%	43	18%	393	21%

Note: —= cell size less than 10.

Table C3. Percentage of Grade 5 Non-Special Education and Special Education Low Performing Students on the Reading Assessment by Income Level across States

Group	Income Level	Performance group	Alabama		Hawaii		South Dakota		Wisconsin	
			Count	%	Count	%	Count	%	Count	%
Non-Special Education	Low-Income	Persistently low performing			115	31%	80	33%	482	32%
		Low performing in year 1 and 3			53	14%	32	13%	208	14%
		Low performing in year 1 and 2			78	21%	50	21%	297	20%
		Initially Low performing			131	35%	80	33%	533	35%
	Not in Low-Income	Persistently low performing			29	18%	76	30%	221	22%
		Low performing in year 1 and 3			22	14%	25	10%	118	12%
		Low performing in year 1 and 2			22	14%	52	21%	208	21%
		Initially Low performing			87	54%	99	39%	444	45%
Special Education	Low-Income	Persistently low performing			289	66%	104	52%	921	60%
		Low performing in year 1 and 3			48	11%	24	12%	142	9%
		Low performing in year 1 and 2			58	13%	50	25%	232	15%
		Initially Low performing			46	10%	21	11%	245	16%
	Not in Low-Income	Persistently low performing			133	59%	84	51%	576	49%
		Low performing in year 1 and 3			22	10%	15	9%	116	10%
		Low performing in year 1 and 2			38	17%	30	18%	239	20%
		Initially Low performing			31	14%	36	22%	257	22%

Table C4. Percentage of Grade 5 Non-Special Education and Special Education Low Performing Students on the Math Assessment by Gender across States

Group	Gender	Performance Group	Alabama		Hawaii		South Dakota		Wisconsin	
			Count	%	Count	%	Count	%	Count	%
Non-Special Education	Male	Persistently low performing	317	27%	81	25%	71	35%	401	30%
		Low performing in year 1 and 3	147	13%	66	20%	30	15%	172	13%
		Low performing in year 1 and 2	222	19%	55	17%	33	16%	255	19%
		Initially Low performing	487	42%	127	39%	67	33%	511	38%
	Female	Persistently low performing	271	25%	95	32%	71	30%	579	34%
		Low performing in year 1 and 3	83	8%	38	13%	36	15%	187	11%
		Low performing in year 1 and 2	223	21%	45	15%	40	17%	351	20%
		Initially Low performing	513	47%	122	41%	91	38%	613	35%
Special Education	Male	Persistently low performing	671	61%	228	56%	121	55%	599	48%
		Low performing in year 1 and 3	111	10%	52	13%	25	11%	153	12%
		Low performing in year 1 and 2	169	15%	77	19%	35	16%	181	15%
		Initially Low performing	146	13%	53	13%	41	19%	307	25%
	Female	Persistently low performing	357	58%	127	73%	74	54%	492	56%
		Low performing in year 1 and 3	52	8%	16	9%	18	13%	91	10%
		Low performing in year 1 and 2	119	19%	19	11%	23	17%	144	16%
		Initially Low performing	93	15%	12	7%	22	16%	156	18%

Table C5. Percentage of Grade 5 Non-Special Education and Special Education Low Performing Students on the Math Assessment by Race/Ethnicity across States

Group	Race/ Ethnicity	Performance Group	Alabama		Hawaii		South Dakota		Wisconsin	
			Count	%	Count	%	Count	%	Count	%
Non-Special Education	Non-White	Persistently low performing	364	27%	165	28%	88	42%	595	39%
		Low performing in year 1 and 3	145	11%	99	17%	37	18%	208	14%
		Low performing in year 1 and 2	280	21%	96	16%	31	15%	295	19%
		Initially Low performing	538	41%	230	39%	52	25%	441	29%
	White	Persistently low performing	223	24%	11	28%	54	23%	385	25%
		Low performing in year 1 and 3	85	9%	—	—	29	13%	151	10%
		Low performing in year 1 and 2	164	18%	—	—	42	18%	311	20%
		Initially Low performing	461	49%	19	49%	106	46%	683	45%
Special Education	Non-White	Persistently low performing	546	63%	324	62%	77	59%	501	61%
		Low performing in year 1 and 3	73	8%	60	12%	15	12%	95	12%
		Low performing in year 1 and 2	137	16%	85	16%	19	15%	109	13%
		Initially Low performing	112	13%	54	10%	19	15%	115	14%
	White	Persistently low performing	481	57%	31	51%	118	52%	590	45%
		Low performing in year 1 and 3	90	11%	—	—	28	12%	149	11%
		Low performing in year 1 and 2	148	18%	11	18%	39	17%	216	17%
		Initially Low performing	126	15%	11	18%	44	19%	348	27%

Note: —= cell size less than 10.

Table C6. Percentage of Grade 5 Non-Special Education and Special Education Low Performing Students on the Math Assessment by Income Level across States

Group	Income Level	Performance Group	Alabama		Hawaii		South Dakota		Wisconsin	
			Count	%	Count	%	Count	%	Count	%
Non-Special Education	Low-Income	Persistently low performing			130	31%	81	35%	697	36%
		Low performing in year 1 and 3			65	15%	32	14%	241	13%
		Low performing in year 1 and 2			72	17%	38	16%	384	20%
		Initially Low performing			157	37%	83	36%	601	31%
	Not in Low-Income	Persistently low performing			46	22%	61	30%	283	25%
		Low performing in year 1 and 3			39	19%	34	17%	118	10%
		Low performing in year 1 and 2			28	14%	35	17%	222	19%
		Initially Low performing			92	45%	75	37%	523	46%
Special Education	Low-Income	Persistently low performing			243	65%	115	56%	728	56%
		Low performing in year 1 and 3			43	12%	26	13%	149	12%
		Low performing in year 1 and 2			52	14%	37	18%	194	15%
		Initially Low performing			34	9%	28	14%	229	18%
	Not in Low-Income	Persistently low performing			112	53%	80	52%	363	44%
		Low performing in year 1 and 3			25	12%	17	11%	95	12%
		Low performing in year 1 and 2			44	21%	21	14%	131	16%
		Initially Low performing			31	15%	35	23%	234	28%