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ACADEMIC ACHIEVEMENT AND SCHOOL CLIMATE IN ANCHORAGE AND OTHER ALASKA SCHOOLS: 2006 TO 2009

Amy Windham, Ph.D.
Kimberly Kendziora, Ph.D.
Leah Brown
David Osher, Ph.D.
Mengli Song, Ph.D.

American Institutes for Research
1000 Thomas Jefferson St., NW
Washington, DC 20007-3835

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Summary of Findings

AIR surveyed school climate in as many as 33 Alaska school districts between 2006 and 2009. Overall school climate increased in these districts at the same time that statewide achievement test results declined—especially for math. In this report, we explore the nature of the relationship between school climate and student achievement over time. Our analysis found that at a district level, improvements in school climate buffered the decline in achievement.

We conducted longitudinal analyses to investigate whether changes in student achievement over time were different in schools that saw improvement in climate compared to schools that saw no change or a decline in school climate. The analyses controlled for demographic variables that might account for the observed difference between the two groups of schools in change in achievement. We also controlled for baseline levels of achievement and climate so we could estimate the association between improvement in school climate and change in achievement net of the effects of baseline achievement and school climate on the outcome. Schools taking part in the survey since 2006 or 2007 were included in the analyses. We conducted the analyses for the total sample of Alaska schools taking part in the survey since 2006 or 2007 and separately for Anchorage School District (ASD) schools.

We found statistically significant associations between aspects of student-reported school climate and changes in achievement:

- Improvement over time in School Safety was significantly associated with positive change in achievement in the full sample of Alaska schools.
- In ASD schools, improvement in two climate scales, School Engagement and School Safety, were significantly positively related to achievement in one or more of the three subject areas.

The analyses' findings were stronger based on staff reports of school climate:

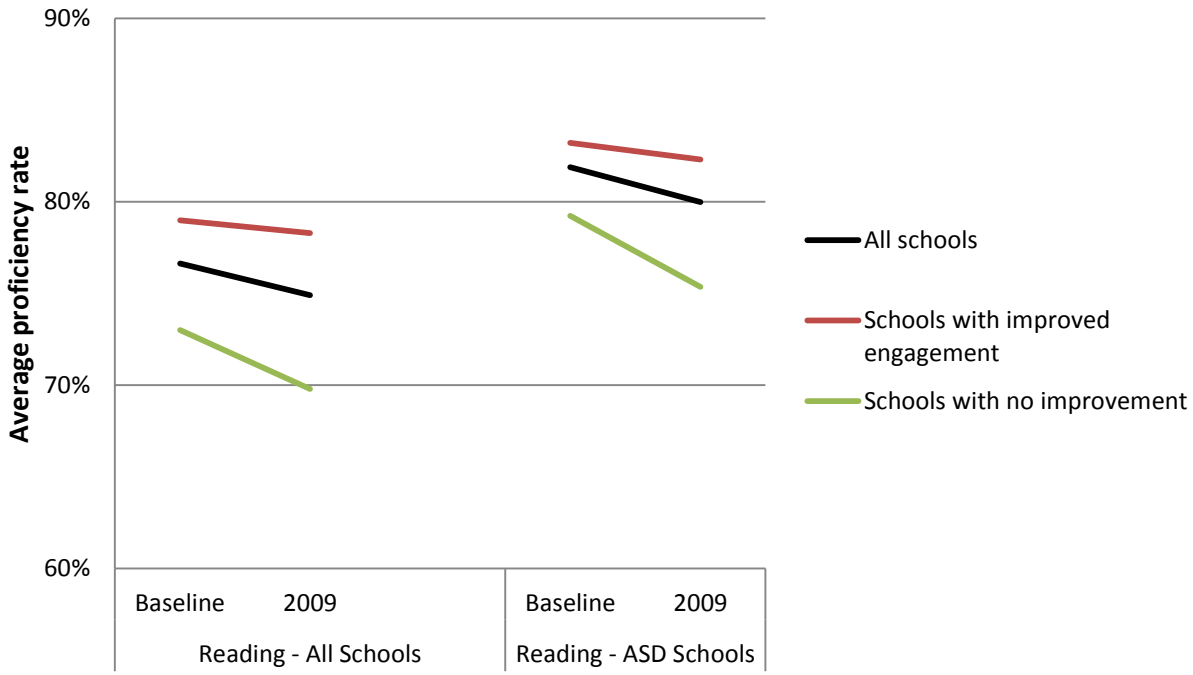
- Based on the staff surveys, improved School Safety, improved Parent and Community Involvement, and reduced Student Risk Behavior were all significantly associated with positive changes in achievement in at least one subject in the full sample of Alaska schools.
- Improvement in the summary measure of Overall School Climate also was significantly associated with positive change in achievement proficiency rates in the sample of Alaska schools.
- In ASD schools, improved School Safety, improved Parent and Community Involvement, and reduced Student Risk Behavior, as well as improved Leadership and Involvement, Staff Attitudes, and Respectful Climate were all significantly associated with positive change in achievement.

To illustrate the pattern of change in achievement from baseline to 2009, the figure below shows the average school proficiency rates in reading at baseline and in 2009 for all surveyed schools, for schools with improved School Engagement, and for schools where School Engagement declined or stayed the same. Graphs of other school climate scales and for the other achievement outcomes are found in the body of the report. We include this one as an illustration of the general pattern of achievement proficiency rates and the relation of improved school climate to the trend in rates from baseline to 2009.

The black lines in the graphs show the trend for average reading proficiency rates. The red lines show the trend for schools that showed improvement in School Engagement. The green lines show the trend for schools not showing improvement in School Engagement. Although average reading proficiency declined in all groups, the schools with no improvement in School Engagement show a steeper decline than schools that did improve in School Engagement.

- Schools where School Engagement improved from baseline to 2009 showed less of a decline in reading proficiency rates over the same time period.

Figure i. Average proficiency rates in reading at baseline and in 2009 for all surveyed schools, schools with improved School Engagement, and schools where School Engagement declined or stayed the same.



Introduction

Multiple individual, school, and community factors contribute to schools' academic success or failure. Some of these conditions are malleable, while others, such as community poverty, are harder to change. Along with the quality of curriculum and teaching, positive school climate has been identified as an important condition for learning that schools can directly affect in order to set the stage for improvements in students' academic success.[1, 2, 3]

The Anchorage School District (ASD) has been on the cutting edge nationally in the recognition and promotion of students' social emotional learning as a component of academic success. The district's Office of Safe and Drug Free Schools has provided numerous mini-grants to schools over the past five years to support interventions to improve school climate and student connectedness.

Two lines of research and practice in education have converged in a focus on the conditions for learning in schools. First, research has shown that even in the presence of a sound curriculum and competent instruction, a lack of student engagement remains a serious impediment to learning.[4] Nevertheless, many schools persist in applying structures and behaviors that actually promote *dis*engagement.[5, 6] The consequences of disengagement are more dire for students who are at a socioeconomic disadvantage, those at risk of dropout, and those who have few constructive life options without a sound education.[7, 8] Student engagement requires authentic challenge, a context of caring relationships, and a sense of physical and emotional safety.

Second, a steady thread in the conversation about school accountability and the goals of schooling has emphasized that schools should attend not only to students' academic development, but also to their

[1] Blum, R.W., & Libbey, H. (2004). School connectedness: Strengthening health and education outcomes for teenagers. *Journal of School Health, 74*, 229–299.

[2] Esposito, C. (1999). Learning in urban blight: School climate and its effect on the school performance of urban, minority, low-income children. *School Psychology Review, 28*, 365–377.

[3] Osher, D., & Kendziora, K. (2010). Building conditions for learning and healthy adolescent development: A strategic approach. In B. Doll, W. Pfohl, & J. Yoon (Eds.) *Handbook of Youth Prevention Science* (pp. 212–140). New York: Routledge.

[4] National Research Council and the Institute of Medicine. (2003) *Engaging schools: Fostering high school students' motivation to learn.* Washington, DC: National Academies Press.

[5] Yair, G. (2000). Reforming motivation: How the structure of instruction affects students' learning experiences. *British Educational Journal, 26*, 191–210.

[6] Lee, V. E., & Smith, J. B. (2001). Restructuring high schools for equity and excellence: What works. *Sociology of Education Series.* New York: Teachers College Press. For example, schools may be too bureaucratic, promoting affectively neutral rather than caring relationships between staff and students; be rigid rather than offer choices; focus on standardization vs. working toward personalization and relevance.

[7] Battistich, V., Solomon, D., Kim, D., Watson, M., & Schaps, E. (1995). Schools as communities, poverty levels of student populations, and students' attitudes, motives, and performance: A multilevel analysis. *American Educational Research Journal, 32*, 627–658.

[8] Sebring, P. B., Allensworth, E., Anthony S. Bryk, A. S., John Q. Easton, J. Q., & Luppescu, S. (2006, September). The essential supports for school improvement. Chicago: Consortium on Chicago School Research.

social and emotional learning.[9, 10, 11] Anchorage has been a national leader in this area. Schools need to offer safe and supportive environments to promote the "soft" or "noncognitive" skills that research has emphasized are critical for success in business and higher education,[12,13,14] and which have been included in the well-known 21st Century Skills frameworks.[15] Such skills include a strong work ethic, teamwork, self-efficacy, and confidence. Although some have called for widespread school-based assessment of soft skills directly,[16] a much larger group has advocated that ***schools should be accountable for providing the safe and supportive environments necessary to achieve these outcomes***. For example, the mission statement of United Voices for Education (a coalition of 45 educational organizations) states that schools' efforts to continuously improve their school climate should be:

> *acknowledged through accountability practices that incorporate expectations for Adequate Yearly Progress (AYP) such as those used to gauge schools' improvement in students' academic work. …[F]or AYP in school climate improvement to take place, such improvement needs to be viewed and prioritized by schools as being of equal importance to their efforts to meet accountability standards in students' academic improvement.*[17]

The School Climate and Connectedness Survey (SCCS) was developed by the American Institutes for Research (AIR) for the Association of Alaska School Boards (AASB) in 2005 specifically to evaluate school climate and student connectedness in Alaska schools that were part of the Alaska Initiative for Community Engagement. The SCCS was administered to staff and students in a small number of Alaska schools and districts in 2005 and to larger numbers in 2006 through 2009.

Several reports have described the methods used to conduct the survey and the results to date. Previous reports have included cross-sectional analyses of the data, such as correlations between school climate and academic achievement in a particular year, and longitudinal analyses spanning two years. Having now collected four years of survey data, we are able to look at climate and achievement over a longer period of time, from 2006 to 2009, to investigate whether improvement in school climate over time is associated with changes in standardized test scores. Before reporting our findings, we explain the methods used in this investigation.

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[9] Broader, Bolder Approach to Education Campaign. (2009, June). *School accountability: A broader, bolder approach*. Washington DC: Economic Policy Institute.

[10] Learning First Alliance. (2001). *Every child learning: Safe and supportive schools*. Alexandria, VA: Author.

[11] Zins, J. E., Weissberg, R. P., Wang, M. C., & Walberg, H. J. (2004). *Building academic success on social and emotional learning: What does the research say?* New York: Teachers College Press.

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[15] Partnership for 21st Century Skills. (2008). *21st century skills, education & competitiveness: A resource and policy guide.* Tucson, AZ: Author.

[16] Rothstein, R. (2004). Accountability for noncognitive skills: Society values traits not covered on academic tests, so why aren't they measured in school? *School Administrator, 61*, 29.

[17] United Voices for Education (no date). What we believe. New York: Operation Respect. Downloaded 6/22/09 from http://www.dontlaugh.org/advocate/overview.php.

Methods

Study Sample

In 2005, the SCCS was piloted with staff and students in a small number of Alaska school districts, and then administered to a larger number in 2006, 2007, 2008, and 2009. Students in grades 5 through 12 were eligible to participate. All school staff serving students in grades five and higher were invited to complete a staff version of the SCCS. The participating schools included elementary schools, middle schools, high schools, and a variety of charter and alternative schools. The specific districts participating in 2009 were: Alaska Gateway, Aleutians East, Anchorage, Annette Island, Chugach, Cordova, Dillingham, Haines, Hydaburg, Juneau, Kenai, Ketchikan, Klawock, Kodiak Island, Kuspuk, Lower Kuskokwim, Nenana, Northwest Arctic, Petersburg, Pribilof, Southwest Region, Unalaska, Valdez, and Yukon-Koyukuk.
A summary of participation levels for each year of the survey is presented in Table 1.

Table 1. Participation in SCCS survey by year

Year	# Districts	# Schools Overall	# ASD Schools	# Students	# Staff
2005	12	38	8	4,759	558
2006	15	148	92	24,732	3,453
2007	14	150	94	22,411	3,315
2008	33	242	95	30,124	4,730
2009	24	225	96	26,949	5,177

Analysis Sample for this Report

Because the focus of this report is on the relationship between school climate and achievement over time, schools taking part in SCCS for at least three years are included. This includes schools taking part since the 2005–06 (2006) or 2006–07 (2007) school year and continuing to take part through 2009. This includes 158 Alaska schools from 16 school districts. We also conducted the analyses separately for the 91 Anchorage School District (ASD) schools that took part in the surveys beginning in 2006 or 2007 and continuing through 2009. Inclusion in the final analysis sample required baseline and 2009 achievement data plus baseline and 2009 survey data.

Measurement

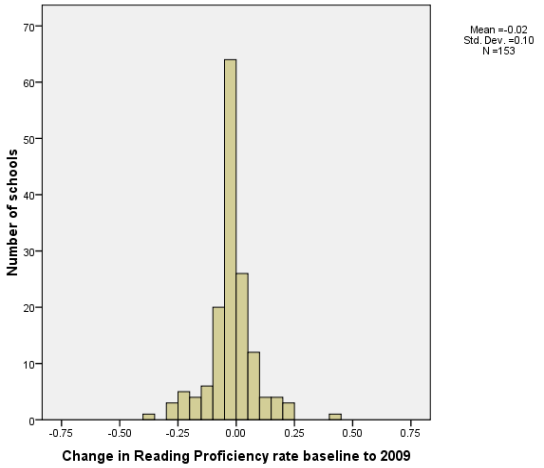
Student Achievement

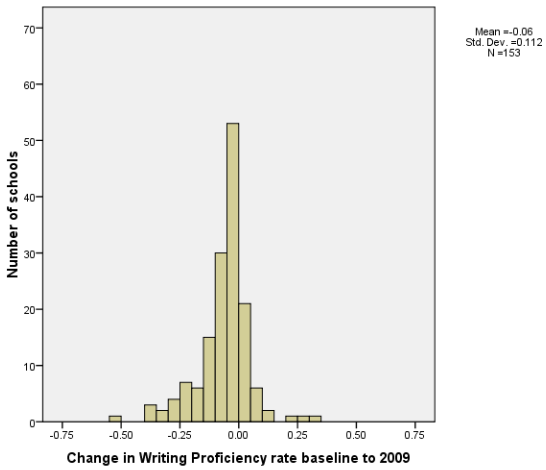
The outcome of interest was schools' academic performance over time, as measured by changes in the percentage of students scoring in the proficient or advanced range on the Alaska Standards Based Assessments in reading, writing, and math. We were interested in change in student achievement over time, so we calculated a change score for each of the three assessments reflecting the change in a school's proficiency rate from baseline through 2009. We defined the baseline proficiency rate to be the average of the proficiency rate from the 2006 and 2007 school years. Combining data from two years provided a more stable baseline measure and allowed us to include more schools in the analyses—if a school had data for only one of the baseline years, we relied on the data from that year rather than dropping the school from the analyses. The baseline reading, writing, and math proficiency rates were subtracted from the relevant 2009 proficiency rate to create the change score for each subject area, which indicates, for each school, the difference in the percentage of students scoring in the proficient or advanced range from baseline to 2009. The three change scores serve as the outcomes, or dependent variables, in the analyses.

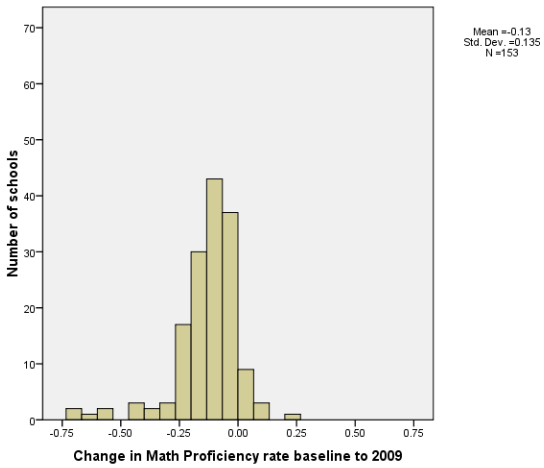
The figure below graphs the change scores for the three subject areas for all surveyed schools and for ASD schools. Of the 158 schools taking part in the survey for at least three years, 153 had achievement data available for both baseline and in 2009. Scores are suppressed for five schools because of small student populations. On average, proficiency rates dropped over time in all three subject areas, as indicated by the negative mean change scores. The largest drop was in math proficiency, which declined an average of 13 percentage points from baseline to 2009 in the total sample of schools and 12 percentage points in the sample of ASD schools.

Figure 1. Change in proficiency rates in reading, writing, and math from baseline in 2006/2007 to 2009, for all surveyed schools taking part in the SCCS Surveys and for Anchorage School District (ASD) Schools.

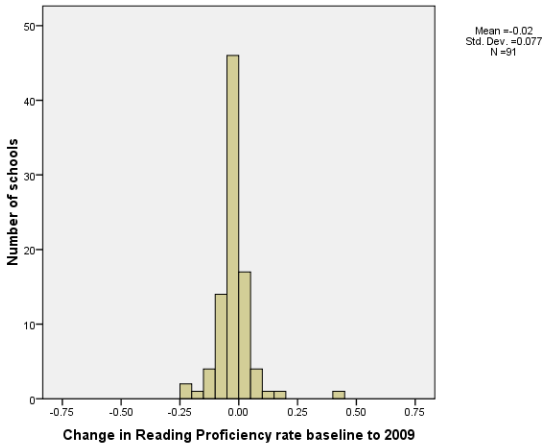
All Surveyed Alaska Schools (n=153)

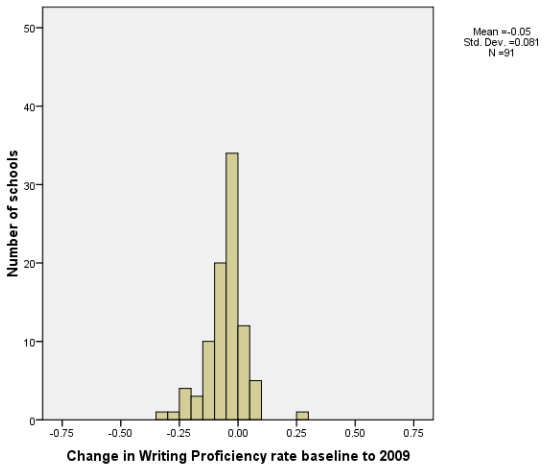


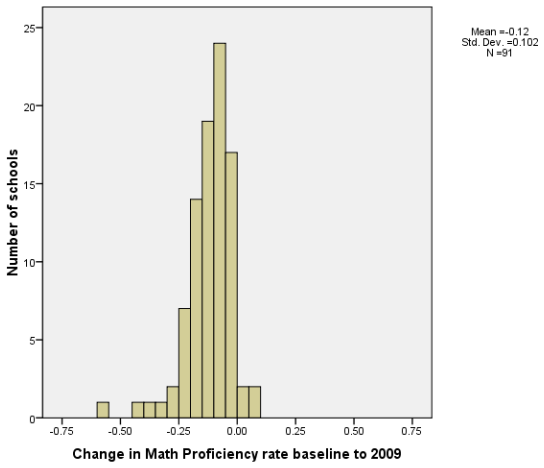




ASD Schools (n=91)







School Climate

School climate was measured via the SCCS student and staff school surveys. Items for the survey were written or selected to represent different facets of school climate. Most items were rated on a 5-point scale, from strongly disagree (1) to strongly agree (5). For questions about student risk behaviors, students indicated the frequency with which events occurred within the prior year, with 1 being the least frequent (never) and 5 being the most frequent (more than 12 times). Most of the resulting scales are scored in the "positive" direction, with higher scores indicating better climate. The Student Risk Behavior scale is scored in the "negative" direction, with higher scores indicating higher levels of risk behaviors. The individual student and staff scales were averaged across each school to create the school-level score on each of the scales.

Previous reports of the student SCCS used scales derived from factor analyses of the 2006 SCCS data. Those scales reflected aspects of school climate such as peer climate and school safety as well as two conceptually constructed summary measures of school climate: Overall Climate and School Connectedness. Since the inception of the survey, additional schools have taken part in the survey. Although the original factor analysis remains valid and in fact the original factor structure still exists in the 2009 data, due to the more diverse pool of students and schools, we conducted a new factor analysis for this report of the 2009 student survey data to be sure that we had the optimal factor construction to conduct the achievement analyses.

The results of the current factor analyses did show some differences. Although the earlier factor analyses generated eight factors, the 2009 factor structure with the best fit was a five-factor solution. The scales created based on the factor analyses are described below. The reliability of each scale is expressed as Cronbach's alpha (α), a number between 0 and 1 that reflects the degree to which the items in a scale tend to "hang together"—the degree to which they correlate with each other better than they do with other items on the survey. This kind of reliability is also known as *internal consistency*. Reliability in the range of .65 to .79 is considered *acceptable*; reliability higher than .80 is considered *moderate* to *good*. Cronbach's alpha is sensitive to the number of items on the scale. Generally, scales with more items will have higher reliabilities. Each of the scales has high internal consistency (Cronbach's alphas ranging from .77 to .89). To maintain consistency with our earlier reports, in addition to the scales derived from the factor analyses of the 2009 student survey data, we also included analyses based the Overall Climate scale from the earlier factor analysis.

For the Staff Survey we retained the original scales derived from the 2006 factor analysis of the Staff Survey data. Although the ethnic composition of the student sample changed notably from 2006 to 2009 (for example, the percentage of Alaska Native students increased from 10% to 17%), the shift in the composition of the staff sample was much less marked (the biggest change was also for the Alaska Native group, but the change was from 5% to 7% of the sample). We concluded that a new factor analysis was not warranted for the staff climate survey.

School Climate Scales Based on the Student Survey

School Engagement (2009; α =.77)

The School Engagement scale includes items from the 2006 SCCS High Expectations and Caring Adults scales. It reflects students' attitudes toward school, educational aspiration, and encouragement from and connection to supportive adults.

1. I have given up on school (reverse scored).
2. I try hard to do well in school.
3. I want very much to get more education after high school.
4. Adults in my community encourage me to take school seriously.
5. At school, there is a teacher or some other adult who will miss me when I'm absent.
6. I can name at least five adults who really care about me.
7. Other adults at school besides my teachers know my name.

Student-Centered Climate (2009; α =.89)

This scale includes items from the former School Leadership and Student Involvement and Respectful Climate scales. It reflects students' feelings about the decision making of school leaders, student participation in school governance, and feelings about fairness of rules and respect for students' contributions.

1. At school, decisions are made based on what is best for students.
2. The principal and other leaders in this school make good decisions.
3. In my school, students are given a chance to help make decisions.
4. Students are involved in helping to solve school problems.
5. The principal asks students about their ideas.
6. Teachers here are nice people.
7. My teachers treat me with respect.
8. When students break rules, they are treated fairly.
9. My teachers are fair.
10. Our school rules are fair.

School Safety (2009; α =.80)

This scale includes items from the prior School Safety and Peer Climate scales. It reflects students' feelings about bullies and gangs at school as well as general crime and violence in the community. It also reflects feelings about how respectful students are to one another.

1. I am safe at school.
2. This school is being ruined by bullies (reverse scored).
3. This school is badly affected by crime and violence in the community (reverse scored).
4. Gang members make this school dangerous (reverse scored).
5. Crime and violence are major concerns at school (reverse scored).
6. Students here treat me with respect (reverse scored).
7. Students at this school are often teased or picked on (reverse scored).
8. Most students in this school like to put others down (reverse scored).

9. It pays to follow the rules at my school.

Supportive Environment (2009; α =.83)

This scale includes items from the prior Community Involvement and Peer Climate scales. It reflects the extent to which students, community members, and family members support positive learning environments.

1. Students at this school help each other, even if they are not friends.
2. When students see another student being picked on, they try to stop it.
3. Adults in my community know what goes on inside schools.
4. Adults in my community support this school.
5. Lots of parents come to events at my school.
6. Most students in this school talk with their parents about what they are studying in class.
7. Most students in this school talk with their parents about their homework assignments.

Student Risk Behaviors (2009; α =.88)

This scale is the same as the prior Student Risk Behavior scale, except that it combines delinquent and drug/alcohol behaviors into a single index of risk behaviors. In this scale, students report the number of times during the past 12 months they have observed other students' drug and alcohol use and delinquent acts such as vandalism. Response categories were: 1 = 0 times; 2 = 1–2 times; 3 = 3–6 times; 4 = 7–12 times; 5 = More than 12 times.

In the past 12 months, how many times have you personally seen other students do these things at your school or at school events:

1. Under the influence of drugs (marijuana, coke, crack)
2. Under the influence of alcohol (beer, wine, liquor)
3. Destroy things (vandalism)
4. Get into fights
5. Steal things
6. Threaten or bully
7. Under the influence of inhalants (sniffing glue, paints, or aerosol sprays)
8. Carry weapons

Overall Climate Summary Scale (2006)

The Overall Climate summary scale was computed based on the earlier factor analysis of 2006 student survey data. It was computed as the average of three 2006 scales: High Expectations, School Safety, and School Leadership and Student Involvement, which are listed below. Although we believe that the scales identified in the 2009 student survey factor analysis are a more robust representation of the aspects of school climate we are interested in for this analysis, we included the Overall Climate summary factor used in previous analyses so that the results reported here can be compared to previous findings. Because the summary scale was computed by averaging scores from other subscales, the Cronbach's alpha statistic is not computed.

High Expectations

1. I have given up on school (reverse scored)
2. At this school, students are encouraged to work to the best of their abilities
3. If students like their school, they will do better in their classes
4. I try hard to do well in school
5. I want very much to get more education after high school
6. Adults in my community encourage me to take school seriously
7. Teachers and other adults in this school believe that *all* students can do good work

School Safety

1. I am safe at school.
2. This school is being ruined by bullies (reverse scored)
3. This school is badly affected by crime and violence in the community (reverse scored)
4. Gang members make this school dangerous (reverse scored)
5. Crime and violence are major concerns at school (reverse scored)

School Leadership and Student Involvement

1. At school, decisions are made based on what is best for students
2. The principal and other leaders in this school make good decisions
3. In my school, students are given a chance to help make decisions
4. Students are involved in helping to solve school problems
5. The principal asks students about their ideas

Social and Emotional Learning

In addition to the school climate scales, we analyzed results for Social and Emotional Learning (SEL), the process through which we learn to recognize and manage emotions, care about others, make good decisions, behave ethically and responsibly, develop positive relationships, and avoid negative behaviors. In 2007, the Anchorage School Board passed the adoption and implementation of Social and Emotional Learning standards (available through http://www.asdk12.org/depts/SEL/). The 15 items in this scale were written to align with the Social and Emotional Learning standards adopted by the Anchorage School Board in 2007.

Social and Emotional Learning (α =.87)

1. If someone asks me right now, I can describe how I am feeling
2. I know what I do well and what areas I need to work on
3. I ask for help from my teachers or others when I need it
4. I feel bad if my chores, homework, or other responsibilities are not done well or on time
5. I control myself when I am frustrated, angry, or disappointed
6. I am honest, even when telling the truth might get me in trouble
7. When I make a decision, I think about what might happen afterwards

8. I set goals and then work to achieve them
9. I care about other people's feelings and points of view
10. It is important for me to help others in my school
11. I respect the ways in which people are different
12. I can tell when someone is getting angry or upset before they say anything
13. I know how to disagree without starting a fight or argument
14. I get along well with other students
15. I work on having positive relationships with friends, family members, and others

School Climate Scales Based on 2006 Staff Survey

We did not update the factor analysis of the staff survey data. Items for the staff version of the survey were written or selected to represent different facets of school climate. Some items reflect staff perspectives on student experiences while some directly assess the conditions for teaching and working in the school. The eight identified scales were School Leadership and Involvement, Staff Attitudes, Student Involvement, Respectful Climate, School Safety, Parent and Community Involvement, Student Risk Behaviors, and Student Drug and Alcohol Use. In addition, an Overall Climate scale score was produced to provide a broader picture of how a district or school is doing across the eight domains assessed by the survey. Each of these scales is discussed below.

School Leadership and Involvement (α = .93)

This scale reflects staff members' feelings about the decision-making of school leaders as well as the fairness of school rules.

1. I trust the principal will keep his or her word
2. The principal looks out for the personal welfare of school staff members
3. The principal and other leaders in this school make good decisions
4. I am satisfied with my involvement with decision-making at this school
5. The work rules at this school are fair
6. School staff members have a lot of informal opportunities to influence what happens here
7. When students break rules, they are treated fairly
8. At school, decisions are made based on what is best for students

Staff Attitudes (α = .86)

This scale reflects staff members' feelings about the competence of teachers as well as how positive their attitudes are toward their jobs.

1. The teachers at this school are good at their jobs
2. Teachers here set high standards for themselves
3. Teachers here are nice people
4. In this school, staff members have a "can do" attitude
5. Teachers and staff believe that *all* students can do good work

Student Involvement (α =.59)

This scale reflects staff members' feelings about how involved students are in the decision-making process at school. This scale is also included as part of the Overall Climate summary scale. The items comprising this scale are as follows.

1. Students are involved in helping to solve school problems
2. In this school, students are given a chance to help make decisions
3. The principal asks students about their ideas

Respectful Climate (α =.86)

This scale reflects staff members' feelings about how students treat each other and how well students and staff members treat one another.

1. Students in this school treat each other with respect
2. Students in this school help each other, even if they are not friends
3. Teachers and students treat each other with respect in this school
4. The students in this school don't really care about each other (reverse scored)
5. At this school, students and teachers get along really well

School Safety (α =.74)

This scale reflects staff members' feelings about the impact of gangs and bullies as well as general violence in the community.

1. Crime and violence are or should be major concerns at this school (reverse scored)
2. This school is badly affected by crime and violence in the community (reverse scored)
3. Gang members make this school dangerous (reverse scored)
4. This school is being ruined by bullies (reverse scored)
5. I feel safe at my school

Parent and Community Involvement (α =.83)

This scale reflects staff members' feelings about how accessible the school is for parents as well as how connected adults in the community are to the school.

1. Lots of parents come to events at this school
2. Adults in the community support this school
3. Adults in the community encourage youth to take school seriously
4. Adults in the community know what goes on inside schools
5. The school is a welcoming and inviting place for parents
6. This school fails to involve parents in most school events or activities (reverse scored)
7. At this school, it is difficult to overcome the cultural barriers between teachers and parents (reverse scored)

Student Risk Behaviors (α =.81)

School staff responded to the same set of items pertaining to Student Risk Behaviors that the students answered. Response categories were: 1 = 0 times; 2 = 1–2 times; 3 = 3–6 times; 4 = 7–12 times; 5 = More than 12 times.

Indicate how often you personally have seen students do these things at this school or at school events over the past 12 months:

1. Destroy things (vandalism)
2. Get into fights
3. Steal things
4. Threaten or bully
5. Carry weapons

Student Drug and Alcohol Use (α = .67)

School staff responded to the same set of items pertaining to Student Drug and Alcohol Use that the students answered. Response categories were: 1 = 0 times; 2 = 1–2 times; 3 = 3–6 times; 4 = 7–12 times; 5 = More than 12 times:

Indicate how often you personally have seen students do these things at this school or at school events over the past 12 months:

1. Under the influence of drugs (marijuana, coke, crack)
2. Under the influence of alcohol (beer/wine/liquor)
3. Under the influence of inhalants (sniffing glue, paints, or aerosol sprays)

Overall Climate Summary Scale

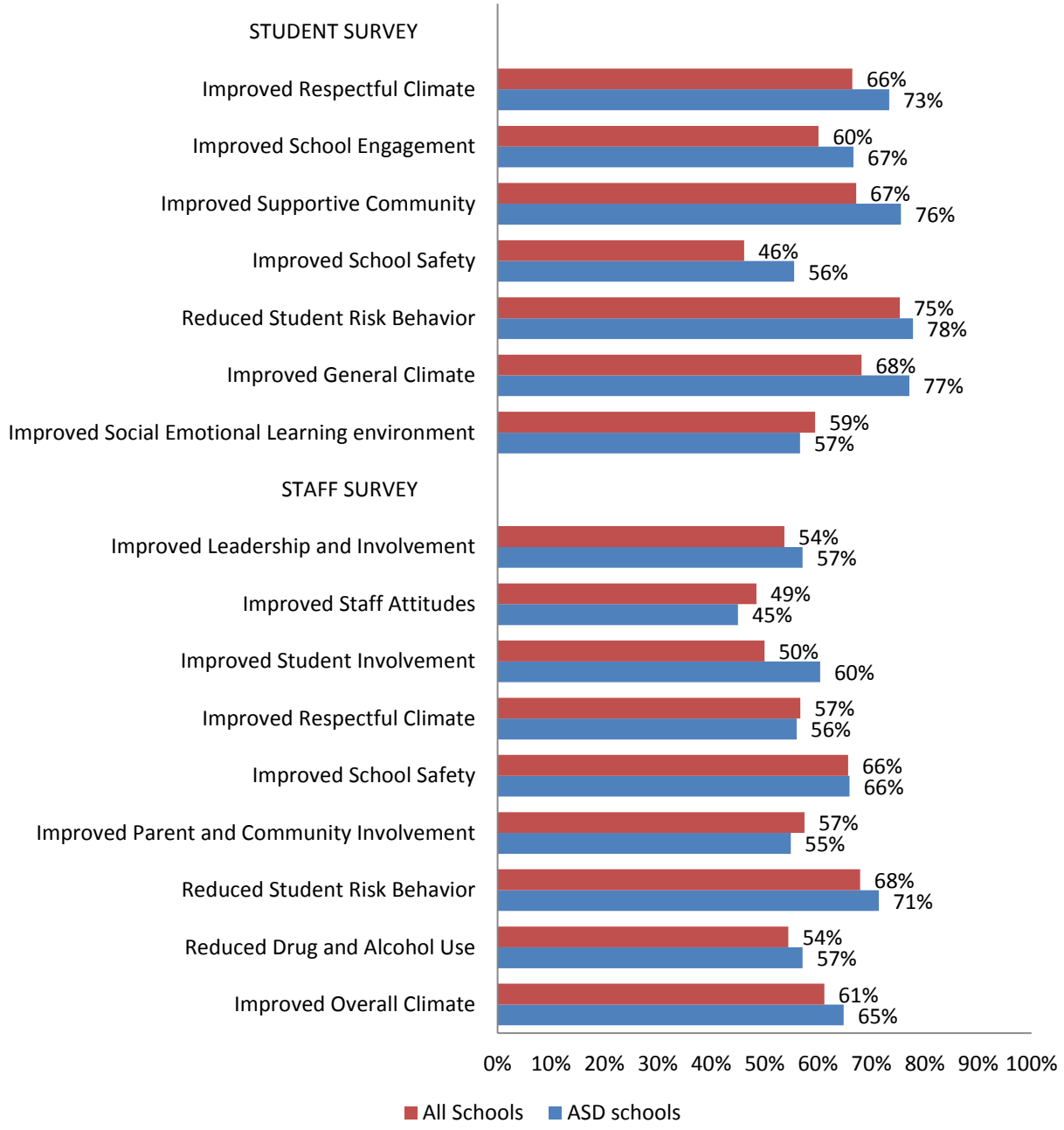
The Overall Climate Summary scale was computed as the average of the eight scales listed above.

Change in School Climate Scales from Baseline to 2009

The outcome of interest for this report was the change in student achievement from baseline to 2009. The independent variables we hypothesized to predict change in achievement proficiency were the various aspects of school climate defined by the scales derived from the student and staff school climate surveys. Specifically, we aimed to answer the question, "Do schools showing improvement in School Climate show more positive change in proficiency rates?" Like the change scores created for the achievement outcomes, we created change scores for each of the school climate scales by subtracting the baseline scale score from the corresponding 2009 scale score. For the analyses we then dichotomized the change score to indicate whether the score improved from baseline to 2009 or stayed the same/declined. Because we were interested in studying improvement, the Student Risk Behavior and Student Drug and Alcohol Use scales were coded to indicate *reduced occurrence* of those behaviors. **Figure 2** shows the percentage of schools showing improvement on each of the school climate scales. One of the 91 ASD schools had substantial missing student survey data and was not included here. Staff survey data was only available for 134 Alaska schools and 80 ASD schools.

A majority of schools saw improvement in climate over time on all of the student scales except for School Safety. Based on the student surveys, a larger percentage of ASD schools saw improvement compared to the sample of all schools. The staff survey results were consistent with these findings in that a majority of schools saw improvement over time on most of the school climate scales; however, the differences were not as large as those based on the student surveys.

Figure 2. Percentage of schools showing improvement on each of the School Climate scales and Social Emotional Learning from baseline to 2009 based on the **Student Survey** and **Staff Survey** for all surveyed schools taking part (n=158 in student survey; n = 134 in staff survey) and ASD schools (n=90 in student survey; n = 80 in staff survey).



Other Variables Included in the Statistical Analyses

We know that many factors other than school climate influence academic achievement. Although data are not available to consider everything that may influence achievement, we did include two key baseline socio-demographic variables in the analyses in order to control for the potential confounding, or distorting, effects of important contextual variables: poverty (indicated by the percentage of students receiving free or reduced lunch in a school) and school racial composition (indicated by the percentage of nonwhite students in a school). Although we include these variables in the analyses here, note that the current report does not focus on the direct effects of these variables.

We also included the baseline climate scale score and the baseline achievement measure in the statistical models. Including these variables in the models allows us to estimate the association between improved School Climate and change in student achievement net of the effects of baseline school climate and baseline achievement on change in student achievement. Our primary purpose for including these additional variables was to improve the precision of our estimates of the associations between the School Climate scales and the achievement outcomes and to control for their potential confounding effects. However, including the additional variables in the models also allows us to examine associations between these variables and the outcomes. As we present the main results below, we note important findings related to associations between baseline school climate and achievement with the achievement outcomes.

Statistical Approach

Multiple linear regression was used to analyze associations between improvement in each of the school climate scales and the three achievement outcomes (change in reading, writing, and math proficiency rates from baseline to 2009, analyzed separately for each subject). For each of the three achievement outcomes, we ran a separate regression model with each school climate scale. The models all included the poverty and racial composition variables and the respective baseline school climate scale and baseline proficiency rate.

As an example, our first model estimated the association between School Engagement and change in reading achievement. The five independent variables included in the model are described in Table 2.

Table 2. Description of independent variables included in the multiple regression models estimating the association between Improved School Engagement and change in reading achievement.

Independent Variables in the Model	Description
Improved School Engagement	Dichotomous variable coded '1' if the School Engagement Score improved from baseline to 2009 or '0' if the School Engagement Score declined or stayed the same.
Baseline School Engagement	Continuous baseline School Engagement score.
Baseline Reading Proficiency	Continuous baseline Reading proficiency rate indicating the percentage of students scoring in the proficient or advanced range on the standardized reading assessment.
Percentage of students receiving free or reduced-price lunch	Continuous variable indicating the percentage of students in the school receiving free or reduced-price lunch.
Percentage of nonwhite students	Continuous variable indicating the percentage of nonwhite students in the school.

In models where the outcome was writing or math achievement, the respective baseline writing or math proficiency rate was included. For the school climate scales, the baseline score for the scale of interest was used.

Statistical Terms Used in the Presentation of Results

In the Results tables, for each model, three statistics are presented for each variable in the model:

B (Beta): indicates the estimated strength of association between a given independent variable and the outcome. If *B* is positive, there is a positive association between the variable and the outcome. For example, improved School Engagement is positively associated with the percent of students scoring proficient or advanced on the Reading assessment. If *B* is negative, it indicates a negative, or inverse, association between the variable and the outcome. For example, we expect baseline Student Risk Behavior to be inversely related to the achievement outcomes; as scores on the Risk Behavior scale increase, achievement scores will decrease. The value of *B* indicates that magnitude of the estimated change in the proficiency rate due to the respective variable in the model. For the dichotomous indicators of whether or not there was improvement on a particular school climate scale, *B* is the difference in the mean change of proficiency rate between schools showing improvement on the climate scale and schools not showing improvement on the scale. For continuous variables such as baseline proficiency rate, the value of *B* is interpreted as the change of the outcome per one unit increase in the continuous variable.

S.E. (Standard error of the regression): measures the accuracy of the regression model. In other words, this value reflects how well the best-fitting line through the observed data points actually fits. The larger the standard error, the farther away the observed data points are from the prediction based on *B*. The smaller the standard error, the closer the observed data are to the predicted data.

p value: indicates the probability that the estimated strength of association between the variable and the outcome (*B*) is due to chance. A *p* value of .05 means that there is a 5% chance that the association is due to chance. A p value of <.01 means that there is a less than 1% chance that the observed association is spurious. It is conventional to use a cut-point of .05 to indicate statistical significance to lend confidence that an observed association is "real." A *p* value between .05 and .10 is conventionally regarded as a "trend" that does not quite meet the criterion of statistical significance, but may be worth noting.

Limitations of this Analysis

It is important to note that this analysis is focused on *describing* the relationship between school climate and achievement in Anchorage and across Alaska, not *explaining* it. To fully understand the relationship of these complex constructs, a much more extensive study would need to be undertaken, in which interventions to systematically modify climate, achievement, or both would be implemented, and appropriate controls would be in place. Additionally, interviews or focus groups with students and school staff would be helpful to understand the interplay of achievement and climate in the everyday course of school life.

Routine cautionary notes about the data are also in order: the analyses here are conducted at the school level based on aggregate climate and achievement test scores. This means that changes from one year to the next could be influenced by changes in school composition or enrollment as well as real change in climate or achievement. Further, the scores for both climate and achievement are based only on the people who actually took the assessments, not *all* students or staff. Test-takers are likely to differ in systematic ways from non-test-takers (e.g., they tend to be absent more).

Although many states changed their achievement tests during the period covered by this analysis, Alaska has had a stable set of achievement tests in place, with no new cut scores, since the spring 2006 tests.

Student Survey Results

The tables below present the results of the multiple linear regression models. In the tables, the primary variable of interest, whether a school experienced a positive change in the school climate scale, is italicized to highlight the focus of the analysis. Statistically significant findings are in bold type. We present results for all surveyed schools in the sample and separately for ASD schools. For each

outcome, we describe the main finding of interest—the association between improved school climate and change in achievement proficiency rates. We also point out significant associations between baseline scores on the school climate scales and change in proficiency rates. Significant associations between the other covariates and the outcomes are bolded in the tables but are not described in the text.

To illustrate the pattern of change in achievement from baseline to 2009, we graphed the average school proficiency rates in 2009 for all surveyed schools, for schools showing improvement on each respective climate scale, and for schools where scores on the climate scale did not improve. The black lines in the graphs show the trend for average proficiency rates. The red lines show the trend for schools that showed improvement in the respective school climate scale. The green lines show the trend for schools not showing improvement.

School Engagement

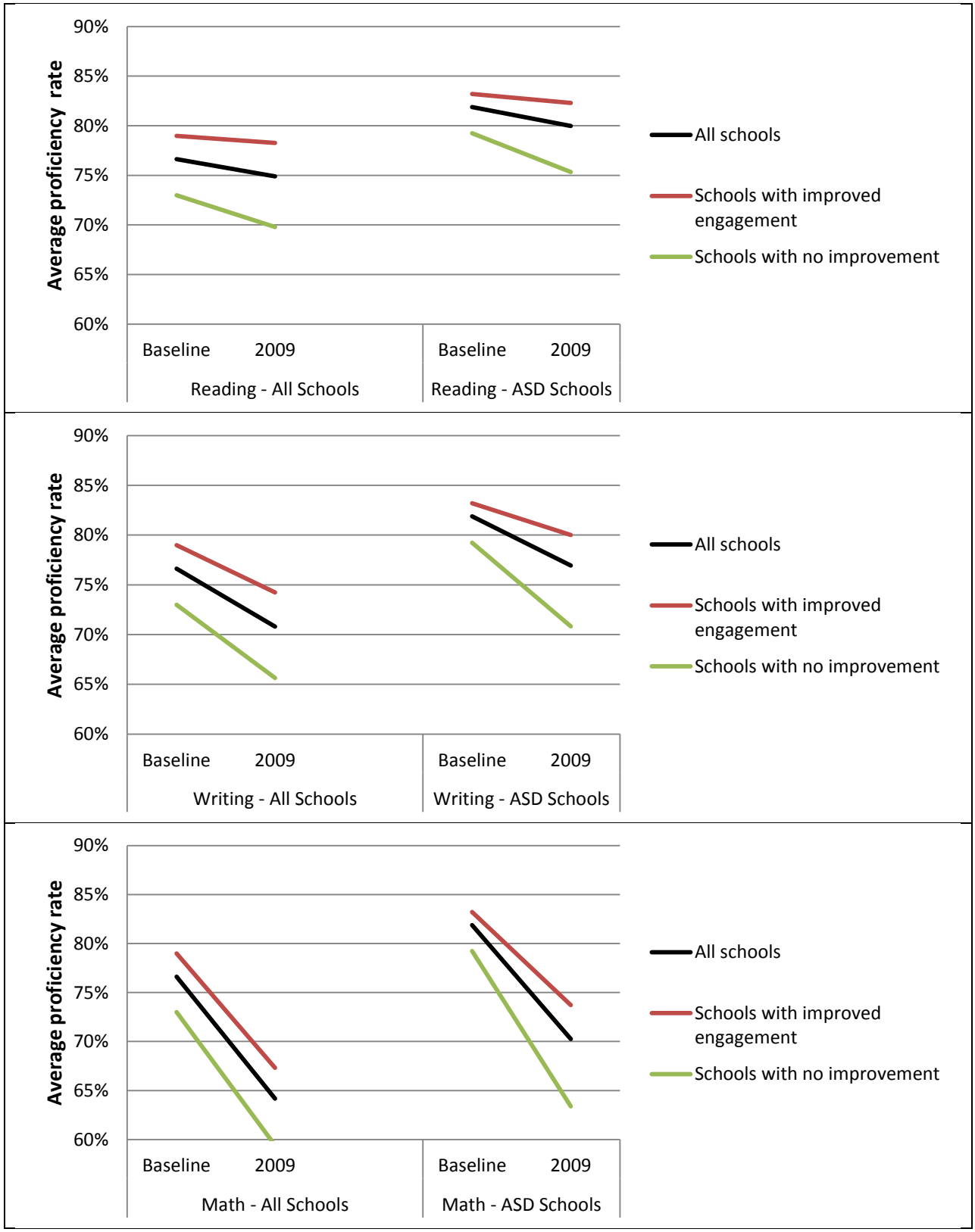
All surveyed schools: Improved school engagement was not related to the achievement outcomes when controlling for indicators of poverty and school racial composition; nor was baseline school engagement. Across the outcomes, baseline proficiency rates were negatively related to change in proficiency rates. This was due to the overall downward trend in achievement rates. As indicated in the tables, the associations were statistically significant for reading and writing, but not for math. However, we note it here because the same general trend is seen across the results.

ASD schools: In ASD schools, there was a significant association between Improved School Engagement and change in proficiency rates in reading, writing, and math. Baseline School Engagement also was significantly related to the achievement outcomes. This can be interpreted as follows: there is a significant correlation between baseline School Engagement and change in achievement. However, improving School Engagement is associated with positive change in achievement above and beyond the base correlation. Furthermore, these associations remain after controlling for indicators of poverty and school racial composition.

Table 3. Multiple linear regression results of the relationships between improved **School Engagement** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Improved school engagement	*.017*	*0.017*	*0.32*	***.035***	***0.014***	***0.01***
Baseline school engagement	.004	0.043	0.92	**.168**	**0.036**	**<0.01**
Baseline reading proficiency	**-.165**	**0.069**	**0.02**	**-.229**	**0.108**	**0.04**
Percent free/reduced lunch	**-.170**	**0.037**	**<0.01**	**-.224**	**0.035**	**<0.01**
Percent nonwhite students	.024	0.049	0.62	.124	0.069	0.08
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Improved school engagement	***.037***	***0.019***	***0.06***	***.047***	***0.016***	***<0.01***
Baseline school engagement	.067	0.049	0.17	**.190**	**0.042**	**<0.01**
Baseline writing proficiency	**-.233**	**0.079**	**<0.01**	-.008	0.126	0.95
Percent free/reduced lunch	-.068	0.042	0.11	**-.088**	**0.041**	**0.03**
Percent nonwhite students	-.112	0.056	0.05	.037	0.080	0.65
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Improved school engagement	*.030*	*0.025*	*0.22*	***.054***	***0.020***	***0.01***
Baseline school engagement	.123	0.064	0.06	**.242**	**0.051**	**<0.01**
Baseline math proficiency	-.159	0.102	0.12	.046	0.153	0.76
Percent free/reduced lunch	-.034	0.054	0.53	.033	0.050	0.51
Percent nonwhite students	-.044	0.073	0.55	-.044	0.097	0.65

Figure 3. Average proficiency rates at baseline and in 2009 for all schools, schools with improved **School Engagement**, and schools where Engagement declined or stayed the same, by subject.



Student-Centered Climate

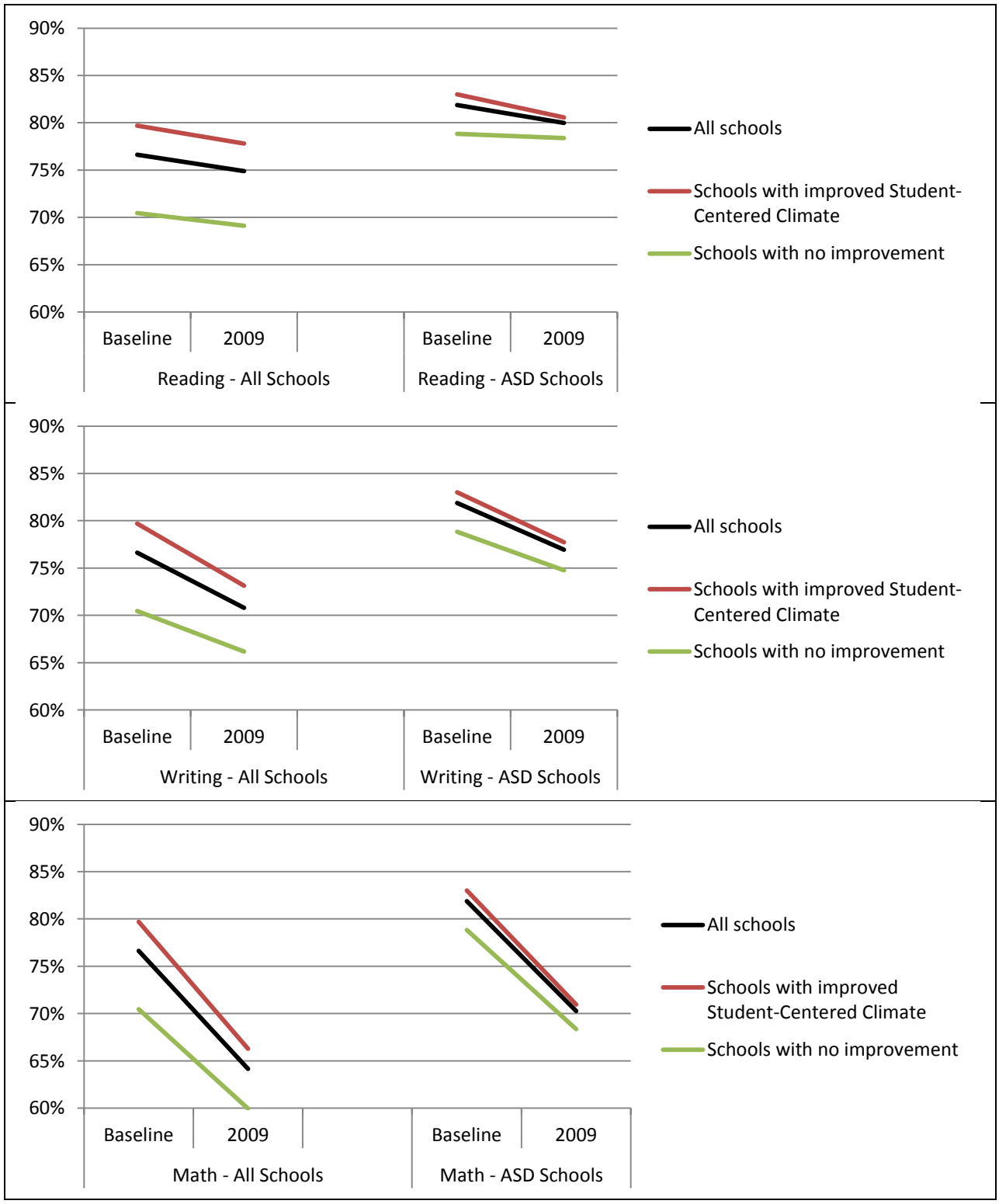
All surveyed schools: Improved Student-Centered Climate was not related to change in achievement proficiency rates.

ASD schools: Improved Student-Centered Climate was not related to change in achievement proficiency rates. Baseline Student-Centered Climate was significantly positively related to change in proficiency rates in all three subject areas.

Table 4. Multiple linear regression results of the relationships between improved **Student Centered-Climate** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Improved student-centered climate	*-.007*	*0.018*	*0.71*	*-.015*	*0.015*	*0.34*
Baseline respectful climate	.022	0.030	0.47	**.107**	**0.027**	**<0.01**
Baseline reading proficiency	**-.169**	**0.068**	**0.01**	**-.186**	**0.109**	**0.09**
Percent free/reduced lunch	**-.180**	**0.036**	**<0.01**	**-.183**	**0.034**	**<0.01**
Percent nonwhite students	.016	0.048	0.73	.055	0.066	0.41
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Improved student-centered climate	*-.004*	*0.021*	*0.86*	*-.013*	*0.019*	*0.48*
Baseline respectful climate	.014	0.035	0.69	**.100**	**0.032**	**<0.01**
Baseline writing proficiency	**-.223**	**0.079**	**0.01**	.029	0.133	0.83
Percent free/reduced lunch	-.060	0.041	0.15	-.033	0.041	0.42
Percent nonwhite students	**-.136**	**0.056**	**0.02**	-.055	0.081	0.50
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Improved student-centered climate	*-.020*	*0.027*	*0.47*	*-.016*	*0.023*	*0.49*
Baseline respectful climate	.003	0.046	0.95	**.108**	**0.040**	**0.01**
Baseline math proficiency	-.119	0.102	0.25	.102	0.164	0.54
Percent free/reduced lunch	-.009	0.054	0.87	**.106**	**0.051**	**0.04**
Percent nonwhite students	-.070	0.072	0.34	.154	0.101	0.13

Figure 4. Average proficiency rates at baseline and in 2009 for all schools, schools with improved **Student Centered-Climate**, and schools where **Student Centered-Climate** declined or stayed the same, by subject.



School Safety

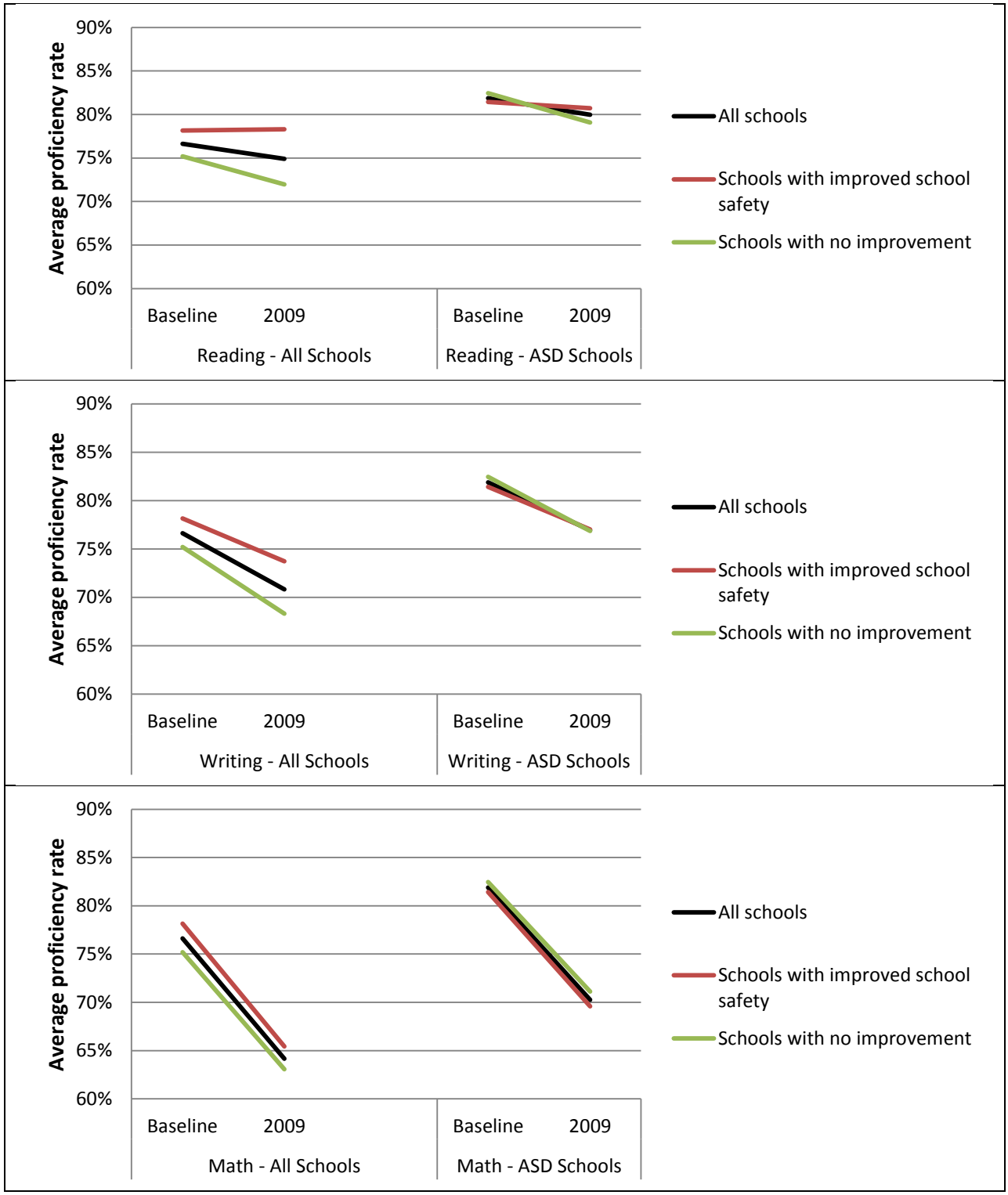
All surveyed schools: Improved School Safety was significantly related to change in reading proficiency. The association with change in writing proficiency bordered on statistical significance at the .05 level (p = .06).

ASD schools: Improved School Safety was significantly related to change in both reading and writing proficiency. Baseline School Safety was significantly related to change in proficiency in all three subject areas.

Table 5. Multiple linear regression results of the relationships between improved **School Safety** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Improved school safety	***.037***	***0.015***	***0.02***	***.027***	***0.012***	***0.03***
Baseline school safety	-.003	0.024	0.89	**.135**	**0.024**	**<0.01**
Baseline reading proficiency	**-.178**	**0.066**	**0.01**	**-.341**	**0.104**	**<0.01**
Percent free/reduced lunch	**-.160**	**0.034**	**<0.01**	**-.084**	**0.033**	**0.01**
Percent nonwhite students	.005	0.048	0.92	.047	0.063	0.46
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Improved school safety	***.033***	***0.018***	***0.06***	***.029***	***0.016***	***0.07***
Baseline school safety	-.018	0.028	0.52	**.109**	**0.030**	**<0.01**
Baseline writing proficiency	**-.229**	**0.077**	**<0.01**	-.101	0.134	0.45
Percent free/reduced lunch	-.046	0.040	0.26	.054	0.043	0.21
Percent nonwhite students	**-.150**	**0.056**	**0.01**	-.068	0.081	0.41
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Improved school safety	*.007*	*0.024*	*0.78*	*.022*	*0.020*	*0.28*
Baseline school safety	-.015	0.037	0.68	**.097**	**0.039**	**0.01**
Baseline math proficiency	-.128	0.101	0.21	-.015	0.171	0.93
Percent free/reduced lunch	-.002	0.052	0.96	**.187**	**0.055**	**<0.01**
Percent nonwhite students	-.076	0.073	0.30	-.165	0.103	0.11

Figure 5. Average proficiency rates at baseline and in 2009 for all schools, schools with improved **School Safety**, and schools where **School Safety** declined or stayed the same, by subject.



Supportive Environment

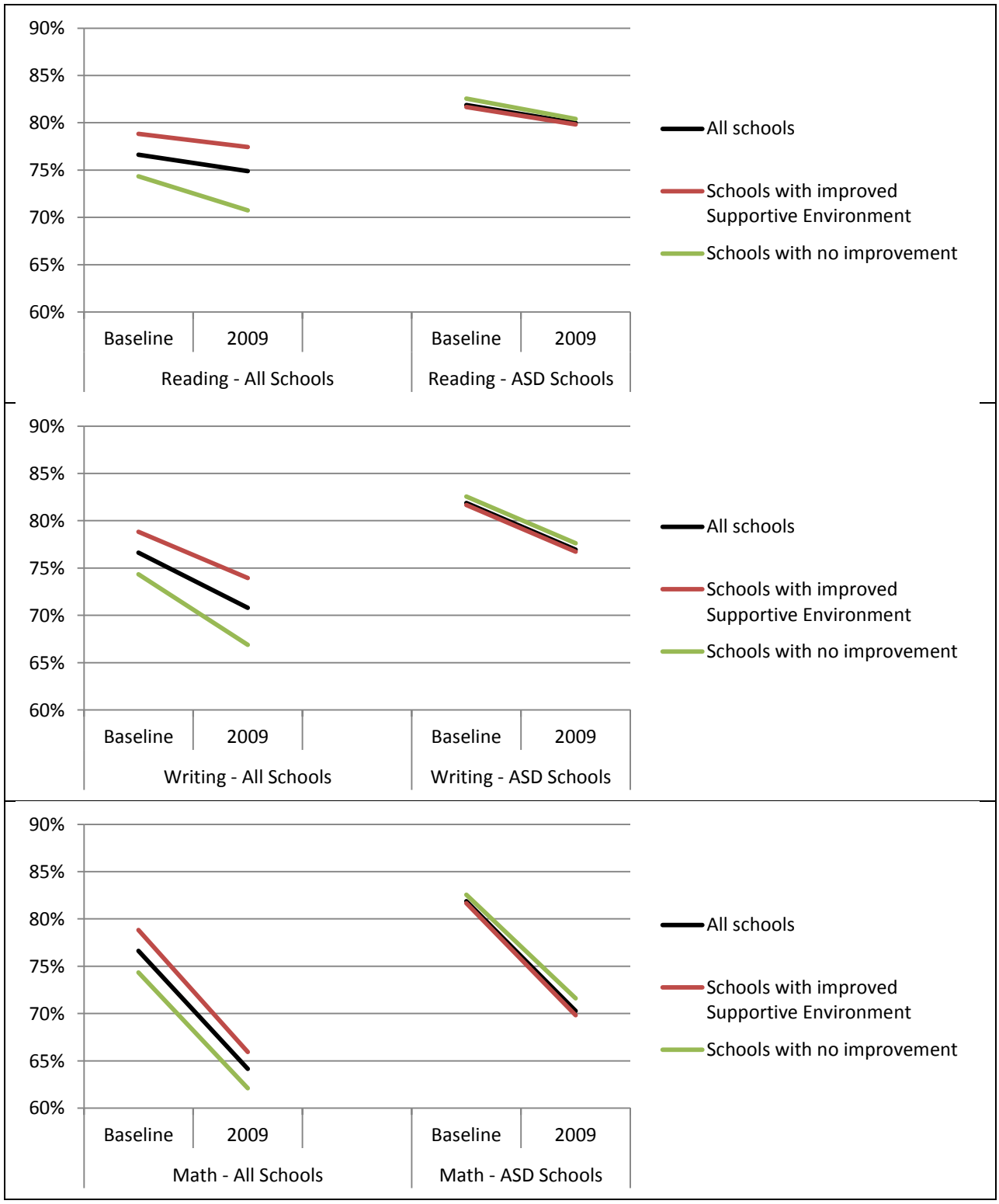
All surveyed schools: Improved Supportive Environment was not related to change in proficiency rates in any of the three subject areas. Baseline Supportive Environment was related to change in math proficiency, but not reading or writing proficiency.

ASD schools: Improved Supportive Environment was not related to change in proficiency rates in any of the three subject areas. Baseline Supportive Environment was related to change in proficiency rates in all three subjects.

Table 6. Multiple linear regression results of the relationships between improved **Supportive Environment** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Improved supportive environment	*.020*	*0.018*	*0.29*	*.024*	*0.016*	*0.14*
Baseline supportive environment	.008	0.030	0.80	**.099**	**0.026**	**<0.01**
Baseline reading proficiency	**-.192**	**0.070**	**0.01**	**-.238**	**0.113**	**0.04**
Percent free/reduced lunch	**-.166**	**0.036**	**<0.01**	**-.201**	**0.036**	**<0.01**
Percent nonwhite students	.026	0.049	0.60	.103	0.071	0.15
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Improved supportive environment	*.034*	*0.021*	*0.11*	*.025*	*0.019*	*0.19*
Baseline supportive environment	.049	0.035	0.16	**.114**	**0.031**	**<0.01**
Baseline writing proficiency	**-.256**	**0.081**	**<0.01**	-.031	0.133	0.81
Percent free/reduced lunch	-.061	0.042	0.15	-.060	0.043	0.16
Percent nonwhite students	**-.126**	**0.057**	**0.03**	.002	0.083	0.98
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Improved supportive environment	*.027*	*0.026*	*0.31*	*.020*	*0.022*	*0.38*
Baseline supportive environment	**.130**	**0.042**	**<0.01**	**.150**	**0.037**	**<0.01**
Baseline math proficiency	**-.179**	**0.099**	**0.07**	.010	0.160	0.95
Percent free/reduced lunch	-.040	0.052	0.44	.066	0.051	0.20
Percent nonwhite students	-.045	0.069	0.52	-.085	0.100	0.40

Figure 6. Average proficiency rates at baseline and in 2009 for all schools, schools with improved **Supportive Environment**, and schools where **Supportive Environment** declined or stayed the same, by subject.



Student Risk Behaviors

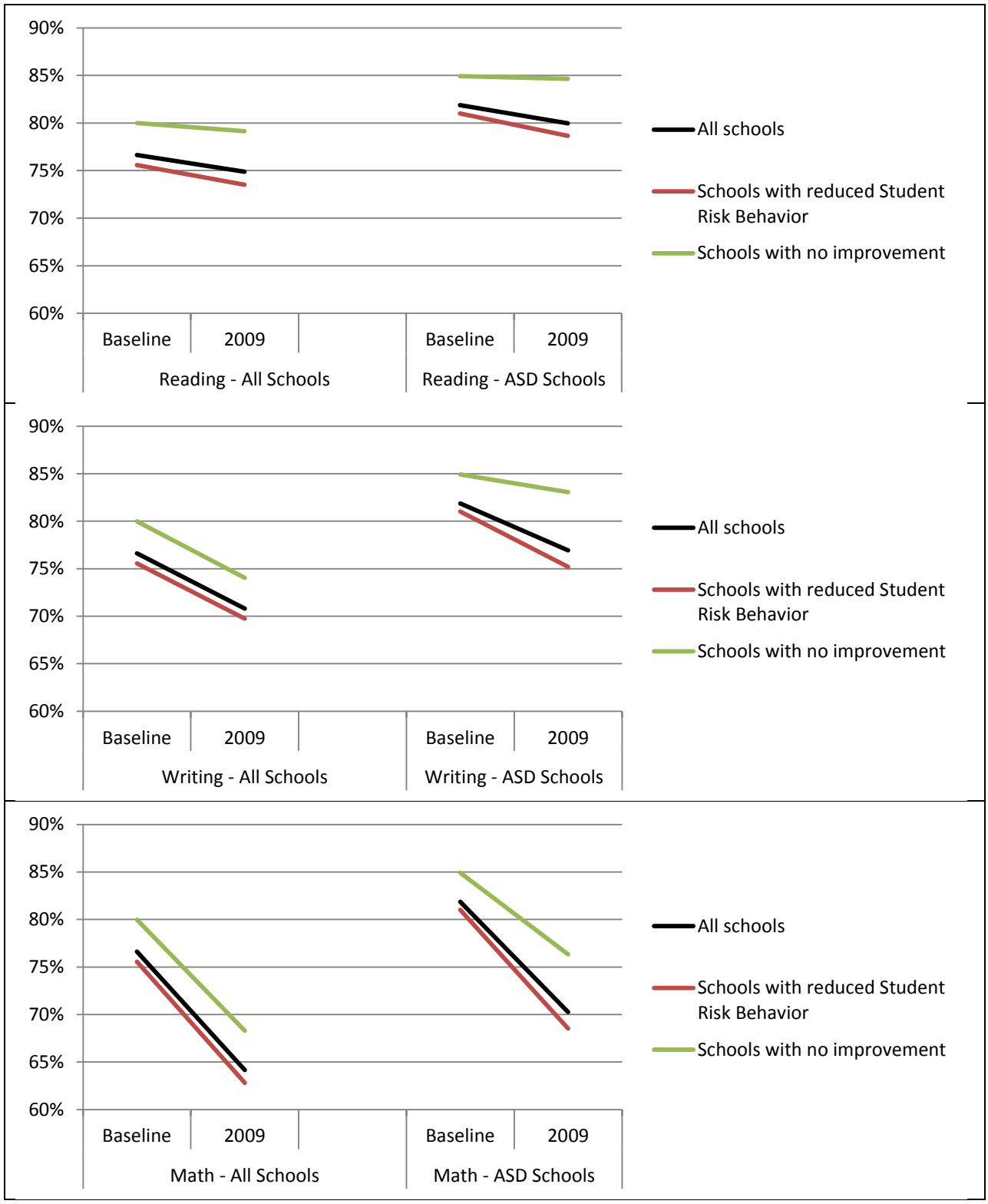
All surveyed schools: Reduced Student Risk Behavior was not related to change in proficiency rates in any of the three subject areas.

ASD schools: Reduced Student Risk Behavior was not related to change in proficiency rates in any of the three subject areas. However, baseline Student Risk Behavior was negatively related to change in proficiency rates in all three subjects: as risk behaviors decreased, proficiency rates increased.

Table 7. Multiple linear regression results of the relationships between reduced **Student Risk Behavior** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Reduced student risk behavior	*-.014*	*.018*	*0.44*	*-.010*	*.016*	*0.55*
Baseline student risk behavior	-.010	.027	0.73	**-.108**	**.027**	**0.00**
Baseline reading proficiency	**-.171**	**.067**	**0.01**	**-.222**	**.109**	**0.04**
Percent free/reduced lunch	**-.174**	**.035**	**<0.01**	**-.147**	**.034**	**<0.01**
Percent nonwhite students	.018	.048	0.70	.076	.068	0.26
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Reduced student risk behavior	*-.004*	*.021*	*0.86*	*-.016*	*.020*	*0.42*
Baseline student risk behavior	-.004	.032	0.91	**-.075**	**.033**	**0.03**
Baseline writing proficiency	**-.223**	**.078**	**0.01**	.004	.136	0.98
Percent free/reduced lunch	-.055	.040	0.17	-.004	.042	0.92
Percent nonwhite students	**-.136**	**.056**	**0.02**	-.037	.084	0.66
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Reduced student risk behavior	*-.016*	*.027*	*0.57*	*-.003*	*.025*	*0.90*
Baseline student risk behavior	.000	.041	0.99	**-.092**	**.041**	**0.03**
Baseline math proficiency	-.130	.101	0.20	.068	.167	0.68
Percent free/reduced lunch	-.005	.052	0.93	**.142**	**.052**	**0.01**
Percent nonwhite students	-.069	.073	0.35	-.141	.104	0.18

Figure 7. Average proficiency rates at baseline and in 2009 for all schools, schools with reduced **Student Risk Behavior**, and schools where **Student Risk Behavior** increased or stayed the same, by subject.



Overall Climate Summary Scale

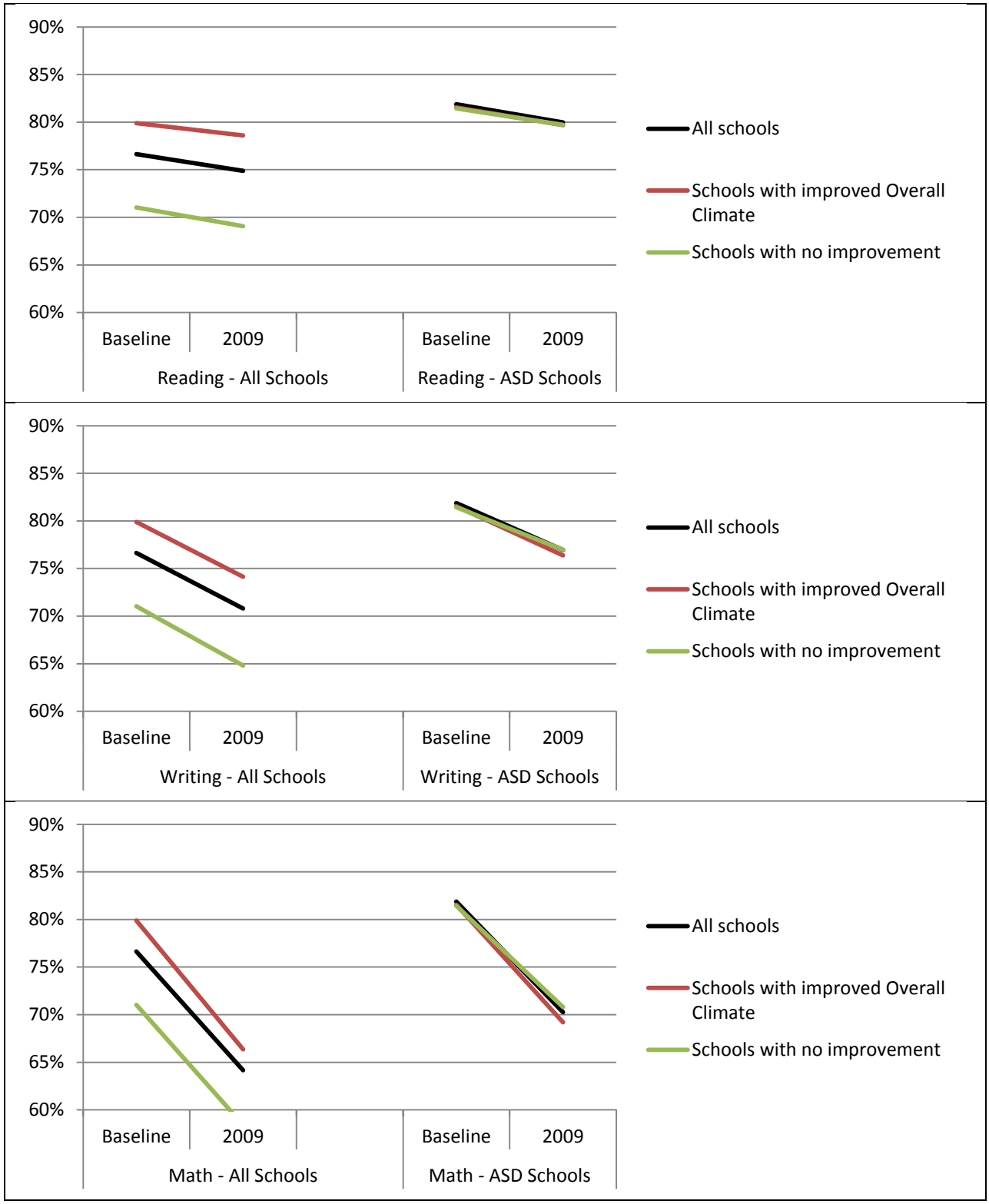
All surveyed schools: Improved Overall Climate was not related to change in proficiency rates in any of the three subject areas.

ASD schools: Improved Overall Climate was not related to change in proficiency rates in any of the three subject areas. Baseline Overall Climate was positively associated with change in proficiency rates in all three subjects.

Table 8. Multiple linear regression results of the relationships between improved **Overall Climate** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Improved Overall Climate	*-.005*	*0.017*	*0.77*	*.006*	*0.016*	*0.73*
Baseline Overall Climate	.037	0.035	0.30	**.161**	**0.030**	**<0.01**
Baseline reading proficiency	.007	0.077	0.93	**-.277**	**0.104**	**0.01**
Percent free/reduced lunch	**-.156**	**0.034**	**<0.01**	**-.172**	**0.032**	**<0.01**
Percent nonwhite students	**.125**	**0.053**	**0.02**	.096	0.064	0.14
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Improved Overall Climate	*-.004*	*0.020*	*0.84*	*.001*	*0.020*	*0.95*
Baseline Overall Climate	.027	0.041	0.52	**.140**	**0.039**	**<0.01**
Baseline writing proficiency	.025	0.090	0.78	-.061	0.132	0.65
Percent free/reduced lunch	-.046	0.040	0.24	-.018	0.041	0.66
Percent nonwhite students	.004	0.063	0.95	-.026	0.082	0.75
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Improved Overall Climate	*-.018*	*0.028*	*0.51*	*-.002*	*0.026*	*0.94*
Baseline Overall Climate	.040	0.056	0.48	**.150**	**0.049**	**<0.01**
Baseline math proficiency	.072	0.123	0.56	-.004	0.166	0.98
Percent free/reduced lunch	.022	0.054	0.68	**.125**	**0.051**	**0.02**
Percent nonwhite students	.011	0.086	0.89	-.122	0.103	0.24

Figure 8. Average proficiency rates at baseline and in 2009 for all schools, schools with improved **Overall Climate**, and schools where Engagement declined or stayed the same, by subject.



Social Emotional Learning

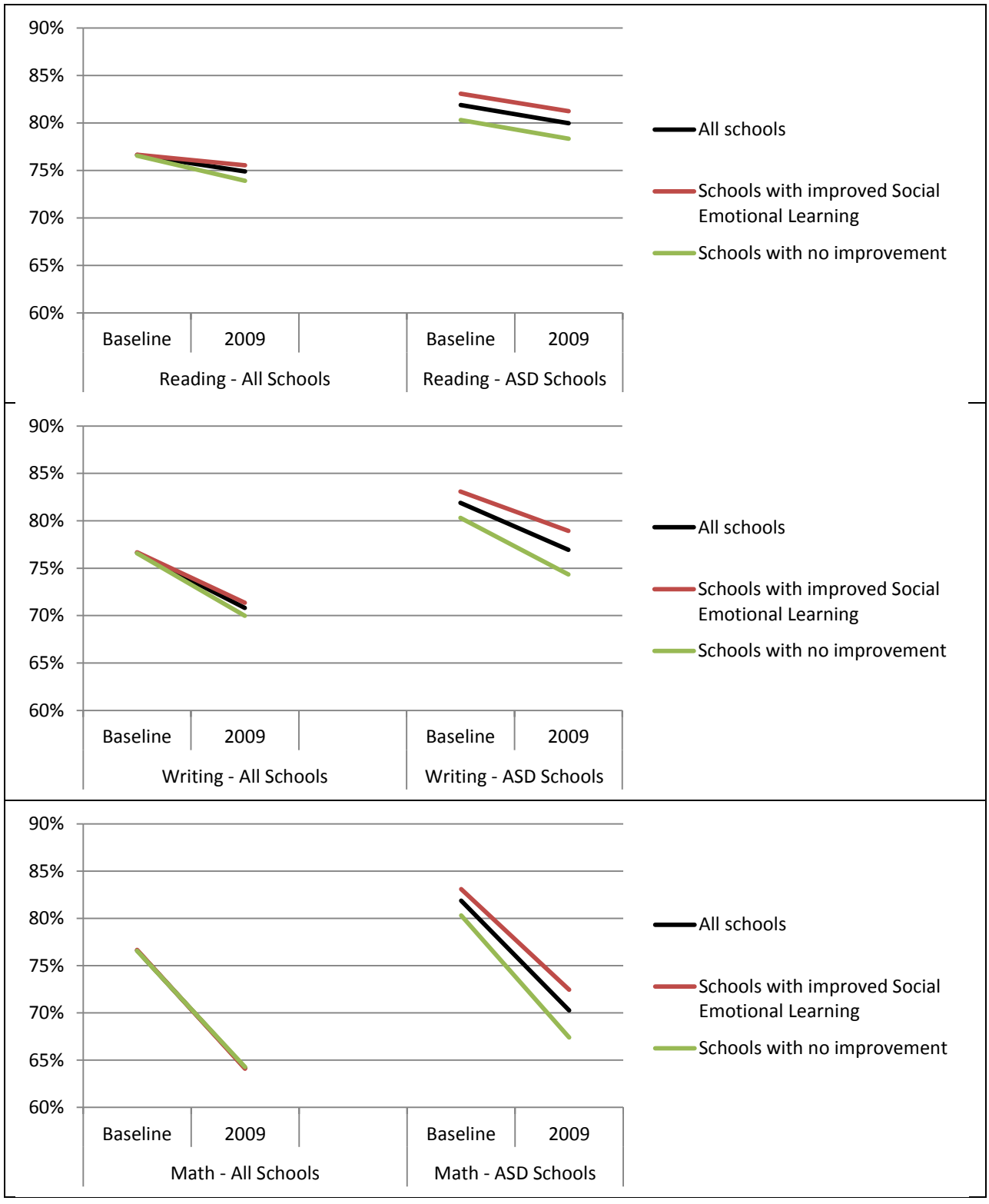
All surveyed schools: Improved Social Emotional Learning Environment was not related to change in proficiency rates in any of the three subject areas. Baseline Social Emotional Learning Environment was positively associated with change in writing and math proficiency.

ASD schools: Improved Social Emotional Learning Environment was not related to change in proficiency rates in any of the three subject areas. Baseline Social Emotional Learning Environment was positively associated with change in proficiency in all three subject areas.

Table 9. Multiple linear regression results of the relationships between improved **Social Emotional Learning** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Improved social emotional learning	*.002*	*0.016*	*0.91*	*.006*	*0.013*	*0.65*
Baseline social emotional learning	.046	0.051	0.37	**.238**	**0.049**	**<0.01**
Baseline reading proficiency	**-.176**	**0.068**	**0.01**	**-.270**	**0.108**	**0.01**
Percent free/reduced lunch	**-.176**	**0.035**	**<0.01**	**-.171**	**0.033**	**<0.01**
Percent nonwhite students	.024	0.049	0.63	.068	0.067	0.31
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Improved social emotional learning	*.029*	*0.018*	*0.11*	*.017*	*0.015*	*0.27*
Baseline social emotional learning	**.176**	**0.058**	**<0.01**	**.265**	**0.058**	**<0.01**
Baseline writing proficiency	**-.236**	**0.076**	**<0.01**	-.058	0.128	0.65
Percent free/reduced lunch	-.066	0.039	0.10	-.028	0.039	0.47
Percent nonwhite students	**-.098**	**0.055**	**0.08**	-.028	0.079	0.72
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Improved social emotional learning	*.016*	*0.024*	*0.50*	*.019*	*0.018*	*0.30*
Baseline social emotional learning	**.220**	**0.075**	**<0.01**	**.343**	**0.070**	**<0.01**
Baseline math proficiency	-.154	0.099	0.12	-.011	0.154	0.94
Percent free/reduced lunch	-.023	0.051	0.65	**.108**	**0.047**	**0.02**
Percent nonwhite students	-.026	0.072	0.72	-.120	0.095	0.21

Figure 9. Average proficiency rates at baseline and in 2009 for all schools, schools with improved **Social Emotional Learning**, and schools where **Social Emotional Learning** declined or stayed the same, by subject.



Staff Survey Results

The next set of results is based on the staff survey.

Leadership and Involvement

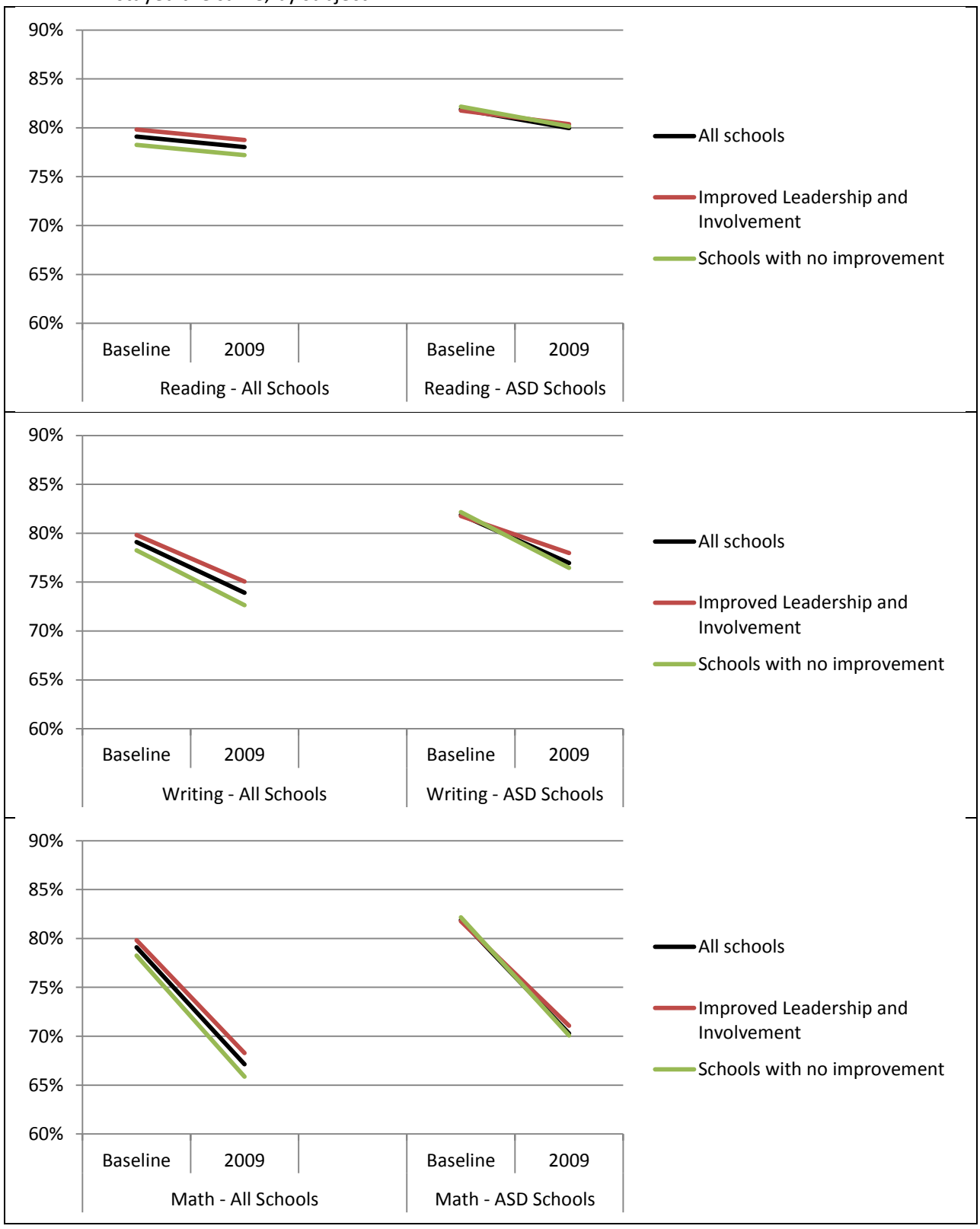
All surveyed schools: Improved Leadership and Involvement was not significantly related to change in proficiency rate in any of the three subject areas. The relationship between baseline Leadership and Involvement and change in proficiency rate approached statistical significance in both reading and writing.

ASD schools: Improved Leadership and Involvement was significantly positively related to change in proficiency rates in reading and writing. Baseline Leadership and Involvement was significantly associated with change in proficiency rates in all three subject areas.

Table 10. Multiple linear regression results of the relationships between improved **Leadership and Involvement** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Improved Leadership and Involvement	*.015*	*.015*	*0.32*	***.025***	***.015***	***0.09***
Baseline Leadership and Involvement	**.034**	**.018**	**0.07**	**.070**	**.021**	**<0.01**
Baseline reading proficiency	**-.247**	**.073**	**<0.01**	-.187	.114	0.10
Percent free/reduced lunch	**-.162**	**.032**	**<0.01**	**-.153**	**.035**	**<0.01**
Percent nonwhite students	.003	.048	0.95	.069	.071	0.33
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Improved Leadership and Involvement	*.013*	*.015*	*0.41*	***.036***	***.017***	***0.03***
Baseline Leadership and Involvement	**.036**	**.019**	**0.06**	.078	.025	**<0.01**
Baseline writing proficiency	**-.199**	**.076**	**0.01**	.038	.133	0.77
Percent free/reduced lunch	-.038	.033	0.25	-.008	.040	0.85
Percent nonwhite students	**-.129**	**.050**	**0.01**	-.031	.082	0.71
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Improved Leadership and Involvement	*.007*	*.022*	*0.75*	*.028*	*.021*	*0.20*
Baseline Leadership and Involvement	.036	.027	0.18	**.068**	**.032**	**0.03**
Baseline math proficiency	-.161	.109	0.14	.105	.169	0.54
Percent free/reduced lunch	.028	.047	0.55	**.138**	**.051**	**0.01**
Percent nonwhite students	**-.142**	**.072**	**0.05**	-.138	.104	0.19

Figure 10. Average proficiency rates at baseline and in 2009 for all schools, schools with improved **Leadership and Involvement**, and schools where **Leadership and Involvement** declined or stayed the same, by subject.



Staff Attitudes

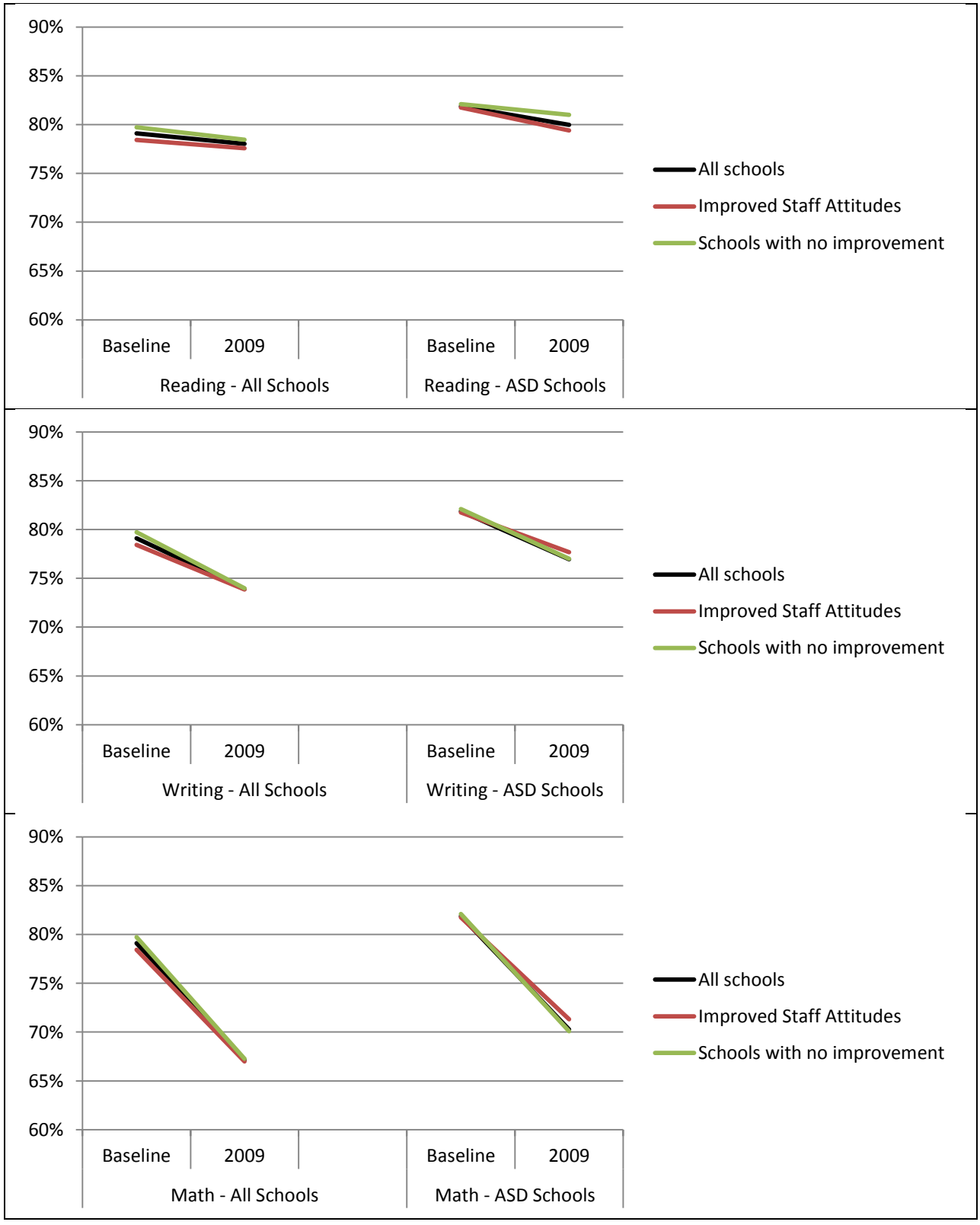
All surveyed schools: Improved Staff Attitudes were not significantly related to change in proficiency rates in any of the three subject areas. Baseline Staff Attitudes was significantly related to change in proficiency rates in all three subject areas.

ASD schools: Improved Staff Attitudes was significantly positively related to change in proficiency rates in writing and math. Baseline Staff Attitudes was significantly associated with change in proficiency rates in all three subject areas.

Table 11. Multiple linear regression results of the relationships between improved **Staff Attitudes** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Improved Staff Attitudes	*.009*	*.015*	*0.54*	*.005*	*.014*	*0.71*
Baseline Staff Attitudes	**.043**	**.024**	**0.08**	**.107**	**.029**	**<0.01**
Baseline reading proficiency	**-.250**	**.074**	**<0.01**	**-.202**	**.111**	**0.07**
Percent free/reduced lunch	**-.164**	**.032**	**<0.01**	**-.158**	**.034**	**<0.01**
Percent nonwhite students	.011	.048	0.82	.084	.069	0.23
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Improved Staff Attitudes	*.017*	*.015*	*0.26*	***.030***	***.016***	***0.07***
Baseline Staff Attitudes	**.053**	**.025**	**0.03**	**.125**	**.033**	**<0.01**
Baseline writing proficiency	**-.202**	**.076**	**0.01**	.017	.130	0.89
Percent free/reduced lunch	-.042	.032	0.19	-.011	.040	0.78
Percent nonwhite students	**-.117**	**.050**	**0.02**	-.016	.081	0.84
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Improved Staff Attitudes	*.016*	*.022*	*0.45*	***.044***	***.019***	***0.03***
Baseline Staff Attitudes	**.075**	**.036**	**0.04**	**.169**	**.040**	**<0.01**
Baseline math proficiency	-.174	.108	0.11	.089	.156	0.57
Percent free/reduced lunch	.021	.046	0.65	**.131**	**.048**	**0.01**
Percent nonwhite students	**-.122**	**.071**	**0.09**	-.098	.097	0.32

Figure 11. Average proficiency rates at baseline and in 2009 for all schools, schools with improved **Staff Attitudes**, and schools where **Staff Attitudes** declined or stayed the same, by subject.



Student Involvement

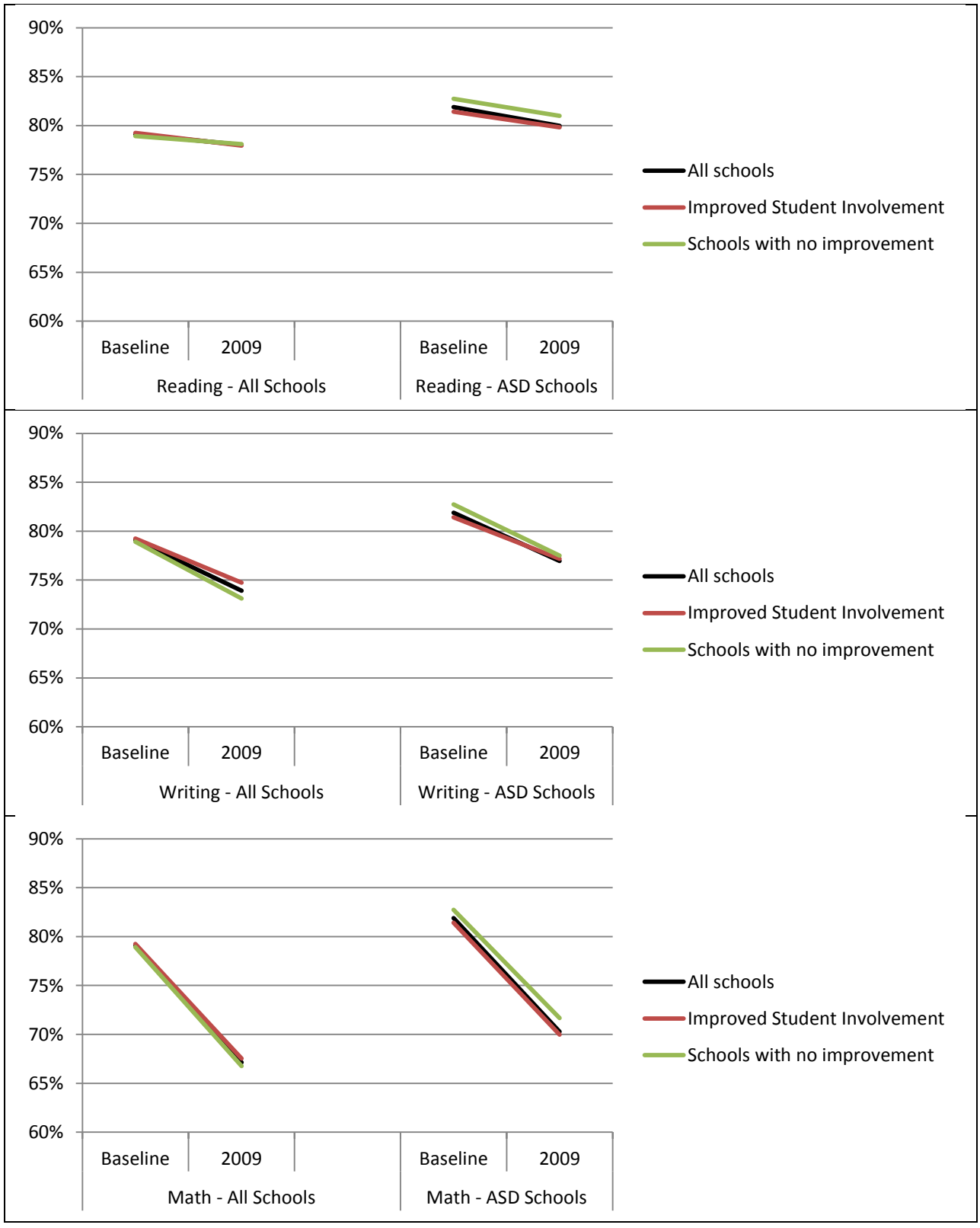
All surveyed schools: Improved Student Involvement was not significantly related to change in proficiency rates in any of the three subject areas. Baseline Student Involvement was significantly related to change in proficiency rates in writing and math.

ASD schools: Improved Student Involvement was not significantly related to change in proficiency rates in writing and math. Baseline Student Involvement was significantly associated with change in proficiency rates in all three subject areas.

Table 12. Multiple linear regression results of the relationships between improved **Student Involvement** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Improved Student Involvement	*.001*	*.015*	*0.95*	*.013*	*.014*	*0.36*
Baseline Student Involvement	.028	.018	0.13	**.076**	**.019**	**<0.01**
Baseline reading proficiency	**-.248**	**.074**	**<0.01**	**-.242**	**.111**	**0.03**
Percent free/reduced lunch	**-.163**	**.032**	**<0.01**	**-.164**	**.034**	**<0.01**
Percent nonwhite students	.006	.049	0.91	.079	.069	0.25
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Improved Student Involvement	*.016*	*.015*	*0.29*	*.023*	*.016*	*0.17*
Baseline Student Involvement	**.039**	**.018**	**0.03**	**.082**	**.023**	**<0.01**
Baseline writing proficiency	**-.198**	**.076**	**0.01**	-.024	.131	0.85
Percent free/reduced lunch	-.040	.032	0.22	-.018	.040	0.66
Percent nonwhite students	-.118	.050	0.02	-.024	.081	0.77
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Improved Student Involvement	*.012*	*.022*	*0.59*	*.013*	*.020*	*0.53*
Baseline Student Involvement	**.053**	**.026**	**0.05**	**.092**	**.028**	**<0.01**
Baseline math proficiency	-.171	.109	0.12	.033	.164	0.84
Percent free/reduced lunch	.024	.046	0.61	**.125**	**.050**	**0.01**
Percent nonwhite students	**-.127**	**.071**	**0.08**	-.122	.101	0.23

Figure 12. Average proficiency rates at baseline and in 2009 for all schools, schools with improved **Student Involvement**, and schools where **Student Involvement** declined or stayed the same, by subject.



Respectful Climate

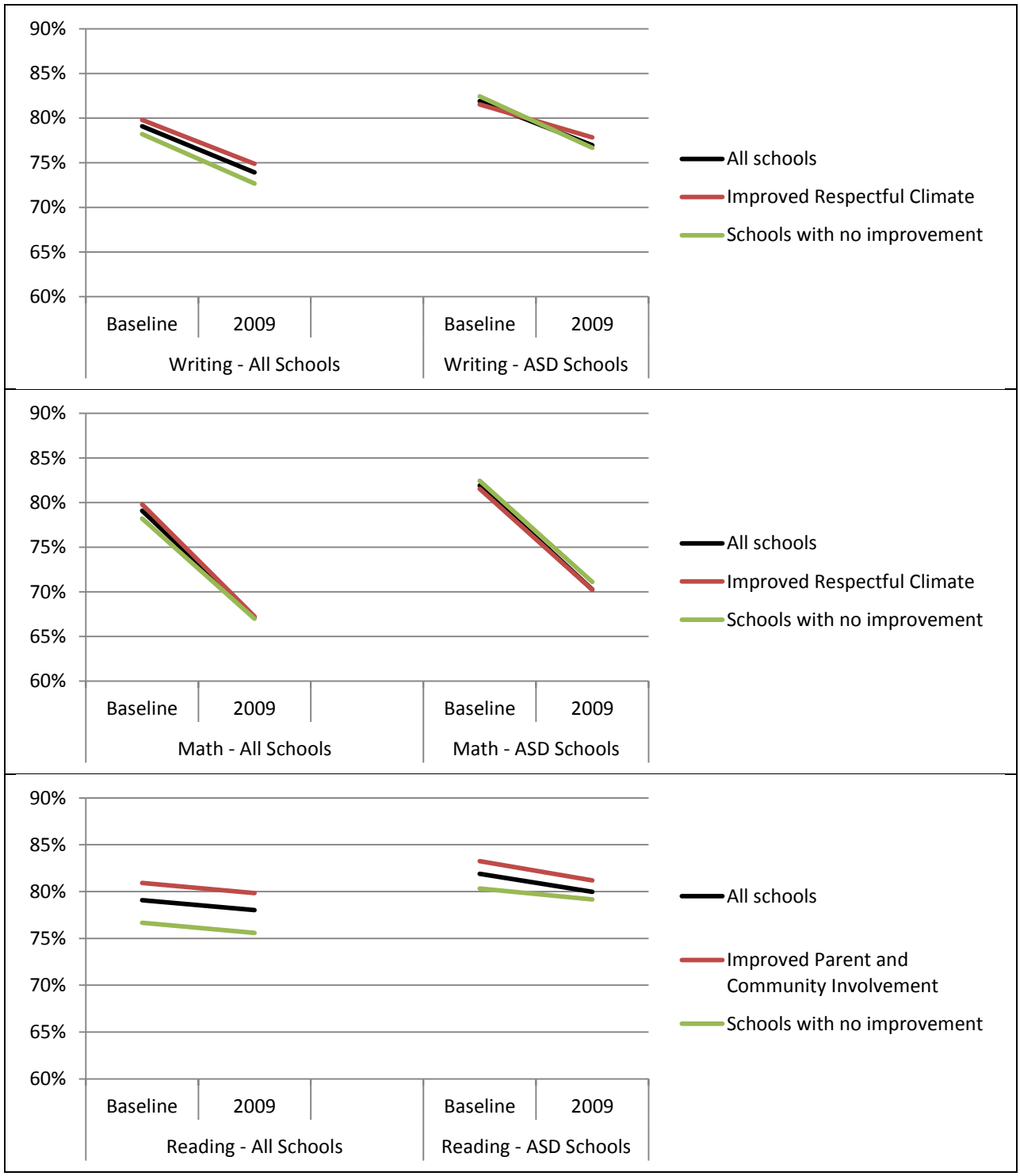
All surveyed schools: Improved Respectful Climate was not significantly related to change in proficiency rates in any of the three subject areas. Baseline Student Involvement also was not significantly related to change in proficiency rates.

ASD schools: Improved Student Involvement was significantly related to change in proficiency rates in reading and writing. Baseline Student Involvement was significantly associated with change in proficiency rates in all three subject areas.

Table 13. Multiple linear regression results of the relationships between improved **Respectful Climate** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Improved Respectful Climate	*.014*	*.015*	*0.33*	***.027***	***.013***	***0.05***
Baseline Respectful Climate	.023	.021	0.27	.117	.026	**<0.01**
Baseline reading proficiency	**-.257**	**.076**	**<0.01**	**-.304**	**.110**	**0.01**
Percent free/reduced lunch	**-.161**	**.032**	**<0.01**	**-.133**	**.033**	**<0.01**
Percent nonwhite students	.004	.048	0.94	.058	.066	0.39
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Improved Respectful Climate	*.016*	*.015*	*0.31*	***.040***	***.016***	***0.01***
Baseline Respectful Climate	**.040**	**.021**	**0.06**	**.120**	**.031**	**<0.01**
Baseline writing proficiency	**-.222**	**.078**	**0.01**	-.084	.132	0.52
Percent free/reduced lunch	-.038	.033	0.25	.015	.039	0.70
Percent nonwhite students	**-.124**	**.050**	**0.01**	-.049	.079	0.54
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Improved Respectful Climate	*-.006*	*.022*	*0.79*	*.025*	*.020*	*0.21*
Baseline Respectful Climate	.048	.031	0.12	**.138**	**.038**	**<0.01**
Baseline math proficiency	-.182	.112	0.11	-.039	.165	0.81
Percent free/reduced lunch	.032	.047	0.50	**.161**	**.049**	**<0.01**
Percent nonwhite students	**-.132**	**.071**	**0.07**	-.149	.099	0.13

Figure 13. Average proficiency rates at baseline and in 2009 for all schools, schools with improved **Respectful Climate**, and schools where **Respectful Climate** declined or stayed the same, by subject.



School Safety

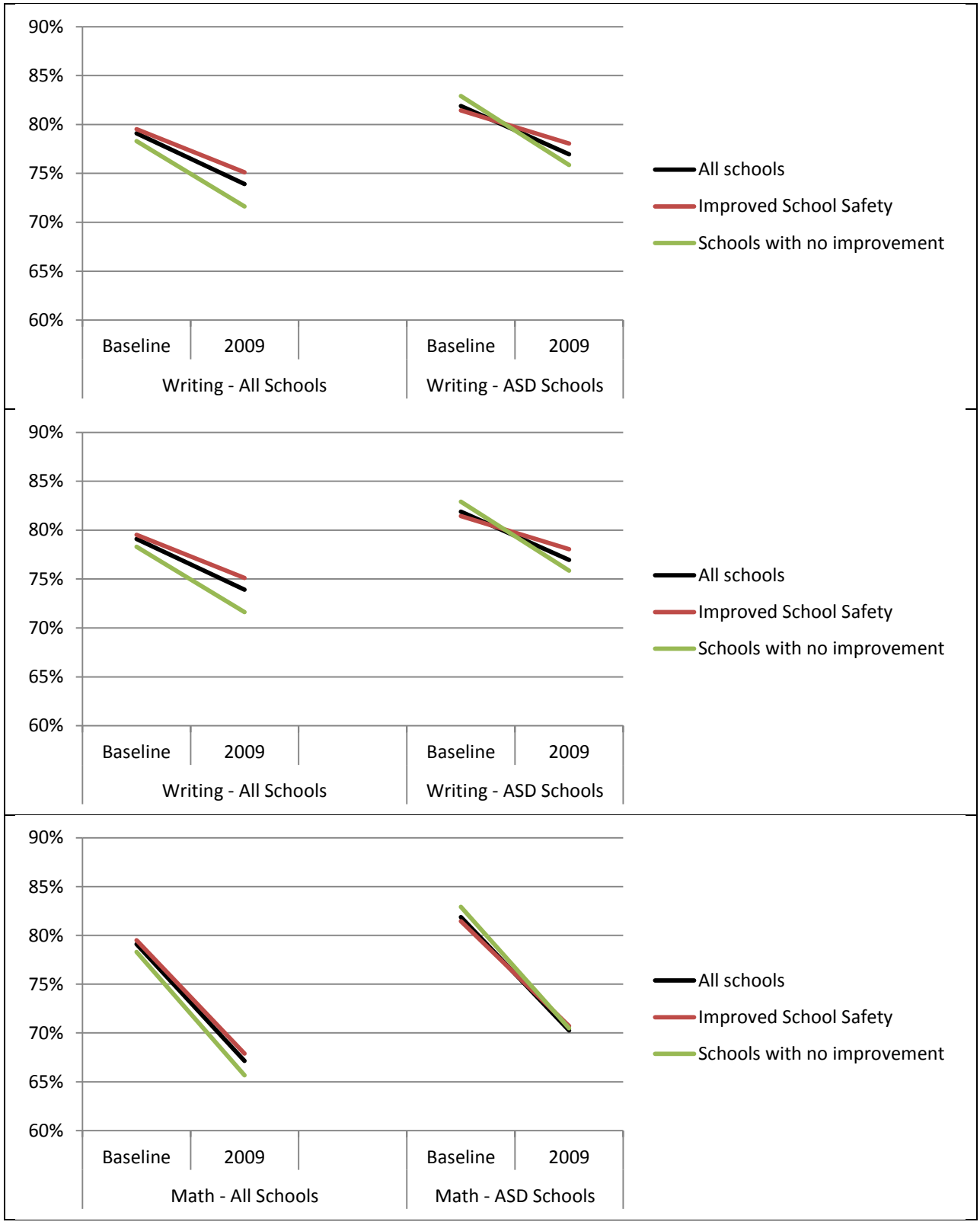
All surveyed schools: Improved School Safety was significantly related to change in proficiency rates in reading and writing. Baseline School Safety was significantly related to change in proficiency rates in writing and math.

ASD schools: Improved School Safety was significantly related to change in proficiency rates in all three subject areas. Baseline School Safety also was significantly related to change in proficiency rates in the three areas.

Table 14. Multiple linear regression results of the relationships between improved **School Safety** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Improved School Safety	***.042***	***.015***	***0.01***	***.046***	***.014***	**<0.01**
Baseline School Safety	**.048**	**.019**	**0.01**	**.108**	**.025**	**<0.01**
Baseline reading proficiency	**-.290**	**.074**	**<0.01**	**-.340**	**.114**	**<0.01**
Percent free/reduced lunch	**-.154**	**.031**	**<0.01**	**-.148**	**.033**	**<0.01**
Percent nonwhite students	.007	.047	0.88	**.133**	**.069**	**0.06**
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Improved School Safety	***.034***	***.016***	***0.03***	***.061***	***.016***	**<0.01**
Baseline School Safety	**.057**	**.019**	**<0.01**	**.123**	**.029**	**<0.01**
Baseline writing proficiency	-.250	.077	**<0.01**	-.141	.132	0.29
Percent free/reduced lunch	-.031	.032	0.33	.002	.038	0.97
Percent nonwhite students	**-.124**	**.048**	**0.01**	.038	.080	0.64
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Improved School Safety	***.036***	***.022***	***0.10***	***.059***	***.021***	***0.01***
Baseline School Safety	.100	.027	**<0.01**	**.144**	**.036**	**<0.01**
Baseline math proficiency	**-.262**	**.108**	**0.02**	-.103	.166	0.54
Percent free/reduced lunch	.038	.045	0.39	**.144**	**.048**	**<0.01**
Percent nonwhite students	**-.128**	**.068**	**0.06**	-.045	.101	0.65

Figure 14. Average proficiency rates at baseline and in 2009 for all schools, schools with improved **School Safety**, and schools where **School Safety** declined or stayed the same, by subject.



Parent and Community Involvement

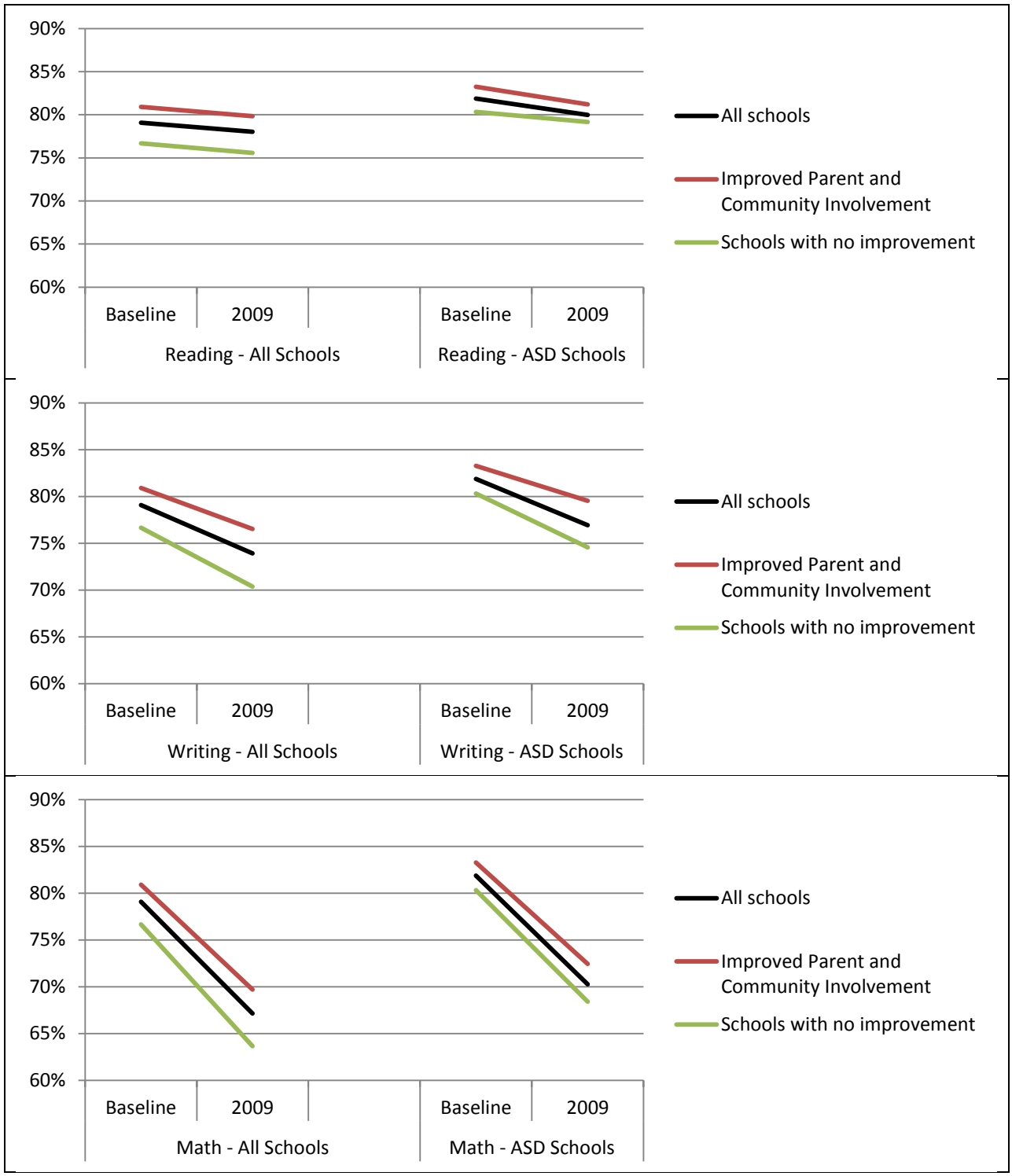
All surveyed schools: Improved Parent and Community Involvement was related to change in proficiency rates in writing and math. Baseline Student Involvement also was significantly related to change in proficiency rates in writing and math.

ASD schools: Improved Parent and Community Involvement was related to change in proficiency rates in writing and math. Baseline Student Involvement also was significantly related to change in proficiency rates in writing and math.

Table 15. Multiple linear regression results of the relationships between improved **Parent and Community Involvement** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Improved Parent and Community Involvement	*.018*	*.015*	*0.23*	*.022*	*.014*	*0.10*
Baseline Parent and Community Involvement	.033	.021	0.11	.121	.027	**<0.01**
Baseline reading proficiency	-.271	.077	**<0.01**	**-.292**	**.111**	**0.01**
Percent free/reduced lunch	-.162	.032	**<0.01**	**-.156**	**.033**	**<0.01**
Percent nonwhite students	.011	.049	0.83	**.131**	**.069**	**0.06**
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Improved Parent and Community Involvement	***.040***	***.015***	***0.01***	***.040***	***.016***	***0.01***
Baseline Parent and Community Involvement	**.068**	**.021**	**<0.01**	**.138**	**.032**	**<0.01**
Baseline writing proficiency	**-.265**	**.076**	**<0.01**	-.103	.129	0.43
Percent free/reduced lunch	-.040	.031	0.21	-.012	.039	0.75
Percent nonwhite students	**-.109**	**.049**	**0.03**	.033	.081	0.68
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Improved Parent and Community Involvement	***.049***	***.021***	***0.02***	***.033***	***.019***	***0.08***
Baseline Parent and Community Involvement	**.115**	**.029**	**<0.01**	**.191**	**.038**	**<0.01**
Baseline math proficiency	**-.266**	**.107**	**0.01**	-.058	.155	0.71
Percent free/reduced lunch	.026	.044	0.55	**.133**	**.046**	**0.01**
Percent nonwhite students	-.097	.069	0.16	-.026	.097	0.79

Figure 15. Average proficiency rates at baseline and in 2009 for all schools, schools with improved **Parent and Community Involvement**, and schools where **Parent and Community Involvement** declined or stayed the same, by subject.



Student Risk Behavior

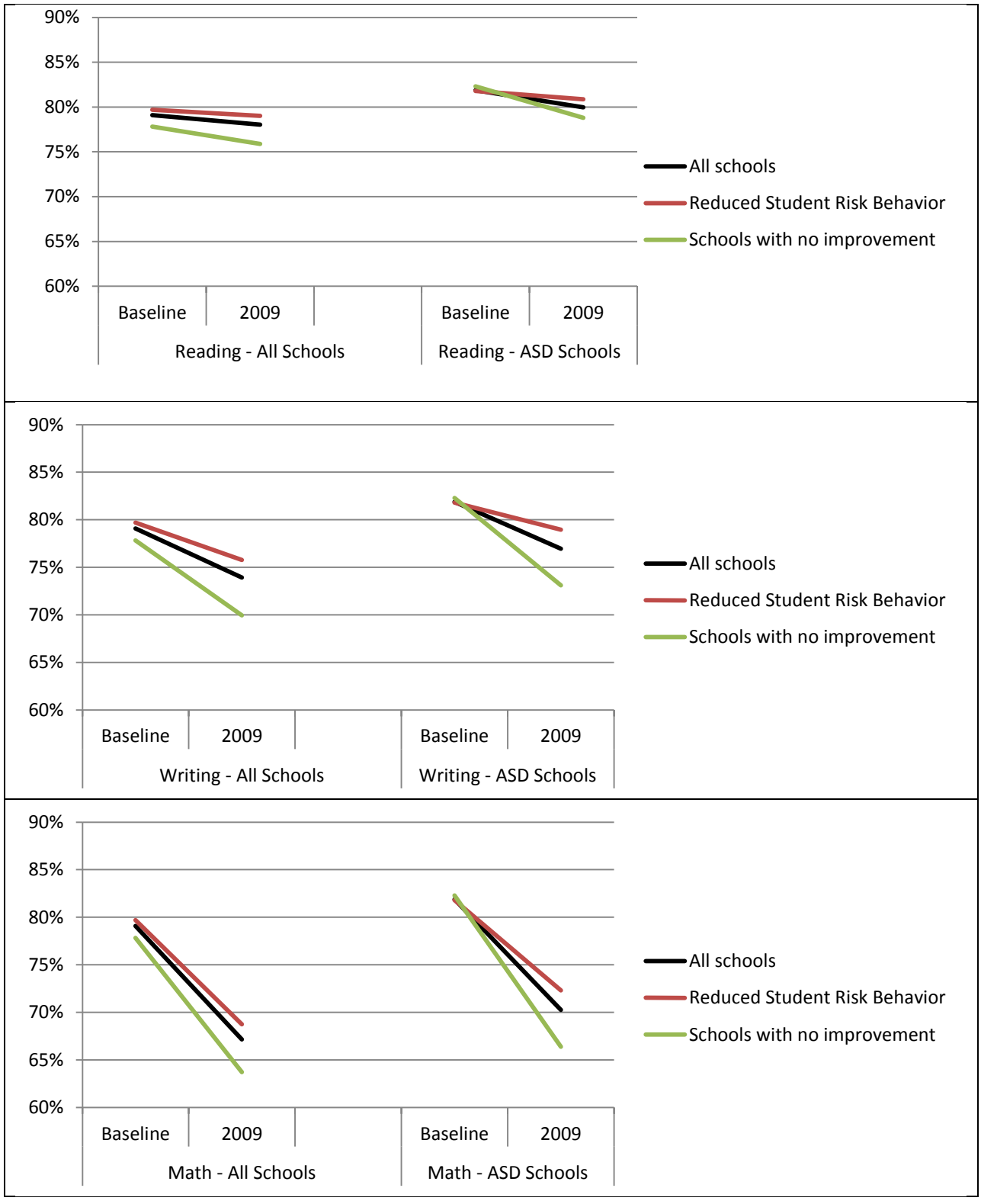
All surveyed schools: Reduced Student Risk Behavior was significantly associated with change in proficiency rate in reading and writing, and approached significance in relation to change in proficiency rate in math. Baseline Student Risk Behavior showed a similar pattern. There was a significant inverse association between baseline student risk behavior and change in proficiency rates in reading and math and a borderline significant association with change in math proficiency: the higher the baseline student risk behavior, the smaller the improvement in proficiency. (To clarify the measurement of risk behavior, baseline student risk behavior is scored continuously with higher scores indicating a higher level of risk behavior. *Reduced student risk behavior* is a dichotomous variable coded '1' if risk behavior decreased from baseline to 2009—an improvement over time). Therefore the direction of the effects shown here is what was expected.

ASD schools: In ASD schools, reduced Student Risk Behavior was significantly associated with change in proficiency in all three subject areas. Baseline Student Risk Behavior showed the same pattern.

Table 16. Multiple linear regression results of the relationships between reduced **Student Risk Behavior** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Reduced Student Risk Behavior	***.038***	***.015***	***0.01***	***.051***	***.014***	**<0.01**
Baseline Student Risk Behavior	**-.069**	**.020**	**<0.01**	**-.106**	**.023**	**<0.01**
Baseline reading proficiency	**-.313**	**.074**	**<0.01**	**-.384**	**.114**	**<0.01**
Percent free/reduced lunch	**-.143**	**.031**	**<0.01**	**-.083**	**.036**	**0.02**
Percent nonwhite students	-.001	.046	0.98	-.006	.066	0.93
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Reduced Student Risk Behavior	***.053***	***.015***	**<0.01**	***.079***	***.017***	**<0.01**
Baseline Student Risk Behavior	**-.066**	**.020**	**<0.01**	**-.087**	**.027**	**<0.01**
Baseline writing proficiency	**-.260**	**.075**	**<0.01**	-.117	.134	0.39
Percent free/reduced lunch	-.026	.032	0.42	.046	.042	0.28
Percent nonwhite students	**-.128**	**.047**	**0.01**	-.094	.077	0.23
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Reduced Student Risk Behavior	***.042***	***.023***	***0.07***	***.077***	***.022***	**<0.01**
Baseline Student Risk Behavior	**-.054**	**.031**	**0.08**	**-.070**	**.035**	**0.05**
Baseline math proficiency	**-.206**	**.113**	**0.07**	-.009	.174	0.96
Percent free/reduced lunch	.037	.048	0.44	**.177**	**.055**	**<0.01**
Percent nonwhite students	**-.140**	**.070**	**0.05**	**-.183**	**.101**	**0.07**

Figure 16. Average proficiency rates at baseline and in 2009 for all schools, schools with reduced **Student Risk Behavior**, and schools where **Student Risk Behavior** increased or stayed the same, by subject.



Student Drug and Alcohol Use

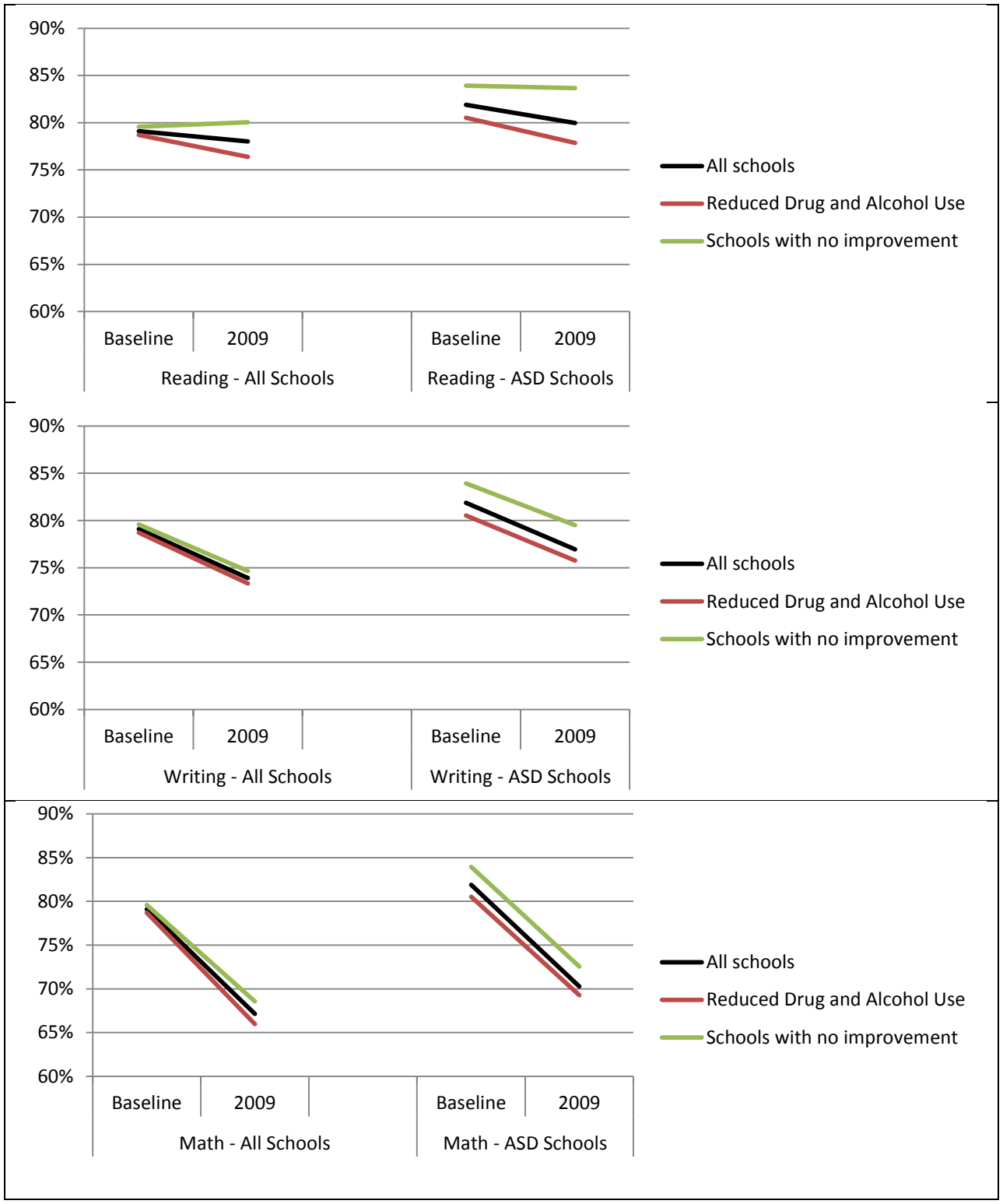
All surveyed schools: Reduced Student Drug and Alcohol Use was not significantly related to change in proficiency rates in any of the three subject areas. Baseline Student Drug and Alcohol Use was significantly inversely related to change in proficiency rates in the three subject areas; the higher the baseline levels of Student Drug and Alcohol Use, the smaller the improvement in proficiency rates in the subject areas.

ASD schools: Reduced Student Drug and Alcohol Use was not significantly related to change in proficiency rates. Baseline Student Drug and Alcohol Use was significantly inversely related to change in proficiency rates in the three subject areas.

Table 17. Multiple linear regression results of the relationships between reduced **Student Drug and Alcohol Use** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Reduced Student Drug and Alcohol Use	*-.003*	*.013*	*0.82*	*-.009*	*.014*	*0.49*
Baseline Student Drug and Alcohol Use	**-.116**	**.024**	**<0.01**	**-.152**	**.040**	**<0.01**
Baseline reading proficiency	**-.305**	**.069**	**<0.01**	**-.296**	**.113**	**0.01**
Percent free/reduced lunch	**-.196**	**.030**	**<0.01**	**-.220**	**.039**	**<0.01**
Percent nonwhite students	.023	.045	0.60	.067	.068	0.33
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Reduced Student Drug and Alcohol Use	*.021*	*.014*	*0.13*	*.018*	*.016*	*0.25*
Baseline Student Drug and Alcohol Use	**-.135**	**.025**	**<0.01**	**-.194**	**.047**	**<0.01**
Baseline writing proficiency	**-.271**	**.070**	**<0.01**	-.098	.131	0.46
Percent free/reduced lunch	**-.083**	**.031**	**0.01**	**-.101**	**.045**	**0.03**
Percent nonwhite students	**-.108**	**.045**	**0.02**	-.039	.079	0.62
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Reduced Student Drug and Alcohol Use	*.016*	*.018*	*0.40*	*.027*	*.018*	*0.13*
Baseline Student Drug and Alcohol Use	**-.228**	**.033**	**<0.01**	**-.314**	**.053**	**<0.01**
Baseline math proficiency	**-.291**	**.095**	**<0.01**	-.101	.148	0.50
Percent free/reduced lunch	-.046	.042	0.27	-.015	.051	0.77
Percent nonwhite students	-.098	.061	0.11	-.121	.089	0.18

Figure 17. Average proficiency rates at baseline and in 2009 for all schools, schools with reduced **Student Drug and Alcohol Use**, and schools where **Student Drug and Alcohol Use** increased or stayed the same, by subject.



Improved Overall Climate

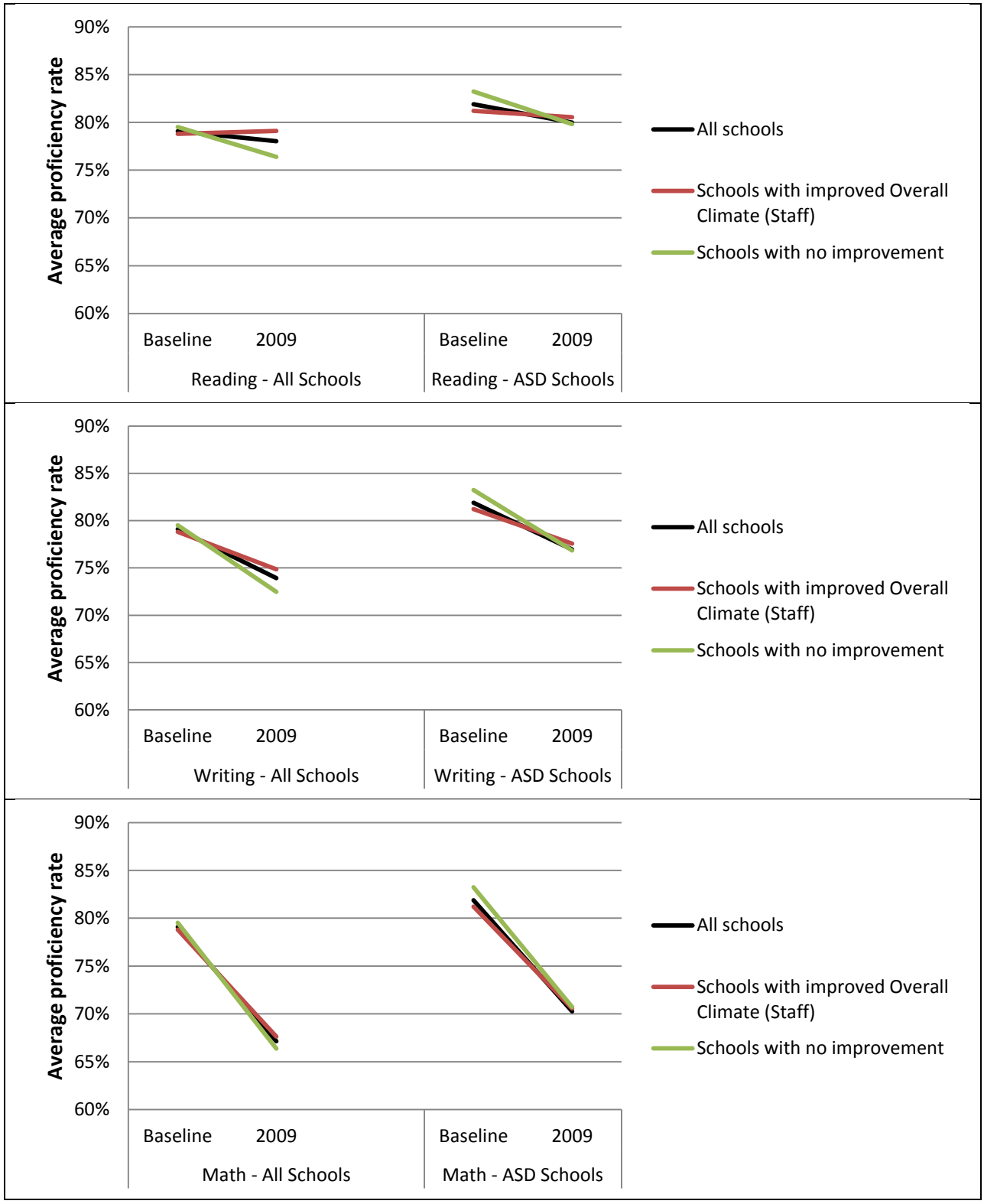
All surveyed schools: Improved Overall Climate was significantly associated with change in proficiency rates in reading and writing. Baseline Overall Climate was significantly related to change in proficiency rates in all three subjects.

ASD schools: Improved Overall Climate was significantly associated with change in proficiency rates in all three subjects. Baseline Overall Climate also was significantly related to change in proficiency rates in the three subjects.

Table 18. Multiple linear regression results of the relationships between improved **Overall Climate** and changes in proficiency rates from baseline to 2009, by subject for all surveyed schools and ASD schools.

	All Surveyed Schools			ASD Schools		
READING	B	S.E.	p value	B	S.E.	p value
Improved Overall Climate	***.043***	***.014***	**<0.01**	***.034***	***.013***	***0.01***
Baseline Overall Climate	**.080**	**.025**	**<0.01**	**.156**	**.028**	**<0.01**
Baseline reading proficiency	**-.274**	**.072**	**<0.01**	**-.304**	**.104**	**<0.01**
Percent free/reduced lunch	**-.160**	**.030**	**<0.01**	**-.139**	**.031**	**<0.01**
Percent nonwhite students	.024	.046	0.60	.079	.063	0.21
	All Surveyed Schools			ASD Schools		
WRITING	B	S.E.	p value	B	S.E.	p value
Improved Overall Climate	***.039***	***.015***	***0.01***	***.043***	***.016***	***0.01***
Baseline Overall Climate	**.096**	**.026**	**<0.01**	**.154**	**.034**	**<0.01**
Baseline writing proficiency	**-.237**	**.074**	**<0.01**	-.083	.127	0.52
Percent free/reduced lunch	-.037	.031	0.23	.011	.038	0.77
Percent nonwhite students	**-.106**	**.047**	**0.03**	-.031	.077	0.69
	All Surveyed Schools			ASD Schools		
MATH	B	S.E.	p value	B	S.E.	p value
Improved Overall Climate	*.033*	*.021*	*0.12*	***.048***	***.020***	***0.02***
Baseline Overall Climate	**.130**	**.037**	**<0.01**	**.183**	**.042**	**<0.01**
Baseline math proficiency	**-.226**	**.107**	**0.04**	-.032	.158	0.84
Percent free/reduced lunch	.029	.045	0.52	**.158**	**.047**	**<0.01**
Percent nonwhite students	-.112	.069	0.11	-.124	.095	0.20

Figure 18. Average proficiency rates at baseline and in 2009 for all schools, schools with improved **Overall Climate**, and schools where **Overall Climate** declined or stayed the same, by subject.



Conclusions

This report examined how school climate and student achievement changed over the past four years in Alaska, and investigated their relationship. Achievement in reading, writing, and math declined from baseline (2006/2007) to 2009, most severely in math achievement. At the same time, on average, school climate improved as rated by both students and staff. We investigated whether changes in student achievement over time were different in schools that saw improvement in climate compared to schools that saw no change or a decline in school climate.

We found significant associations between aspects of school climate and changes in achievement over the four years. Based on the student survey results, improvement in School Safety was significantly associated with more positive change in achievement in the full sample of Alaska schools. In ASD schools, improvement in two climate scales, School Engagement and School Safety, was significantly related to achievement in one or more of the three subject areas.

Based on staff reports of school climate, we found that improved School Safety, improved Parent and Community Involvement, and reduced Student Risk Behavior were significantly associated with change in achievement in at least one subject in the full sample of Alaska schools. The summary measure of Overall School Climate also was significantly associated with change in achievement proficiency rates in the sample of Alaska schools. In ASD schools, improved School Safety, improved Parent and Community Involvement, and reduced Student Risk Behavior, as well as improved Leadership and Involvement, Staff Attitudes, and Respectful Climate all were significantly associated with change in achievement.

The findings based on staff reports were generally stronger; that is, more of the climate scales showed significant relationships with proficiency rates. There was consistency between the student and survey reports with regard to School Safety. The results for Student Risk Behavior were not consistent between student and staff surveys. This may be related to the fact that students generally reported higher rates of drug and alcohol use than staff did (although rates of delinquent behavior were very similar).

Improving school climate alone has not prevented the unfortunate downward trend in achievement rates. Because a supportive, challenging school climate is necessary but not sufficient to promote achievement, more must be done to improve test scores. We did observe that schools with improving climate experienced less of a decrease in proficiency compared to schools where climate stayed the same or declined. This general pattern was observed across many of the school climate scales: the achievement trend lines for schools with no improvement sloped downward more steeply compared to the trend lines for schools showing improvement. Although we cannot infer a causal link between school climate and achievement based on these results, the findings do suggest that improving school climate may mitigate other factors contributing to declining achievement.