



School Climate and Student Achievement Outcomes*

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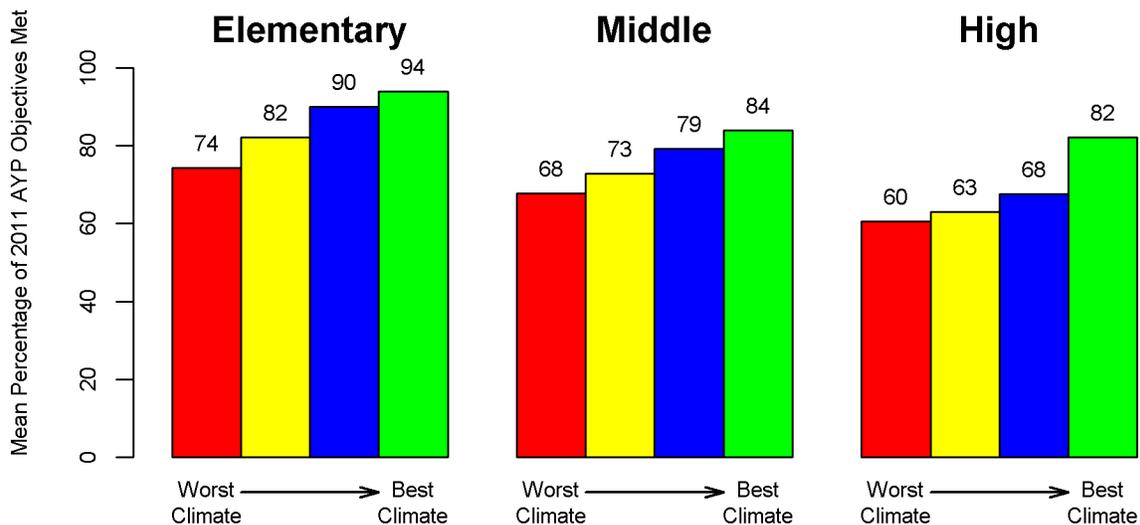
How Is School Climate Related to Student Achievement Outcomes?

Schools with better school climate are associated with better student achievement outcomes as reported on school report cards.

Based on the report card surveys of students, teachers, and parents, we created factor scores which measure school climate characteristics for each school. Then, we grouped the schools within each organizational level (elementary, middle, high) into four school climate clusters from worst climate to best climate.

Federal No Child Left Behind Reporting Standards for Adequate Yearly Progress

On average, schools in better school climate clusters meet a greater percentage of Adequate Yearly Progress objectives.

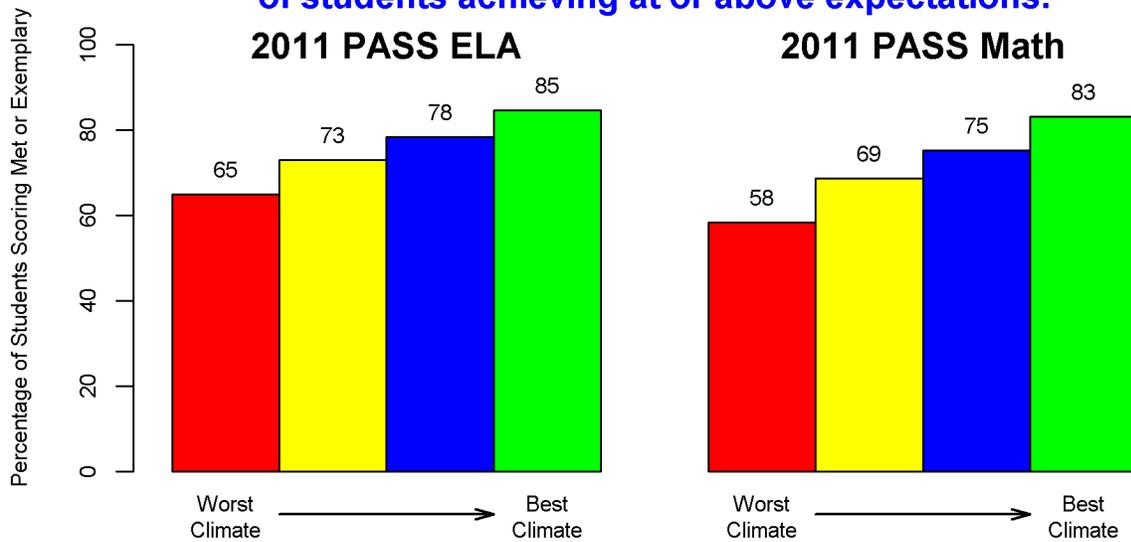


Clusters Based on 2011 School Climate Factors

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Elementary Schools

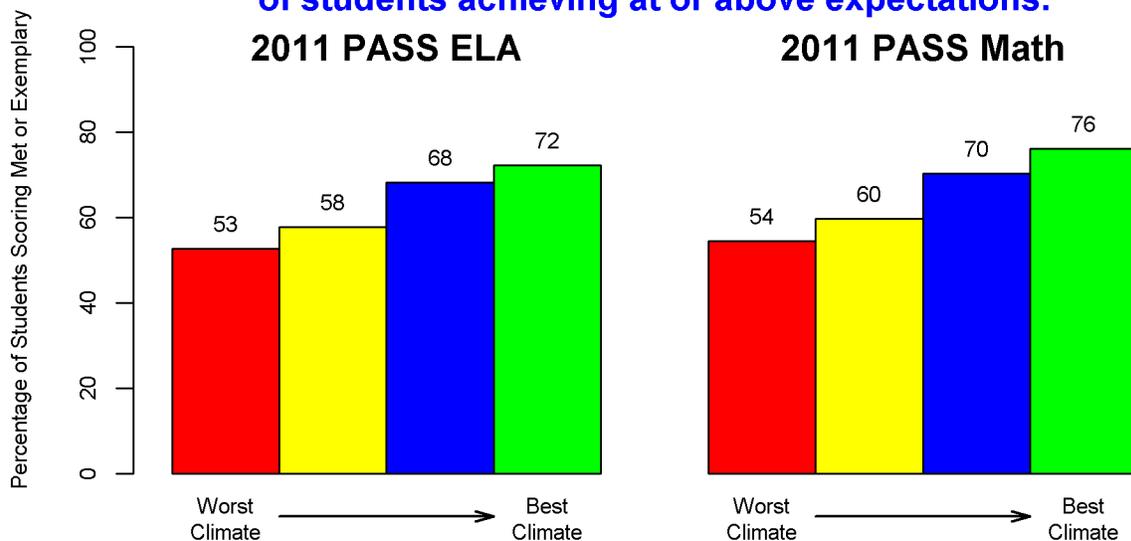
On average, elementary schools in clusters with better school climate have a greater percentage of students achieving at or above expectations.



Clusters Based on 2011 School Climate Factors

Middle Schools

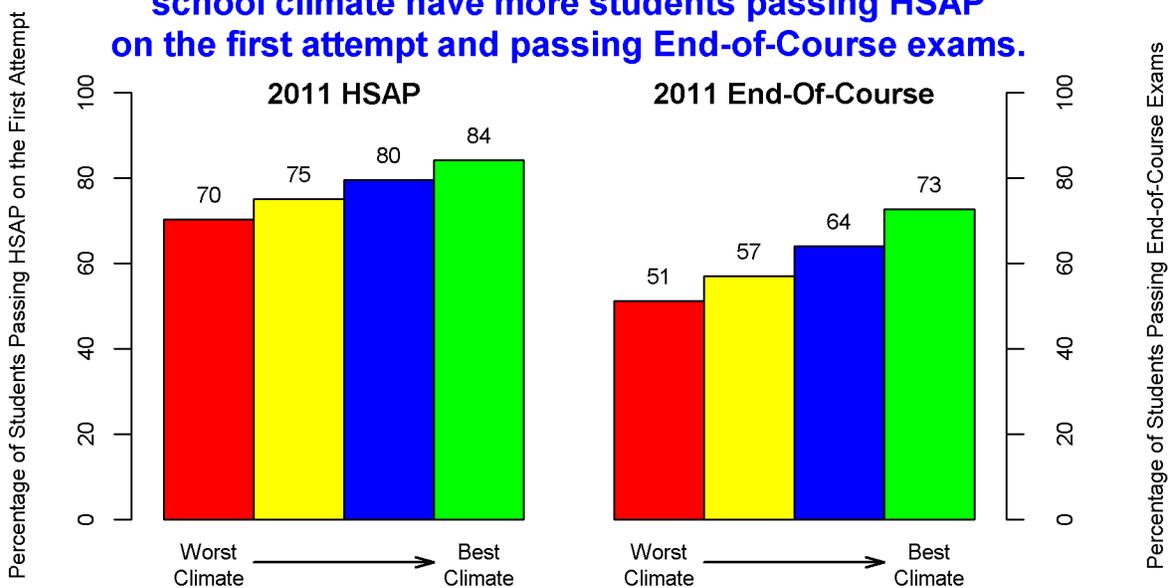
On average, middle schools in clusters with better school climate have a greater percentage of students achieving at or above expectations.



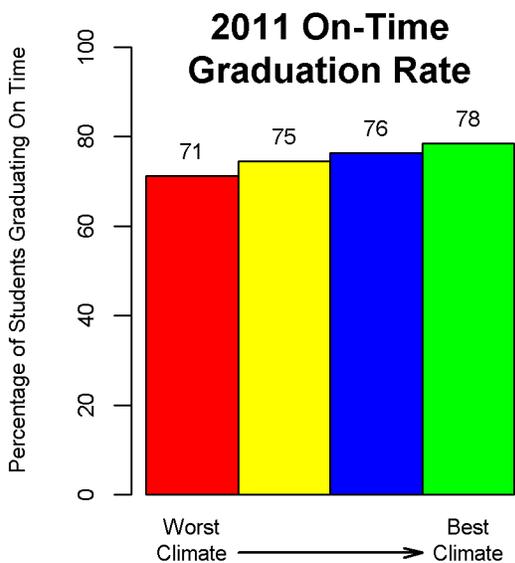
Clusters Based on 2011 School Climate Factors

High Schools

On average, high schools in clusters with better school climate have more students passing HSAP on the first attempt and passing End-of-Course exams.



Clusters Based on 2011 School Climate Factors



Clusters Based on 2011 School Climate Factors

On average, high schools in clusters with better school climate have more students graduating on time.

Appendix A Data Notes

We clustered schools within organizational level using their teacher and student mean factor scores. For example, we clustered elementary schools only among other elementary schools, not among middle schools or high schools. The number of schools in each cluster by organizational level are:

School Org Level	Total No. of Schools	2011 Climate Cluster			
		Worst	Poor	Good	Best
Elementary	597	51	148	247	151
Middle	270	12	61	115	82
High	197	37	58	64	38

Appendix B Background/Timeline of Research Program into School Climate

2006-2007 The EOC designated 32 elementary schools as gap-closing schools for four consecutive years. We analyzed the 2005 school climate surveys for teachers, students, and parents for these schools by identifying school climate factors and computing mean climate factor scores.

- Gap-closing elementary schools displayed better key climate indicators than other elementary schools, particularly in the area of home-school relationship for teachers.
- Students in gap-closing schools were more satisfied with the social-physical environment than students in the other schools.
- Parents in gap-closing schools tended to be more active in the schools as volunteers and rated the schools as higher for their efforts to engage parents.

We used factor scores to create clusters of elementary schools that varied by school climate, ranging from worst climate to best climate.

2007-2008 Using the 2006 teacher, student, and parent survey data, we computed mean climate factor scores for each school. Based on these scores, we clustered schools within each organizational level (elementary, middle, high). The 2006 factors and clustering results showed similarities to the 2005 results in the school climate factors identified. Analysis revealed six teacher climate factors, four student climate factors, and four parent climate factors.

Furthermore, we employed correlations and regression analyses to investigate the relationship between school cluster membership and outcomes, such as student test scores, growth in achievement, and attainment of No Child Left Behind student progress goals. Moderate relationships between the school climate factors and achievement outcomes existed even after accounting for poverty. Schools with the worst climate showed the poorest achievement outcomes; schools with better climate had progressively increasing achievement outcomes.

2008-2009 To validate 2006 survey results, we conducted factor analytic procedures and cluster analysis with the 2007 school climate surveys, and we estimated the reliability of each of the teacher, student, and parent factors. The 2007 results replicated the 2006 survey findings, providing support to validate the existence of the underlying constructs. We also conducted t-tests to analyze the differences between groups of schools identified with most positive school climate and least positive school climate. Comparisons between the most positive climate cluster and the least positive climate cluster revealed that differences were significant ($p < .0001$). In addition, we investigated the relationship between teacher retention and school climate factors. A positive, moderate relationship existed between teacher retention and a number of school climate factors. Using mean factor scores for 2006 and 2007 survey data, we created longitudinal charts and school climate profiles for the Palmetto Priority Schools. The school climate profiles provided an initial way to summarize school-level climate data for school improvement planning.

2009-2010 We included data from the 2008 and 2009 school climate surveys in the analysis and developed 4-year school climate profiles (2006-2009) focused on low-performing schools.

2010-2011 We included data from the 2010 school climate surveys in the analysis and developed 4-year school climate profiles (2007-2010) focused on low-performing schools, further refining our school climate analysis resources.

Appendix C Methodology (Current Process)

Data Preparation

Ensured accuracy while maximizing sample size by:

- Examining data for duplicate cases and removing cases scanned twice
- Deleting cases if more than 25% of the responses were missing within each scale
- Imputing scores for cases with 25% or less missing data on each scale; replacing missing data with an average of the individual's responses for other items on the same scale
- Developing school inclusion/exclusion rule: Minimum number of surveys necessary for inclusion—10 teachers, 15 students, and 10 parents

Data Analysis: Confirmatory Factor Analysis (CFA)

- Conducted separately for teachers, parents, and students
- Compared the equivalence of the EFA and CFA solutions using item analysis
- Independently verified solutions using 2007-2010 datasets
- Aggregated standardized factor scores to school level for comparisons
- Standardized teacher, student, and parent 2007-2010 factor scores by organizational level
- Examined the distribution of standardized and unstandardized factor scores
- Graphed factor means by organizational level
- Created a template to graph standardized 2007-2010 factor scores for each of the Palmetto Priority Schools (Note: Analysis can be completed for any school of interest in the state)

Data Analysis: Factor Percentile Ranks

- Calculated 4-year percentile ranks within organizational level, including all Palmetto Priority Schools
- Verified results by comparing a sample of profile graphs to percentile ranks
- Created percentile rank tables for individual Palmetto Priority Schools, as well as by organizational level

Data Analysis: Item Agreement Percentages

- Calculated 2007-2010 teacher, student, and parent item scale percentages for each Palmetto Priority School and for state
- Graphed each Palmetto Priority School's item agreement percentages
- Created item scale percentage box plots to allow for comparison within organizational level and by referent group