

Exploring Student Growth in New Hampshire
Considering Results and Next Steps

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Agenda for today

- Overview of student growth percentile model (norm and criterion referenced student growth)
- A review New Hampshire school performance (percent proficient versus median SGPs) based upon Fall 2010 NECAP results
- Issues regarding growth model deployment/implementation

Describing student growth

- Measuring student growth, even with a vertical scale, is not a simple task.
- Some believe a vertical scale simplifies the task of measuring student growth.
- Even with an interval (or ratio) scale, growth is not easy to interpret. Consider, for example, height.
 - A child might grow 4 inches between ages 3 and 4.
 - 4 inches is a well understood quantity.
 - The 4 inch increase becomes really meaningful only when understood alongside the growth of other 3 to 4 year olds.
- **Student growth percentiles** were developed to provide a context for describing student growth [Betebenner, 2009, Betebenner, 2008].

Student Growth Percentiles

Should we be surprised with a child's current achievement given their prior achievement?

- Student growth percentiles answer this question.
- Consider a low achieving student with 90th percentile growth and a high achieving student with 10th percentile growth.
 - The low achieving student grew at a rate exceeding 90 percent of similar students.
 - The high achieving student grew at a rate exceeding just 10 percent of similar students.
 - The low achiever's growth is more *exemplary* (probabilistically) than the high achiever's.
- Judgments about the **adequacy** of student growth require external criteria.

Combining norms/actual with standards/aspirational

- Growth adequacy is determined by whether a student's growth is sufficient to reach/maintain desired achievement levels (e.g., proficiency).
- With established performance standards, percentile growth projections/trajectories are calculated for each student to reach/maintain desired levels of achievement.
- We have investigated *Follow the Child* targets previously using student growth percentiles
- Student growth percentiles can be seen as an extension/refinement (not a replacement) of New Hampshire's Follow the Child initiative

Reading

Achievement

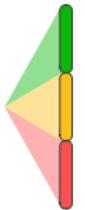


CSAP Reading Scale Score

Growth

Level

Percentiles



High

66th – 99th

Typical

35th – 65th

Low

1st – 34th

Advanced

Proficient

Part Proficient

Unsatisfactory

Grade 3
2006

Grade 4
2007

Grade 5
2008

Grade 6
2009

Next Year

Scale Score
Achievement Level

462
Unsatisfactory

539
Part Proficient

563
Part Proficient

609
Proficient

Growth Percentile
Growth Level

66
High

66
High

90
High

Achievement

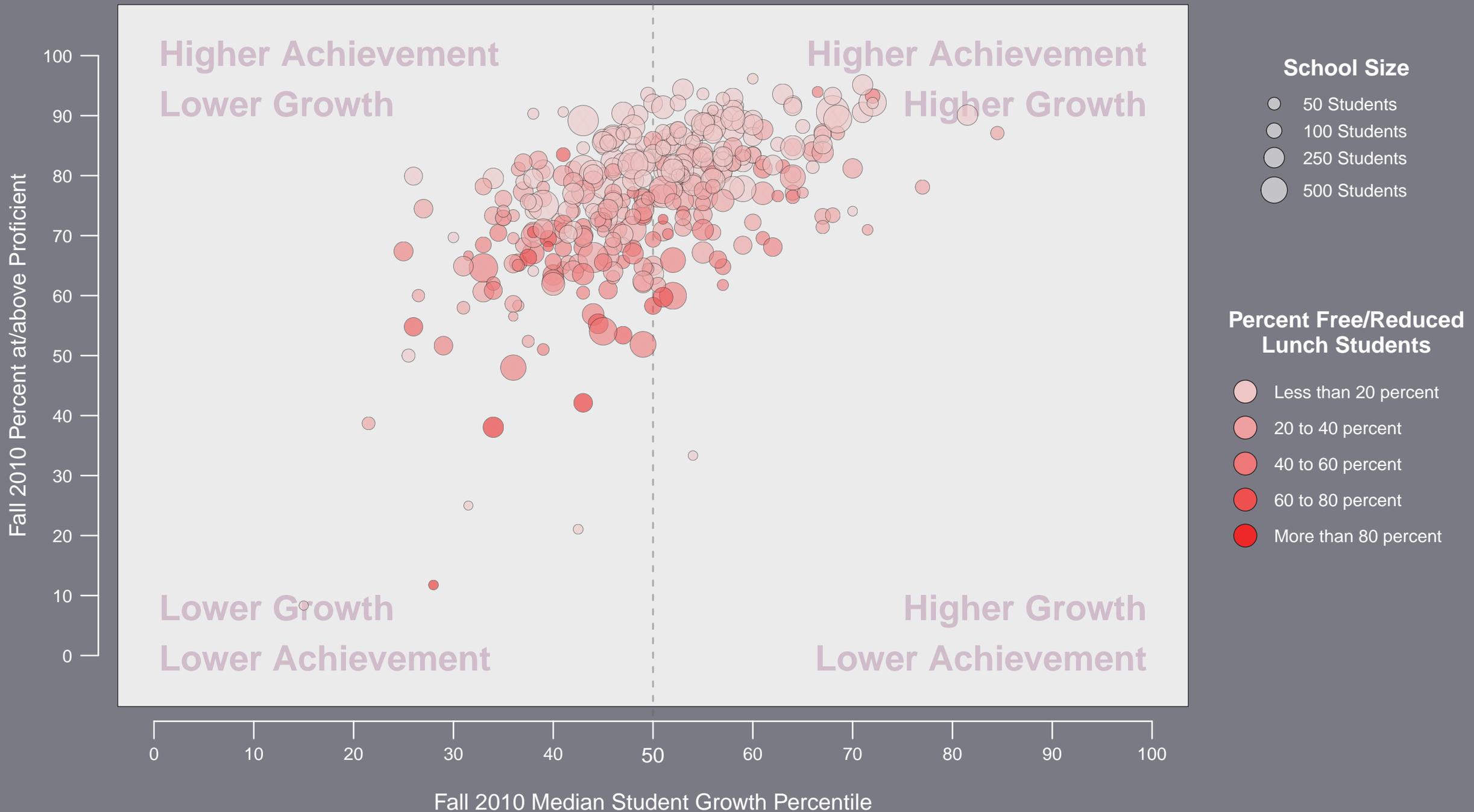
Growth

Going from students to groups of students

- It's of interest to examine schools where students demonstrate, on average, extraordinarily high and low student growth.
- To summarize the student growth percentiles associated with a school (or other grouping) one calculates the median of the student growth percentiles.
- If students were randomly assigned to schools, one expects to see a median of 50.
- Values greatly above or below 50 are of interest in identifying best practices or providing extra support.
- Examining growth with achievement sheds new light on school performance.

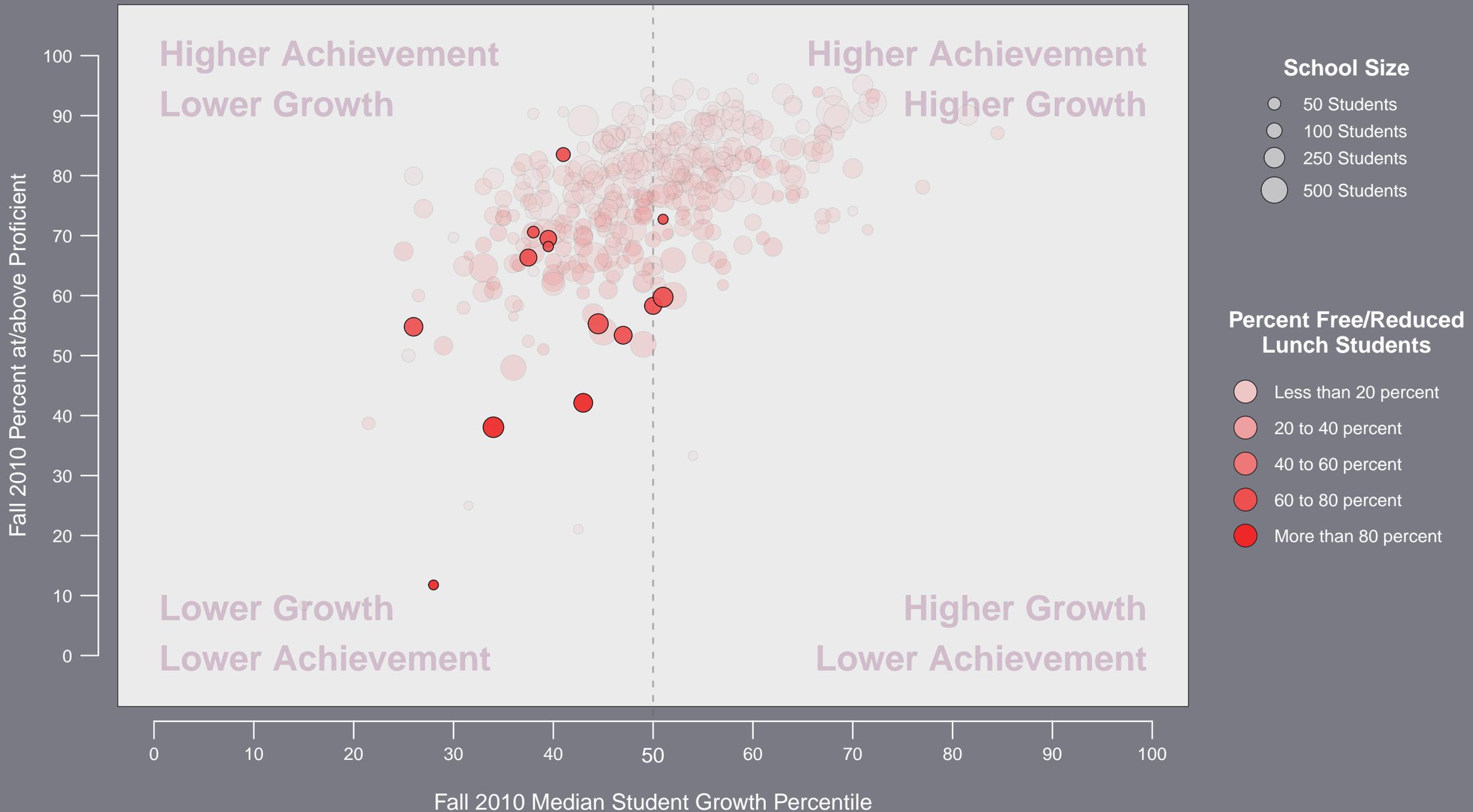
Growth and Achievement

New Hampshire: 2009–10 NECAP Growth & Achievement
Reading Performance by School Poverty



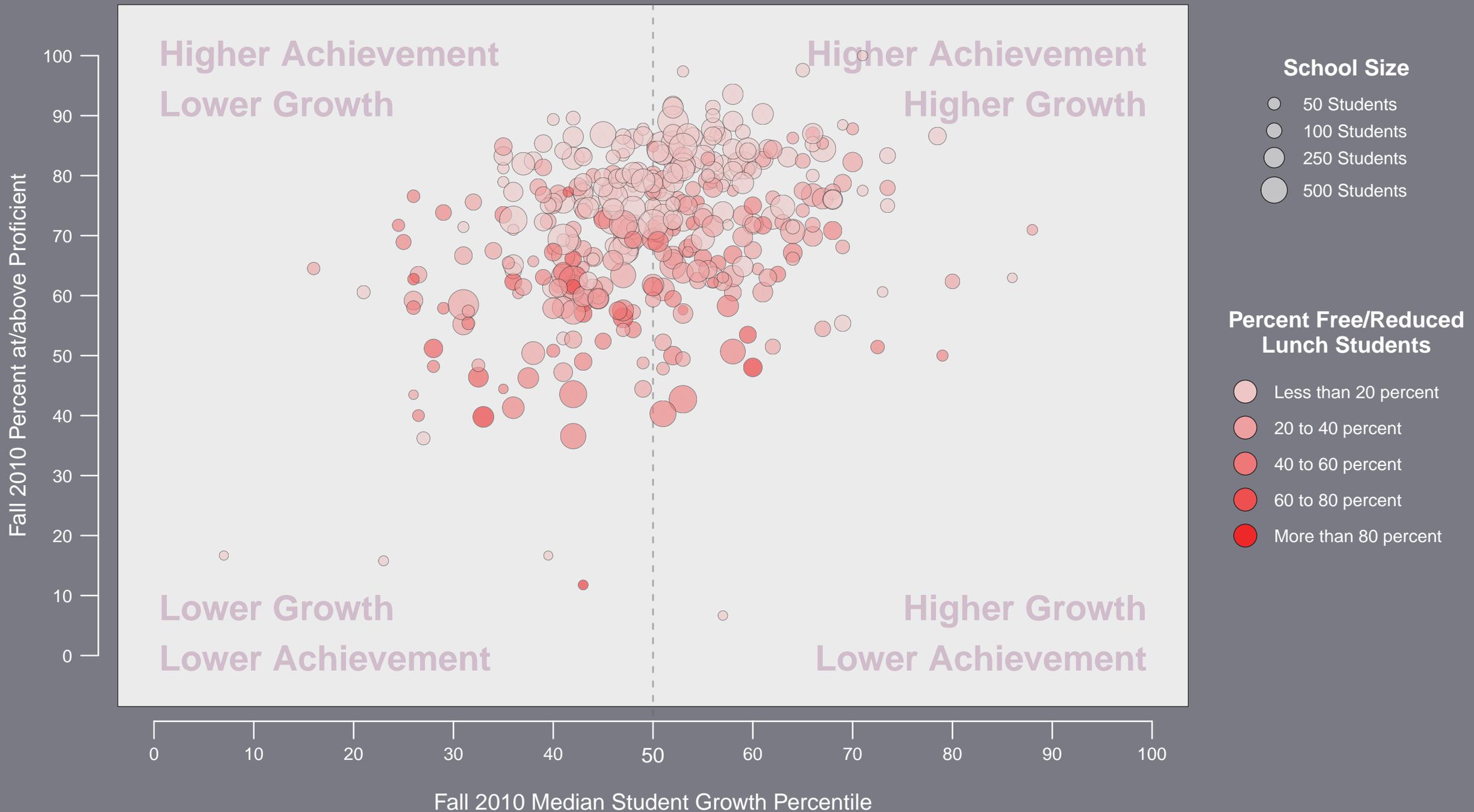
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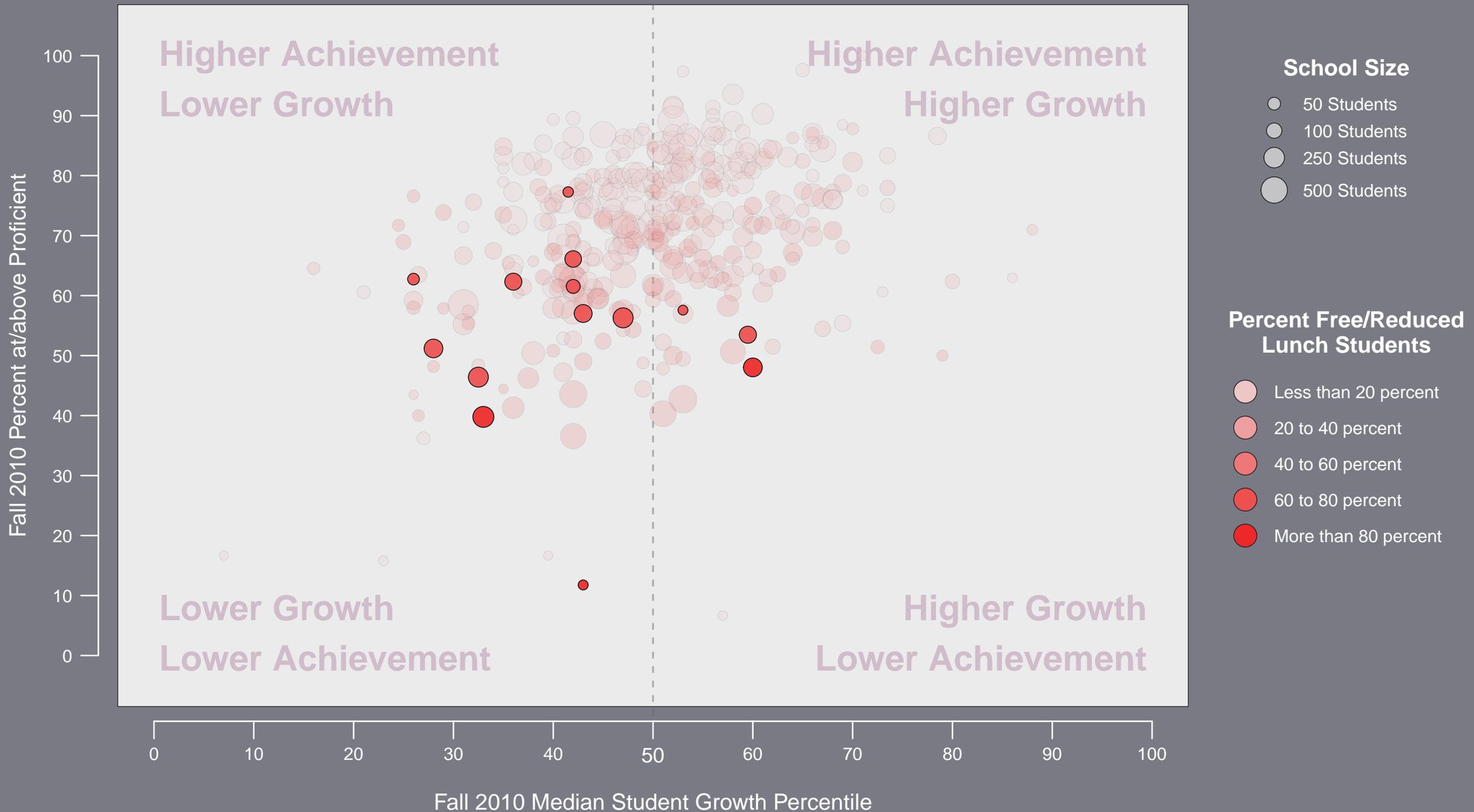
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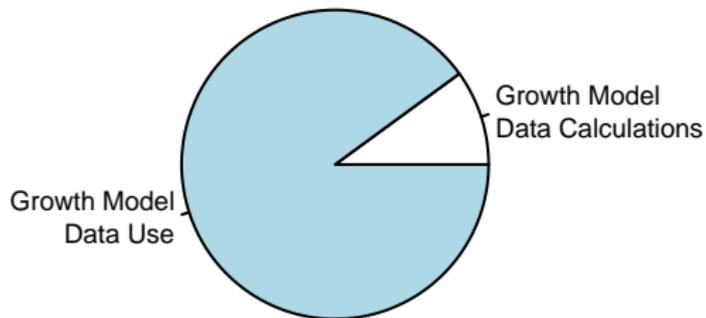


Descriptive Accountability

“Accountability system results can have value without making causal inferences about school quality, solely from the results of student achievement measures and demographic characteristics. Treating the results as descriptive information and for identification of schools that require more intensive investigation of organizational and instructional process characteristics are potentially of considerable value. Rather than using the results of the accountability system as the sole determiner of sanctions for schools, they could be used to flag schools that need more intensive investigation to reach sound conclusions about needed improvements or judgments about quality.”

R. L. Linn (2008)

Turning Data into Information



Turning Data into Information

- Calculating growth quantities is the first and easiest step in the development and deployment of a growth model.
- Student growth percentiles and quantities derived from them are just data. That data needs to be transformed into information.
- Turning data into information requires a statewide effort focused on dissemination and use of the data.
- Data visualization *vis-à-vis* reporting is an important means to help users quickly find the important “stories” that the data have to tell.
- Good reporting/data visualization is an integral part of outreach/professional development/training efforts.
- These efforts are just a part of the conversation about using data to inform practice and our larger understanding of education quality.

Web 2.0: Data Visualization and Social Networking

- The Colorado Department of Education and the Center for Assessment have been working for the last two year on developing next generation data visualization to accompany growth model data.
- The goal: Transform conversations about education through active engagement with data (i.e., evidence).
- Our efforts have received tremendous interest and recognition:
 - Recognized by Adobe for innovative uses of their technology as an Adobe Max Award finalist in October, 2009.
 - Multiple states signing MOUs to co-develop a cloud-based reporting platform in a non-proprietary fashion.
 - Colorado recently devoted \$2.5 million of stimulus funds to the development efforts

Web 2.0: Data Visualization and Social Networking

With a collaborative spirit, with a collaborative platform where people can upload data, explore data, compare solutions, discuss the results, build consensus, we can engage passionate people, local communities, media and this will raise—incredibly—the amount of people who can understand what is going on.

And this would have fantastic outcomes: the engagement of people, especially new generations; it would increase knowledge, unlock statistics, improve transparency and accountability of public policies, change culture, increase numerary, and in the end, improve democracy and welfare.

E. Giovannini, Chief Statistician, OECD. June 2007

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