





## Fall-Winter MAP Growth

In addition to using the Measures of Academic Progress (MAP) assessment to predict student performance on the high-stakes testing, we also use it to study the amount of growth that students demonstrate between testing intervals. This concept of growth is fairly easy to interpret at the individual student level. Students take the assessment, the system reports a current score and an expected score for the next testing interval, and students either meet or do not meet that target.

When rolling up to the classroom, grade, or school level, analyzing growth for strengths and weaknesses becomes more difficult. We start to ask questions such as:

- Are all students making expected growth?
- If not all students, which ones?
  - Does it vary by teacher?
  - Does it vary by grade?
  - Does it vary by subject?
  - Does it vary by starting point?
- How much growth is demonstrated by the entire classroom, grade, or building?

Each of these questions is answered by a different analysis plan and a different statistic or visualization of the data. One way that I have recently attempted to graph the growth is by using various heatmaps to show where students and growth appear to be clustering. For Fall to Winter scores from the 2024 school year, I decided to create three heatmaps to demonstrate three different concepts of where the students gather.

The first (shades of blue) graph shows where students scored when they took the assessment in Fall 2023.

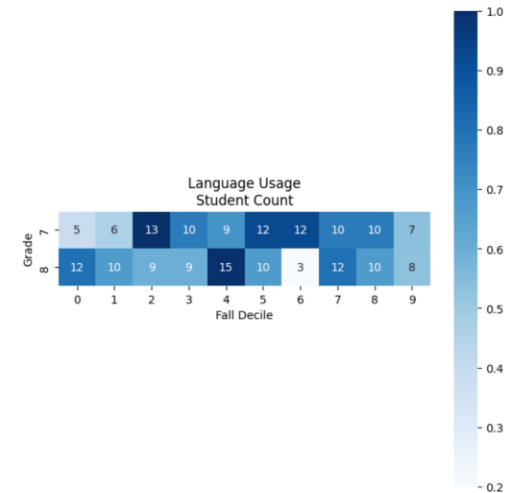
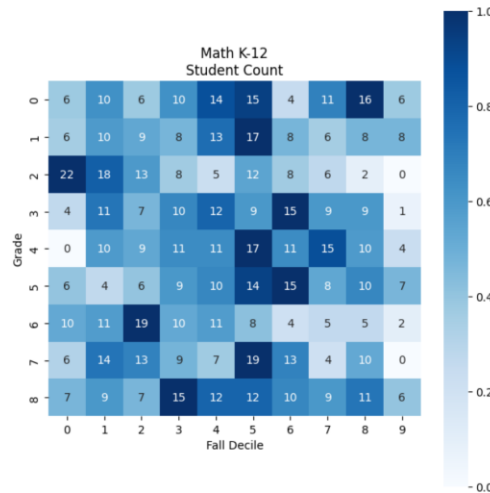
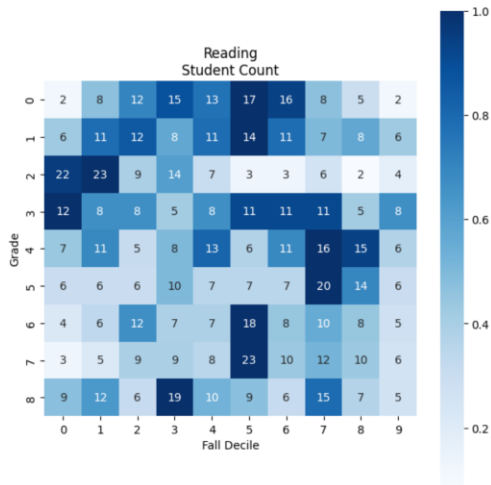
The second (red-green cells) graph contains the percentages of students who made their expected growth from Fall to Winter.

The third (more red-green cells) graph shows the median growth percentile for students within each box.



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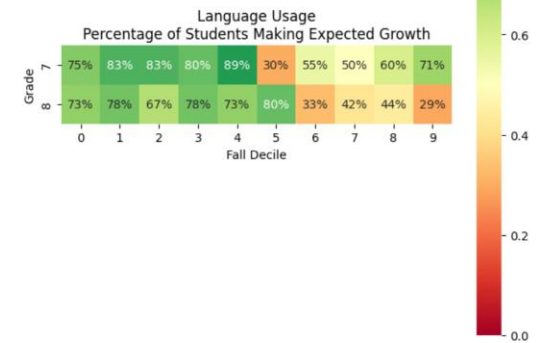
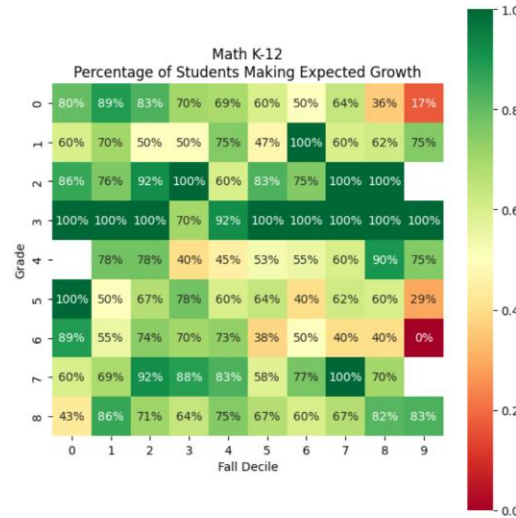
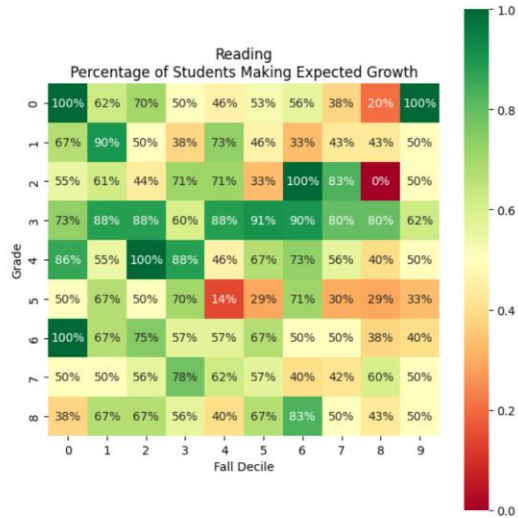


This graph is merely a density plot to demonstrate where students started in the Fall. In Reading, we can see larger pockets of students on the lower end of the distribution in grades 2 and 3. In Math K-12, there is a bit of a larger cell at the bottom in grade 2. Grade 4 has some higher density on the right (higher) side of the distribution in both subjects. As we have seen before, especially this year, the tremendous growth we see in grade 3 each year has some staying power, and the students continue to show high levels of proficiency in fall of the next year in grade 4.



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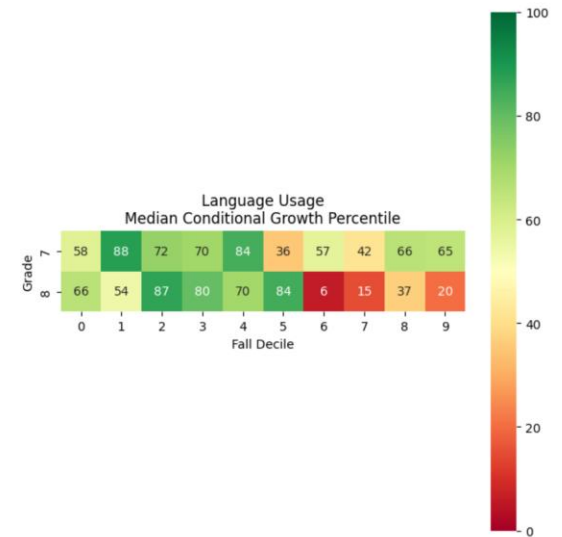
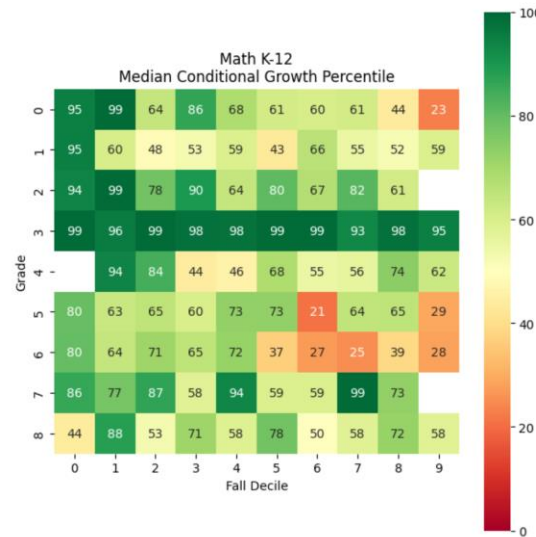
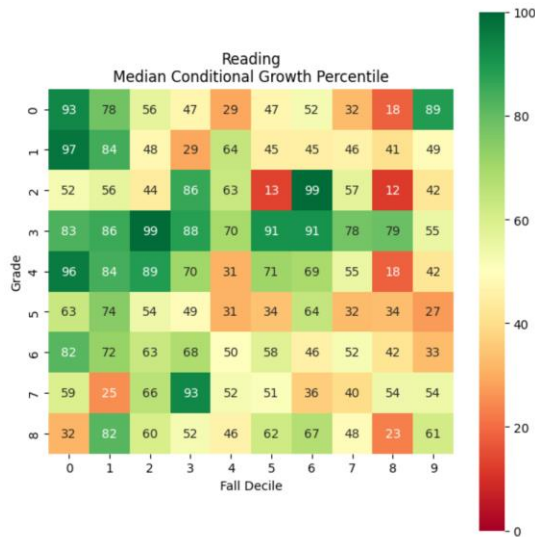


In this graph, the numbers in each cell are the percentages of students who made their expected growth from Fall to Winter. The most noticeable trend is that nearly all grade 3 students made their expected growth in Math, and above 50% for every cell in Reading. This is remarkable performance across the entire grade level. On the Math side of the graph, nearly every cell is above 50%, showing that most students make that expected growth regardless of their starting point in the Fall. An exception to this is grade 6 Math for students above the middle. In Reading, the region where these numbers are lower tend to be in the upper bands in the upper grades. This suggests that our intervention strategies might be performing better than our enrichment strategies.



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This graph considers the median growth percentile within in cell of students. This is a much more complicated concept than the percentage of students who are making their target, but its interpretation is similar to the second graph. Here, we are looking at how each student's growth compares to the growth of nationwide peers, then taking the median of those comparisons. This figure approximates how much growth our students demonstrate compared to the national norms, taking into consideration the starting point of each student.

The interpretation tradeoff here is that while the concept of median growth percentile is more complicated, it does not unnecessarily remove some of the nuance in growth scores like the second graph might. Median scores are less affected by outliers, and the growth of each student is considered instead of reducing each student to a simple yes/no binary.

Ultimately, this graph tells a similar story to the second one. Growth in third grade is high across the board. In Reading, our enrichment is underperforming our intervention. In Math, most students are making good growth except for a possible pocket for above-average students in grade 6.



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Each of these graphs is an imperfect approximation of measuring student growth from Fall to Winter, but when they converge on similar conclusions, we can be fairly confident that the story is accurate. These interpretations inform our leadership team as to where we need to focus our improvement efforts, across grade levels, subjects, and teachers. We will continue to refine these representations to help us understand where more work needs to be done.

Respectfully Submitted,

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