



A Case Study in Smarter School Spending

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Using Root Cause Analysis in Beaverton School District

Beaverton School District had unsatisfactory graduation rates and an achievement gap. To find the most cost-effective solutions, Beaverton used root cause analysis. The results helped Beaverton put its money where it would matter most. This work is helping the District get results: as of early 2015, graduation rates for four-year cohorts hit an all-time high for the District.

High school graduation rates for Beaverton School District, located in suburban Portland, Oregon, were at 77 percent - three percentage points below the national average. Furthermore, there was a persistent achievement gap between the mainstream student populations and students from underperforming segments of the student body, including English language learners, special education students and students from families in poverty. These groups had graduation rates of 65 percent, 62 percent, and 66 percent, respectively.

Like many school districts, Beaverton had less money than it had ideas for improving student achievement, so it needed to find strategies that could provide a long-term, cost-effective improvement to graduation rates.

Putting Money Where It Matters Most

As a starting point, interventions with underperforming students in early grades would be essential to raising graduation rates over the long-term, and ultimately be less expensive than waiting to provide additional instruction for students in high school. Designing an intervention for the early grades would require Beaverton to understand the reasons behind why students struggle in high school. Smarter School Spending advocates the use of root cause analysis to work backwards from the immediate problem (students not graduating high school) to the underlying problems, so that the most effective and permanent solution can be developed. By using root cause analysis and examining student performance data, the district first found that students who do not pass algebra and physics in 9th grade tend not to complete high school. Looking deeper still, the district realized that poor basic math skills were a root cause of struggles in algebra and physics. Hence, students that don't do well in the foundational skills taught in middle school math classes were unlikely to do well in 9th grade algebra or physics.

The solution was not to remediate kids after they fail 9th grade algebra or physics, but to prevent it from

A Root Cause Analysis on Graduation Rates from Beaverton

Q. Why do too many of our students fail to graduate?

A. They do not pass 9th grade algebra and physics, putting them at high-risk for the rest of their high-school career.



Q. Why do they not pass 9th grade algebra and physics?

A. They have poor basic math skills.



Q. Why do they have poor math skills?

A. They didn't do well in middle school math classes.



Solution: Let's make sure students have math and the other study skills they need to succeed before they arrive at high school.



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happening in the first place. Therefore, the district implemented a program called “Grade 8.5,” where kids that don’t meet benchmarks¹ in 8th grade math are invited to attend summer school at the high school they will be attending in the fall to revisit key math skills, become familiar with the school and teachers, and learn the study skills necessary for a successful high school experience. The model of Grade 8.5 was adopted district-wide after it was proven by a pilot program at one of the district’s largest high schools.

The district also looked back even further in the chain of events that leads to struggles in high school in order to intervene before students struggle with middle school math classes. This led to the development of Grade 5.5. Fifth grade students who are likely to struggle in middle school are identified and attend a special summer course that acclimates 5th graders to the new routines they will encounter in middle school, such as having their own locker, working with multiple teachers throughout the day, and pre-teaching literacy and math skills necessary for a successful transition to middle school. These seemingly small details can put stress on new middle school students, potentially overwhelming those with an already shaky academic base.

Beaverton also applied root cause analysis to the case of special education, in order to help close the achievement gap. The table below shows how the analysis proceeded, including the resulting change to the district’s budget.

A Root Cause Analysis on Special Education in Beaverton	
↓	Q. Why are so few 8 th graders who receive special education not meeting state standards? A. They are not prepared to meet the standards.
↓	Q. Why are they not prepared to meet the standards? A. They lack access to appropriate instruction in grade level content.
↓	Q. Why are they not participating in general education classes, where they can get instruction in grade-level content? A. The general education teacher may not have the tools or skills to address behavioral needs and scaffold instruction.
↓	Q. Why do general education teachers feel unprepared to instruct students who receive special education services? A. Professional development for general education teachers may not support how to instruct students with varied learning and behavioral needs.
↓	Q. Why doesn’t professional development support these skills? A. The budget for professional development to support special education students is provided exclusively by the special education department, which only trains special education teachers.
!	Solution: We need to change the budget so that professional development for helping special education students goes to all teachers, not just special education teachers.



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The Lessons from Beaverton School District

Even a simple root cause analysis can provide insight. Beaverton used a technique called the 5-Whys. As the examples above illustrate, this technique involves simply asking “why” for each answer given to explain the problem being analyzed until the root cause is reached. It is thought that five iterations is usually enough to reach the root cause, but more or fewer iterations might be required. There are more sophisticated root cause analysis tools, but keeping it simple is often sufficient.

Use data to guide the root cause analysis. Beaverton used student performance data to aid its search for root causes of its graduation rates. This is important because personal opinions are often not a very accurate diagnostic of the causal forces behind problems.

Look for preventative solutions. Strategies that prevent a problem before it happens often have the dual benefit of being more effective and cheaper than strategies that try to fix a problem after it has happened. Root cause analysis is uniquely qualified to help districts find preventative solutions to student achievement challenges.

Acknowledgments



Claire Hertz has been Beaverton’s Chief Financial Officer since 2008. She has over 25 years of experience in school finance leadership. Hertz leads financial planning, budgeting, financial reporting, and capital construction bond issuance for the district. She has held leadership positions in the Association of School Business Officials International.



Carl Mead has served in the Beaverton School District since 1986. Before becoming a Deputy Superintendent in 2010, he was a Regional Administrator, a Principal, Assistant Principal, and a teacher for Beaverton. He taught grades three and six, and also served as an English teacher for eighth and ninth graders.



Shayne Kavanagh (author) is the Senior Manager of Research for GFOA. He led the development of GFOA’s Best Practices in School Budgeting. He has worked with school districts across the United States to put the GFOA Best Practices into action.

To learn how Smarter School Spending can benefit your students, email Matt Bubness at Mbubness@gfoa.org or visit the website at www.smarterschoolspending.org.

Endnotes

ⁱ Beaverton used the “ACT Explore” test to identify at-risk students in 8th grade.