MODULE I
GETTING READY FOR VALUE-ADDED ANALYSIS

Implementation Stories

Following are several examples of ways that the value-added metric has been used at the district, building and grade level.

Value-Added Analysis Helps Improve Fifth-Grade Math Instruction

Ms. Katie Peters-Crosby was in charge of fifth-grade math instruction at a rural elementary school in Ohio. She has taught at least two of the four classes each year for the last four years at her school. During the first year that the school used value-added analysis, Ms. Peters-Crosby's fifth-grade math classes' value-added scores were lower than she wanted. The growth rate of 5th grade math students was not detectably different from the growth observed for all fifth-grade math students.

Ms. Peters-Crosby was not satisfied with facilitating typical growth in her math students' progress. Thus, she began considering instructional or curricular factors that could be strengthened to increase student learning in her math classes. Ms. Peters-Crosby studied her school's math program to determine its alignment with the state's math curriculum standards. Noticing several curriculum gaps, she:

- Designed supplemental materials to help strengthen math instruction in the curricular areas not well represented in the current program.
- Created math units based on the fifth-grade level indicators (GLI's) from the state.
- Wrote summative and formative assessments, created and gathered materials aligned to these GLIs and only used those math lessons that were highly correlated to the GLIs. Those supplemental instructional resources were implemented the next school year.

What happened after she made these changes? The 2003 value-added data reports for Ms. Peters-Crosby's fifth-grade students revealed much different results than the previous year's reports. The fifth-grade math students now performed 5.9 scaled score points higher than predicted. And, the associated standard error indicated this school effect was statistically above the growth standard and above typical growth.

While this result certainly affirmed Ms. Peters-Crosby's efforts to improve curricular alignment, she noticed another trend in the data that suggested she could make other instructional improvements.

The 2003 school diagnostic report showed a gain pattern across the achievement subgroups that strongly indicated that her higher-achieving students were benefiting from instruction more than her lower-achieving students. Ms. Peters-Crosby reviewed her instructional strategies and determined that many students didn't master the material the first time taught. Thus, she decided to implement several practices to help ALL students master the material.

During the next school year, she:

- Created weekly review sheets, consisting of 20 problems addressing 20 different skills. Students had to re-work problem assignments until done correctly.
- Asked high school juniors and seniors in the higher math classes to come during study hall periods to tutor individual fifth-grade students on the math skills they hadn't yet mastered.
- Instituted a math facts program to ensure that students were mastering their basic facts to facilitate speed and ease when calculating.

The next fall's reports once again affirmed Ms. Peters-Crosby's efforts. The average fifth-grade math student performed 23.4-scaled points higher on the standardized test than the predicted score. The associated standard error indicated this fifth-grade's school effect departed even further from the growth standard of the previous fifth-grade's growth index. Clearly, reliable data about student progress, when interpreted and applied with other information, can facilitate significantly improved teaching and student learning. In Ms. Peters-Crosby's case, value-added data validated her efforts to strengthen curricular alignment and conduct new instructional practices that benefited ALL of her fifth-grade math students across the achievement continuum.

2004 Middle School Report—Math Total

Test	Grade	Year	N	Mean Student Score	Mean Score %tile	Mean Pred Score	Pred Score %tile	School Effect	Effect Std Err	School vs. Testing Pool Avg
Math Total	5	2002	105	662.0	56	663.8	59	-1.6	2.69	NDD
		2003	96	663.8	64	657.3	57	5.9	2.69	Above
		2004	78	671.2	83	646.9	65	23.4	3.01	Above

During the 2004-2005-school year, the fifth grade departmentalized—making Ms. Peters-Crosby the only fifth-grade math teacher. The district also purchased a new math series, highly correlated to the grade-level indicators (GLIs). Ms. Peters-Crosby continued engaging high school tutors and implementing the weekly review sheets and math facts

program. As expected, 2004-2005 reports showed that the school effect in math improved again.

Ms. Peters-Crosby's case study represents a classic example of using value-added information. She started by analyzing the data. Then, she asked why her students were not making more progress. She looked to herself for the causes—not to the students, the math program, or the number of students in her classroom. This is not to say that these exogenous factors may not have some impact, but the most effective teachers look to themselves for why. Ms. Peters-Crosby made reasonable assumptions about her students' performance, changed her practice and achieved better results. When an educator sees his/her changes make an appreciable impact on student performance, the results not only affirm, but also encourage continuation of such inquiry and application.

Value-Added Analysis Validates the Importance of Teacher Collaboration

Two principals, whose buildings were about one mile apart in a suburban setting, attended a training session to build capacity around value-added data. Each principal served essentially the same types of students from similar neighborhoods. Both schools were high achieving, but one school had value-added scores that were significantly lower than the other school's, particularly in fourth-grade science. At this grade level, the pattern had remained the same for three years. No matter who the students were, one school's students made high gains, and the other school's students did not.

These principals were perplexed because they couldn't explain why this was happening. After all, teachers in both schools were using the same curriculum, and both schools were serving essentially the same type of students. The principals resolved to take their limited understanding of value-added analysis and ask their teachers why gains were high in one case and low in another.

The school that had accelerated fourth-grade science determined the probable cause of their extraordinary success. Three years previous, the four fourth-grade teachers took the state's content standards and divided them into four sections, each teacher taking the section they were most interested in teaching. Additionally, each teacher developed curriculum and procured supplemental materials to accompany the teaching of their standards. They rotated students during the year so that each teacher taught their section four times and each student had all four teachers. Is this approach *the* answer to accelerating growth for all fourth-grade science students? No. However, it is *an* answer for teachers to consider in planning how to improve student performance.

When value-added scores are higher than expected, educators usually can identify practices that account for that success. It is more difficult to identify what teachers are not doing that might improve results.

Teachers need the opportunity to receive and interpret this information, and to determine how their practices are or are not impacting the growth of students.

Urban Elementary School Constantly Assesses Student Learning to Inform Instruction and Student Grouping

East Side Elementary School in Chattanooga, Tennessee has a great track record using value-added analysis. Each spring, Emily Baker, principal at East Side Elementary, eagerly awaits the arrival of her school's state standardized test scores as well as their value-added scores. The school uses these scores as the basis to examine and improve individual student progress.

The school analyzes spring standardized test results, crossing student performance with curriculum strands. These results follow students into their next grade's placement to inform the starting point for their next year of instruction. The results also help determine how students are initially grouped for instruction. Teachers review students' spring scores in reading and math to help them determine where they will begin in the teaching of curriculum for the school year. Then, students are identified using three achievement levels based on state test results: non-mastery, partial mastery and mastery with respect to particular curriculum strands. Teachers tailor the curriculum and instructional approach to address each group's areas of greatest need and help students to make the greatest gains possible.

Common assessments are used throughout the year to continuously match students' curricular needs with appropriate instruction. Then, the school staff reviews their value-added scores to determine how well these processes are working. With value-added analysis, East Side can scrutinize patterns of growth and areas for improvement at the school level.

Teachers divide the curriculum by areas of expertise. For example, one math teacher might present lessons on fractions, while another might focus on decimals. Teachers also co-teach so that they can learn from one another in particular areas of instruction. In this way, value-added analysis offers an opportunity for teachers to identify and share best practices. "These processes are constantly validated by our value-added data so that we can determine how to refine instruction," says Baker.

"People who see value-added as another data point are missing the boat," says Baker. "Value-added analysis is an extremely powerful tool for determining if we are effective or ineffective in our efforts to improve student learning."

Focusing on Individual Students is Key

At the building level, few schools have been as singularly successful in using value-added data to improve results as Maryville Middle School in Maryville, Tennessee. Over the last ten years, this school has consistently ranked high in achievement and progress in Tennessee's accountability system. Maryville once again received straight "A's" in both achievement and value-added categories on the November 2005 report card. How does Maryville continue to succeed at such a high level?

Many would attribute this success to the long-time, recently retired principal and now educational consultant, Joel Giffin. Giffin's no-nonsense approach to school improvement and his ability to maintain a culture where risks are welcomed is well documented. He unabashedly advocates for maintaining growth for every student. While he agrees that standards are important, his staff focuses on individual students. Equity and equality are not the same, grade level is a range, not a specific point.

He explains that in a seventh-grade class of 28 students, ten students may perform at the seventh-grade level in a certain subject, seven at the sixth-grade level, and five at the fifth-grade level, etc. The key is to appropriately place students where their learning can be maximized. Giffin suggests that if teachers ask students to complete tasks for which they aren't ready or can't do, they simply quit or, worse yet, become behavior problems. Similarly, if teachers focus instruction on information students already know, they become bored and also disconnect. Giffin points out that a student can't be taught "what they are not ready to learn" and shouldn't be taught "what they already know." Ideal placement rests with evaluating students' unique needs based on data and making appropriate placements to meet those students' needs.

Maryville's academic intervention success can be attributed to the training Giffin has provided his staff. He recommends four steps for using data to improve student performance:

1. Understanding testing
2. Analyzing and disaggregating data
3. Developing school improvement plans
4. Providing leadership

Giffin works hard to ensure that teachers understand the information that tests can and cannot reveal about students. Teachers use this information to assess each student's strengths and weaknesses before identifying changes in placement or instruction that could help that student grow. The goal is to take each child from wherever they start and help them develop the skills and confidence they need to move to higher levels. Flexible grouping practices enable teachers to place students in the appropriate curriculum path and move students as they progress. Maryville's use of multi-layered curriculum in core content areas has been quite successful.

This multi-layered practice should not to be confused with simply grouping students who are at similar achievement levels in a subject area and locking them into a group.

Students are moved to more appropriate placements any day of the school year. This open entry, individual pacing and open exit system is based on individual student needs and performance. Time becomes a variable instead of a constant. The secret is to design and re-design the school based on individual student needs rather than the needs of the school. The key is to identify where students are and appropriately place them where they can learn best. These placements are made in all core subjects because it is entirely possible for a student to be much stronger in one area than another. For ten years, Giffin's students have made an average gain of nearly 1½ years of growth for each year they are in the school. Does it work? The positive results are hard to dismiss.

Value-Added Analysis Helps Bexley Evaluate the Effectiveness of its Instructional and Curricular Practices in Middle School Math

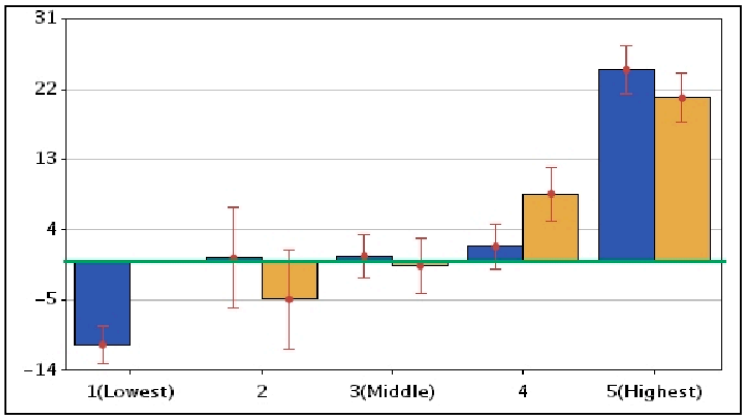
As another example, Bexley City Schools, an affluent school district in central Ohio, used value-added to diagnose a particular problem in its middle school that wouldn't have been uncovered without using value-added informing. This district has historically scored significantly above state proficiency levels, as evidenced by a sample state report card shown below:

STATE INDICATORS	PERCENTAGE OF STUDENTS AT AND ABOVE THE PROFICIENT LEVEL		
	Your District 2004-2005	Similar Districts' 2004-2005	State 2004-2005
3rd Grade Achievement	*The state requirement is 75 percent*		
1. Reading	91.0	92.3	77.3
2. Mathematics	88.5	88.8	70.4
4th Grade Proficiency/Achievement	*The state requirement is 75 percent*		
3. Reading	89.6	91.1	76.6
4. Writing	90.8	93.8	78.1
5. Mathematics	84.4	83.5	65.5
6. Science	80.9	81.3	61.2
7. Citizenship	89.0	85.4	66
5th Grade Achievement	*The state requirement is 75 percent*		
8. Reading	94.1	91.7	76.9
6th Grade Proficiency	*The state requirement is 75 percent*		
9. Reading	83.6	86.2	69.8
10. Writing	88.7	93.8	83.5
11. Mathematics	77.4	84.1	62.5
12. Science	79.7	86.4	66.9
13. Citizenship	91.0	90.5	72.7
7th Grade Achievement	*The state requirement is 75 percent*		
14. Mathematics	81.4	81.9	58.5
8th Grade Achievement	*The state requirement is 75 percent*		
15. Reading	91.3	92.7	78.9
16. Mathematics	79.6	81.1	60.1
10th Grade Ohio Graduation Test	*The state requirement is 75 percent*		
17. Reading	98.9	98.2	92
18. Writing	98.4	95.4	83.7
19. Mathematics	95.6	94.5	81.6
20. Science	95.6	91.0	73
21. Social Studies	95.6	93.0	79.3
Attendance Rate	*The state requirement is 93 percent*		
22. All Grades	96.0	96.0	94.3
2003-04 Graduation Rate	*The state requirement is 90 percent*		
23. District	98.2	96.8	85.9

Test	Grade	Year	N	Mean Student Score	Mean Score %tile	Mean Pred Score	Pred Score %tile	School Effect	Effect Std Err	School vs. Testing Pool Avg
Math Total	7	2002	164	709.5	86	704.8	85	4.6	2.24	Above
		2003	186	698.2	82	686.9	77	11.0	2.06	Above
		2004	181	691.3	81	680.9	74	10.2	2.06	Above
	8	2004	191	719.9	89	708.5	85	11.0	2.11	Above

When the district's middle school reviewed its results through the value-added lens, the news also was apparently good. The faculty wondered if its performance was as good as it seemed. For some time, middle school teachers had divided the seventh- grade math curriculum into two sections for its lower-performing students, who received the first half of the seventh-grade curriculum in the seventh grade and the rest of the seventh-grade math curriculum in the eighth grade. Their rationale for using this practice was to instruct low-performing students at a pace the staff believed to be better aligned to the students' skill level.

When the teacher analyzed their diagnostic report, they learned that this practice didn't work. They found that their lower-achieving students were not making the gains similar students were making in other districts. By slowing down the pace for low-achieving students, this school capped these students' progress potential. The graph below shows low-achieving students making less than expected progress and the highest achieving students making much more progress than would be anticipated.



Green Line=Expected Growth

Another interesting fact is that the same teachers taught both groups of students. This likely means that the curriculum structure and instructional pace were the culpable factors.

This year, the district has held the expectations constant and varied the resources to ensure all students reach those expectations. The district no longer tries to extend the seventh-grade math curriculum over two years for low-achieving students. Three additional 20-minute instructional periods per week now are provided to further assist low-achieving students and help them meet the curriculum expectations the district has for all of its other seventh-grade students.

The district is eager to see if their results dramatically improve as anticipated. Clearly, if they had only reviewed achievement reports, the real impact the district's efforts had on low-performing students would not have been discovered.

Value-Added Analysis Reveals the Impact of Collaboration and Reconstitution

Perhaps one of the most interesting, collaborative uses of value-added assessment comes from Hamilton County Schools in Tennessee, where the school district, teachers union, community leaders and local foundations have worked successfully to raise student achievement and close achievement gaps. This story began in 1997 when the Chattanooga City Public Schools and the Hamilton County Schools combined. The merger united a largely white, suburban district with a largely African-American urban district.

The story really begins in 2001 when the announcement was made that of Tennessee's 20 lowest-performing schools, nine were located in Chattanooga. Only 11 percent of the students in these schools were reading at grade level, 94 percent were eligible for free or reduced lunch, and 87 percent were African-American. Improving these schools was the core piece of what was called the Benwood Initiative, a five-year effort aimed at dramatic improvements in literacy and teacher effectiveness. The effort is funded by a $5 million grant to Chattanooga's Public Education Foundation (PEF) from the Benwood Foundation of Chattanooga and a $2.5 million match from PEF. Hamilton County set an ambitious goal: to have every student reading at grade level by the end of third grade.

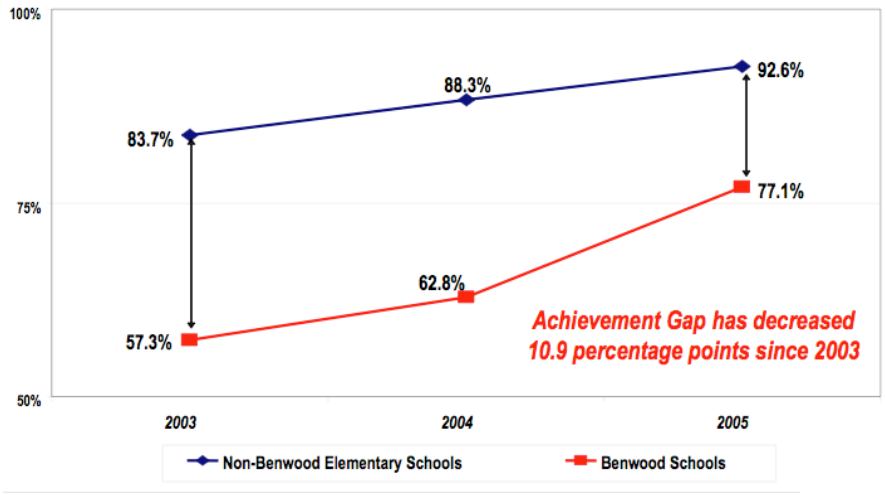
At the heart of the Benwood Initiative was the belief that strong teaching, professional development, coaching, leadership and other support services were imperative to achieve student success. The nine buildings were reconstituted, and nearly one-third of the teachers in these buildings were replaced by other teachers from the surrounding area. The goal was to recruit experienced, talented teachers who, with the right support, could make a significant difference in these schools. One criterion that principals used in selecting these teachers was their past value-added scores. They wanted teachers who previously had been identified as highly effective. These highly effective teachers also received incentives to join these difficult-to-staff schools. These incentives, agreed to by the teachers union and championed by the business community, included mortgage assistance to buy homes in the neighborhood, full scholarship programs to earn Master's degrees and an additional salary of $5,000 per year for three years for teachers who stayed at each school.

According to Superintendent Jesse Register, "Value-added measures served as part of the objective criteria in selecting new teachers to work in these challenging schools. It's as good a measure as anything I've ever seen to view progress." In addition to recruiting strong teachers, other strategies included:

- Reorganizing the school day to allow concentrated study of reading and writing
- Offering after-school and summer school programs for all students
- Hiring a full-time parent involvement coordinator
- Implementing a mentoring program for new teachers
- Providing special enrichment activities for students

How difficult was this challenge? The publisher of the local newspaper noted that some of the paper's readers considered reforming these schools as a hopeless cause and a waste of money. "You might as well just buy some wood," he recalled one reader commenting, "At least you'd have some heat." However, in spite of the Herculean odds, the results have been nothing short of amazing.

- Students at the Benwood Schools have shown enormous gains in reading, as measured by the state's TVAAS value-added test scores.
- Since 2003, the achievement gap in reading/language arts between third-grade students in non-Benwood and Benwood Schools has decreased 10.9 percentage points.
- In 2005, six of the Benwood schools made all "A's" on the Tennessee State Report Card for Value-Added Gains.



In this case, value-added analysis offered a measuring stick with which to recruit new teachers, as well as a lever to accelerate achievement. By all appearances, this approach has worked well on both counts. Superintendent Register suggests that, "Incentive pay was one piece of the puzzle. More importantly, teachers felt valued and supported. The keys to success included having good teachers, a good support system, incentives and accountability."