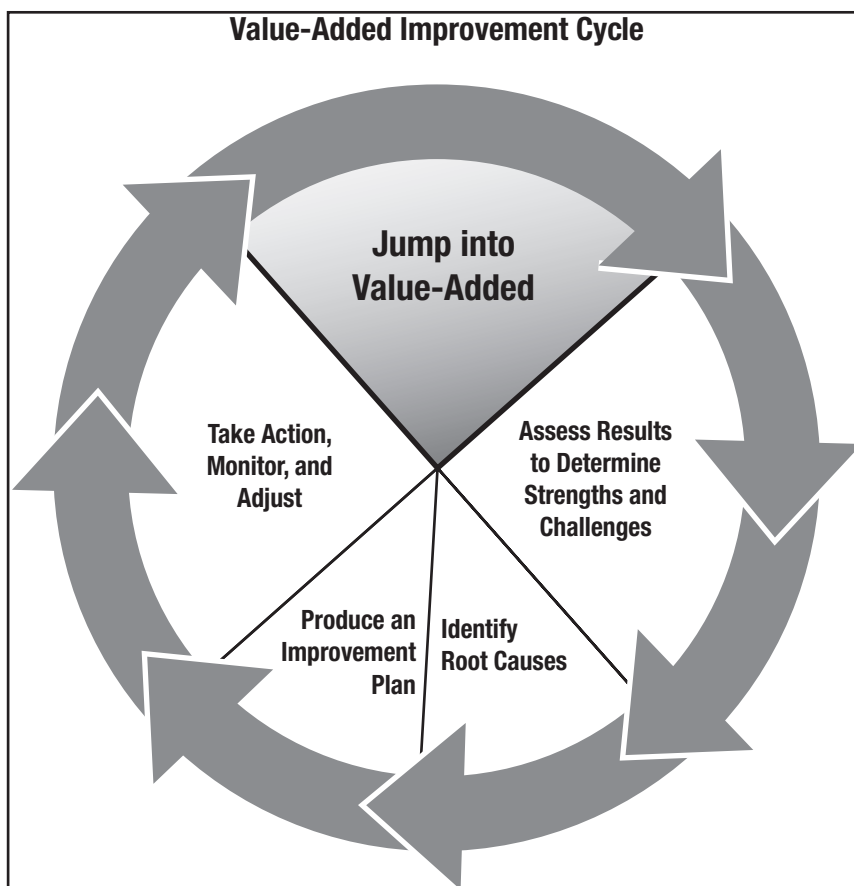


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# 1

## Step I

### What Is Value-Added Analysis?



Source: © 2011, Battelle for Kids.

## Chapter 1 Core Concepts

1. Definition of value-added analysis.
  2. Socioeconomic status and achievement are correlated.
  3. Value-added analysis: a fairer measure.
  4. The power of two: progress and achievement.
  5. Value-added analysis is part of a balanced assessment system.
- 

### Concept 1: Definition of Value-Added Analysis

What do educators say about value-added analysis? Here are a few of the many comments we've received from teachers and leaders over the years:

- "Value-added analysis is an extremely powerful tool for determining if we are effective or ineffective in our efforts to improve student learning."
- "Value-added analysis helps us recognize student growth and is a real agent for positive change."
- "Value-added analysis is truly a great tool for administrators and teachers to show if students are making appropriate gains. Teachers can really use this information to self-reflect on their teaching."

So what exactly is this tool that so many educators are finding useful? First, value-added is *not* a new concept, nor is it limited to education. The origin of the term *value-added* comes from economics and means the value that is added to raw materials through the processes of production. The term has since come to mean any output that is worth more than the sum of the inputs. Value-added marketing, for example, means creating excess demand for a particular product thereby driving up the price; value-added engineering refers to producing additional efficiencies in a particular process; and value-added legal services refers to "winning" legal strategies.

In an educational context, value-added analysis is a progress metric that estimates teachers', schools', and districts' impact on students' academic performances over time. Individual achievement data taken from statewide achievement tests are used to produce the analysis.

Value-added analysis is a progress metric that estimates teachers', schools', and districts' impact on students' academic performances over time.

In simplest terms, value-added is the difference between a student's baseline performance (prior years' tests) and his or her observed performance (this year's test). This can be compared with how a child's growth is monitored on a pediatrician's growth chart.

We know looking at student growth is not new to you. In fact, there are many ways to formally and informally measure student performance over time. As a teacher, one of the authors used classroom diagnostic tests to track student reading comprehension at the beginning, middle, and end of each school year. She charted her students' growth and used the information to set growth goals with students. Many leaders that we work with spend hours inputting state achievement scores into spreadsheets at the start of a new academic year to determine if students grew from one year to the next. These are simple ways of looking at student progress, and while helpful in some ways, they have limitations.

To be clear, value-added analysis is not simply the difference between one test and the next. Sophisticated statistical modeling is applied to produce growth metrics that are valid and reliable. In the last two decades, statisticians have developed complex statistical modeling techniques to determine academic growth. Many advances have helped make value-added information statistically robust today:

- Modern computing power that allows student achievement data to be crunched and analyzed
- Consistent testing cycles, allowing comparison from one year to the next
- Availability of student testing history and longitudinal databases that store student testing history
- Application of appropriate statistical tools and interactive data displays

As a result, value-added analysis has become a compelling means by which to depict and examine student progress. It represents a new approach for measuring the ways in which teaching affects learning and is a fairer and more reliable means of looking at student growth.

Value-added analysis represents a new approach for measuring the ways in which teaching affects learning and is a fairer and more reliable means of looking at student growth.

This is an exciting advance from several perspectives. Educators can now access accurate information to identify not only the progress made by individual students but also the extent to which individual teachers,

schools, and districts have contributed to that progress. Value-added information empowers educators to examine how well the education program they provide contributes to the academic growth of each student. From here, educators can determine how well their instructional programs are working, for whom their teaching strategies may be best suited, and where changes should be made. As well, teachers who create learning environments in which all students progress, regardless of their starting point, can be recognized for their success.

School districts that make value-added information available to their communities can provide evidence of school progress where in the past all that parents could see was the percentage of students passing high-stakes achievement tests. Some schools, despite failing to meet achievement standards, find they are contributing significantly to students' academic progress when they examine their value-added information. Data are not in short supply. Indeed, educators typically receive a plethora of achievement and survey data that are meant to elicit decisive and informed action. In some cases, educators report being unable to sift through a virtual sea of numbers to determine which of those data are most valuable to their school improvement efforts. A Tennessee principal remarked to us that "People who see value-added as just another data point are missing the boat." We agree and maintain that value-added analysis can provide information that is highly useful for administrators and teachers to efficiently uncover and prioritize areas of strength and challenge. Although no single form of information can be the solution for improving results, we are certain that value-added information deserves your time and attention.

### Value-Added: Too Complicated for Educators?

Some think that value-added analysis is too complicated for educators to understand and therefore should not be used. Admittedly, the statistical methodologies that are used to create value-added estimates are, in fact, complex. However, we argue that the process of interpreting and using value-added information is *not* complex. Consider a few of the complex things we use and trust every day:

- *Digital watch.* You wear a watch and trust it to tell you what time it is, but you don't know how to build a digital watch (or at least we don't).
- *Actuary tables.* The tables used by insurance adjusters are a mystery to us, but we trust our insurance agents to charge us fairly for our insurance rates.
- *Hybrid car.* A Toyota Prius whispers along the highway getting 45 miles to the gallon. We love the impressive technology behind it, and we're glad for the fuel economy, but we don't understand how the Prius engine is constructed.

### A Story of Two Students: Yanira and Ally

To illustrate a few points about value-added analysis, we share the stories of two students, Yanira and Ally. Yanira is a fifth-grade student in inner-city Los Angeles, California, at Alamos Elementary School, a school with 99% of its students living in poverty. In Yanira's classroom, California state achievement scores are low, ranging from the 4th to the 50th percentile. California requires that 75% of all students reach proficiency; in other words, all of the students in Yanira's class enter the door very far from proficient.

To the outside world, Yanira's classroom and school appear to be failures. After all, every student in her class is below the proficiency bar. However, Yanira's teacher works hard to raise student achievement levels and knows that she grew a tremendous amount in only one year. Classroom assessments revealed that Yanira started out the year reading at a second-grade level and ended the year at a fifth-grade reading level. That's three years' worth of progress in one year of schooling! At the end of the school year, however, Yanira scores in the 49th percentile on the state achievement test. Even though she

started out in the 29th percentile, she still isn't proficient on the sixth-grade California achievement test. Yanira, her teachers, and her school would be considered failures in an accountability system where only passage rates matter.

Ally attends school on the other side of Los Angeles at Bethany Elementary School where 20% of its students are living in poverty. Fifth-grade students in Ally's class start out the year with state achievement scores ranging from the 50th to the 95th percentiles. Ally begins the year in the 88th percentile on the state achievement test and at the end of the year scores in the 80th percentile. Both scores are considered proficient. The school exceeded the state benchmark with 78% of students passing, but fell from 80% in the previous year. The teachers at this school work hard to raise or maintain student achievement levels. Even though Ally actually declined that school year, dropping from the 88th to the 80th percentil, she is still above the proficiency bar. Bethany Elementary School and Ally's teacher are viewed as successful.

### AYP Growth Model

Another way to think about measuring growth is to project the *future growth* of students based on their individual history of performance. In the United States, as of 2005, *growth modeling* has served as an additional means to determine whether schools are making adequate yearly progress, or AYP.

Fifteen states have participated in a federal pilot project that uses growth modeling to satisfy AYP requirements, and all states have been invited to participate. The majority of the states are using a growth projection model, which helps schools meet AYP if their students are projected to be proficient in the future.

In Ohio, for example, many schools have benefited from the growth projection model. The growth measure is applied to each subgroup that fails to meet AYP after the "safe harbor" and two-year average provisions have been applied. At this point, the growth measure is used to calculate the percentage of students who are on track to meet the AYP standard. Each student with greater than a 50% probability of meeting the AYP standard in the future is considered to be on track. The future probability of meeting AYP standards is based on projections made two years into the future for schools that include Grades 4 through 8.

## Concept 2: Socioeconomic Status and Achievement Are Correlated

There are classrooms like Yanira's and Ally's all over the country. Until recently, we have relied solely on achievement data to tell us whether classrooms, schools, and districts are teaching students what they need to know. What's wrong with looking only at achievement data? Let's look at Ohio's achievement data to answer this question.

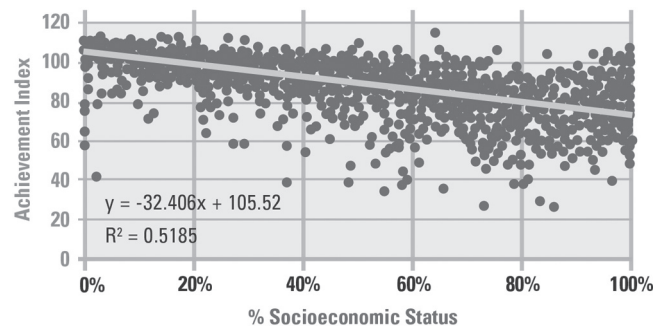
The scatter plot in Figure 1.1 shows the relationship between socioeconomic status and achievement in the state of Ohio. Each point on the graph represents a school building. The schools are placed on the scatter plot according to their socioeconomic status ( $x$ -axis), as measured by federal free/reduced lunch numbers and achievement on the Ohio performance index ( $y$ -axis). What do you see? How are achievement and socioeconomic status related? Is there a strong or weak relationship?

The scatter plot demonstrates a strong relationship between achievement scores and socioeconomic status. In general, the higher the poverty levels are in a school, the lower the achievement scores tend to be. The reverse is also true: Less poverty in a school generally means there will be higher achievement scores. Naturally, there are exceptions, but overall, there is a strong relationship between socioeconomic status and achievement.

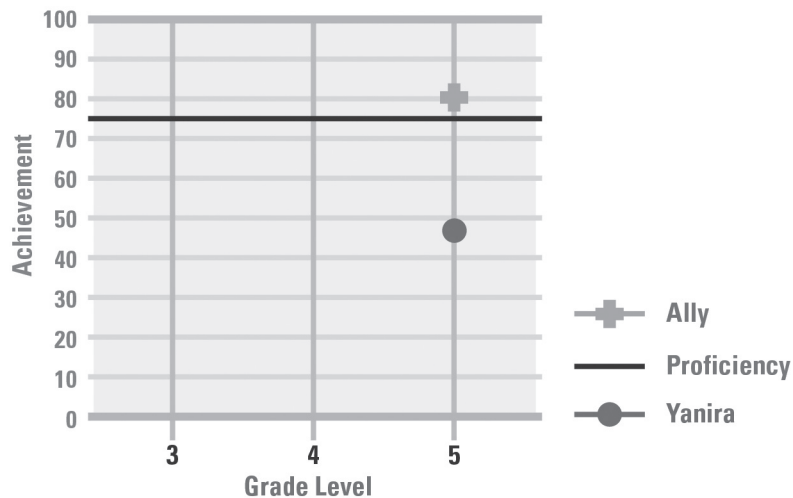
There is a strong relationship between socioeconomic status and achievement.

Why does the relationship between socioeconomic status and achievement warrant a closer look? As was illustrated in the case of Yanira and Ally, and exemplified by the scatter plot in Figure 1.1, we know that where a student lives often determines how he/she will

**Figure 1.1** Achievement and Socioeconomic Status



Source: Adapted from the Ohio Department of Education, 2009.

**Figure 1.2** Ally and Yanira: Fifth-Grade Snapshot

Source: © 2011, Battelle for Kids.

score on achievement tests. If we were to chart Yanira and Ally's fifth-grade achievement scores, it might look like Figure 1.2 (above).

This is how student achievement is generally viewed around the country: Ally is proficient; Yanira is not. We'll see a different perspective of these data later in this chapter. First, though, it is helpful to define achievement data and to examine the historically powerful role that achievement data have and continue to play in education.

**Achievement data are a measure of student academic ability at a fixed point in time.** In accordance with the No Child Left Behind Act (NCLB), each state must assess the achievement of its students in Grades 3 through 8 in reading and mathematics annually. Achievement test results tell educators what their students know and are able to do relative to the standards being assessed. Achievement results are reported to parents and the public each year. Often, achievement trends are displayed by presenting the results across multiple consecutive years. For example, the Grade 4 reading results for each of three years may show that the passing rates of students were 75%, 80%, and 82%, respectively. This information tells us about the overall reading performance of fourth graders across time for different groups of students, but what does it tell us about those same students across time?

Annual reporting of achievement results does not account for the differences among cohorts. Consequently, the achievement trend reports may be a comparison of apples, oranges, and pineapples.



Because each student cohort comes to a particular grade level with a different profile of knowledge and skills, achievement data are not particularly useful for assessing the quality of the current educational program. For example, a program may work really well for students who are on grade level but very poorly for students who have not mastered prior skills. So depending upon the profile of your current students, the same academic program may be termed either effective or ineffective based on the knowledge and skills of the entering group of students.

Achievement data have been around in various forms for decades. In most of the United States, this is the primary data source for school accountability. In other words, a school's impact on its students is measured by students' performance on high-stakes state achievement tests. The increased emphasis on accountability standards in the last decade has increased the emphasis on achievement scores. Schools are held accountable for student achievement through state reporting mechanisms and through federal AYP.

Achievement scores have value. They indicate the level to which a student can demonstrate mastery of information as defined by state-approved content standards. State achievement tests let students "show what they know," and higher scores can open the door to postsecondary work and college opportunities. There are, however, considerable downsides to measuring only achievement. The biggest downside—the most powerful factor in determining how well a student does on achievement tests—is socioeconomic status, as depicted in the scatter plot that we looked at earlier.

The landmark 1966 *Equality of Educational Opportunity Study*, authored by James S. Coleman, analyzed the achievement of 600,000 children at 4,000 schools. Reflecting on the impact of this research more than 30 years later, writer Hoff (1999) remarks, "Instead of proving that the quality of schools is the most important factor in a student's academic success—as its sponsors had expected—the report written by the sociologist James S. Coleman of Johns Hopkins University found that a child's family background and the school's socioeconomic makeup are the best predictors" (p. 33). The study, which came to be known as the Coleman Report, led to widespread public policy decisions based on the idea that socioeconomic factors contribute to student success, or lack of student success. Another important outcome of the Coleman Report is that some educators took the report to mean that what they do in their classrooms is inconsequential, for Coleman reported that background and socioeconomic factors are stronger predictors of success than the quality of schools.

Some teachers felt it was not their fault if students didn't learn, and these beliefs have continued to permeate our educational culture today. For that reason, the report is now "widely regarded as the most important education study of the 20th century" (Hoff, p. 33).

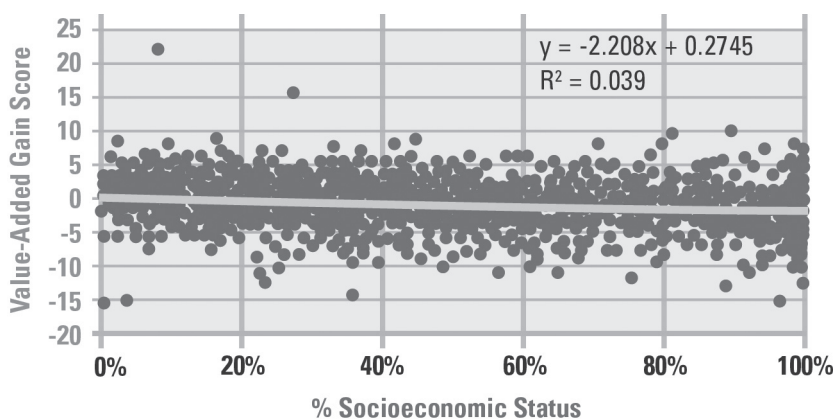
More than 30 years after the Coleman Report in 2002, NCLB was signed into law, turning up the heat on accountability for all. NCLB mandated that each state have academic content standards in place, if they didn't already, and that each child reach proficiency by 2014. NCLB raised the national awareness on the looming achievement gap, and although it is worthwhile to demand proficiency to academic content standards, NCLB has done little to emphasize the growth that is needed to help all students reach proficiency. Value-added analysis experts Dr. William Sanders and Dr. June Rivers (2009) have commented that NCLB's sole focus on achievement is "akin to winning the battle and losing the war" (p. 45). Researcher Ted Hershberg (2004) notes that "in its current form, NCLB is unlikely to lead to the necessary changes. . . . But if states adopt a new statistical methodology known as value-added assessment that isolates the impact of instruction on student learning, they will provide educators with powerful diagnostic data to improve teaching and put in place the necessary foundation to support a transformation of our schools" (p. 5).

So far, we have established that socioeconomic status is related to achievement and that a focus on proficiency alone does not account for the growth needed to reach proficiency. We have defined achievement and examined the powerful role that it has played in shaping our current accountability culture. Yet still, all over the country, classrooms such as Yanira's are labeled as failures. Another view of educator effectiveness, then, is worth our time and consideration: value-added analysis.

### **Concept 3: Value-Added Analysis: A Fairer Measure**

Examine another scatter plot below. The graph in Figure 1.3 depicts the relationship between socioeconomic status and value-added gains. On the  $y$ -axis, zero represents no difference between where students score and where they were expected to score. In other words, a score along the zero line represents average or acceptable growth for one year. Negative value-added scores, or anything below a zero, represents less than expected progress. Positive value-added scores,

Figure 1.3 Progress and Socioeconomic Status



Source: Adapted from the Ohio Department of Education, 2009.

or anything above the zero, represent more than expected progress. What do you see? What is the relationship between progress and socioeconomic status?

It is evident from this scatter plot that there is only a slight relationship between value-added gains and socioeconomic status. In other words, students from poor families are as likely to have good value-added gains as students of wealthier families. There are some high-poverty schools that are making tremendous growth in one year as measured by value-added analysis and other high-poverty schools that are not. On the left side of the graph, you can see that there are some low-poverty schools that are making outstanding gains with their kids and others that are making less than expected progress in one year.

What conclusions can we draw, and what questions can we ask based on these charts? First, these graphs show that what we do as educators *matters*. We can't influence the financial circumstances of our students, but we can affect what happens with them once they arrive at school. Note that this is a distinct and important departure from the findings of the Coleman Report. Value-added analysis levels the playing field. Whereas achievement is correlated with socioeconomic status, value-added analysis has only a slight relationship to measures of socioeconomic status. This correlation was found by not only examining Ohio progress information but also by analyzing schools in Tennessee and on the East Coast of the United States (Hershberg, 2004). Therefore, it is safe to say that value-added analysis is a much fairer measure of what occurs in classrooms, schools, and school districts.

Value-added analysis levels the playing field.

There are research and policy implications here as well. What are those high-progress schools, or those above the zero line, doing? Can we study their practices and replicate them in other places? What *isn't* working at the schools that are making less than expected progress in a year? Are there some practices that can be abandoned and replaced with more effective ones? Educators, researchers, and policymakers are using value-added information to begin to answer these questions.

## Concept 4: The Power of Two: Progress and Achievement

Value-added analysis does not replace traditional measures of achievement; rather, it complements them. When taken together, achievement results and value-added information tell us where students are with respect to academic content standards and how effectively the current program is working to move all students toward higher levels of proficiency. We will show you how to identify patterns in value-added information—and what to do with them—in the forthcoming chapters.

Value-added is the only measure that shows the impact that instructional practices have on student achievement.

Value-added analysis is an important data source because it tells you who is benefiting most from the current program—low achievers, average achievers, and/or high achievers. With value-added information, a team of educators may discover that the current sixth-grade math program works well for students who are at or above grade level but not well with students who are below proficiency. Given this information, educators can dig a little deeper into their practices and make a decision to change. They might add elements that make the program more effective with low achievers and/or abandon old practices that may not be effective. As one educator remarked, “Value-added is the only measure that shows the impact that instructional practices have on student achievement.”

Value-added analysis provides a more complete, accurate picture of student growth from year to year, including how much growth a student or groups of students make over time. Together, achievement and progress information provide a powerful duo of measures to identify strengths and opportunities for improvement in schools. This

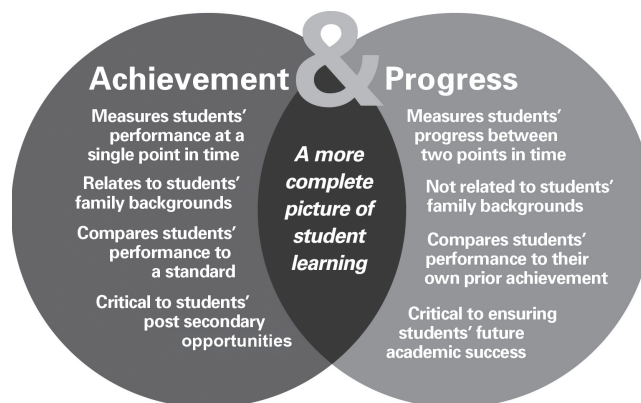
combination is what we call “The Power of Two.” (See Figure 1.4.) Achievement is measured by students’ performance at a single point in time and how well those students perform against a standard. Progress, in contrast, is measured by how much gain or growth students make over time. To adequately gauge, encourage, and calibrate efforts, both progress and achievement must be measured and evaluated.

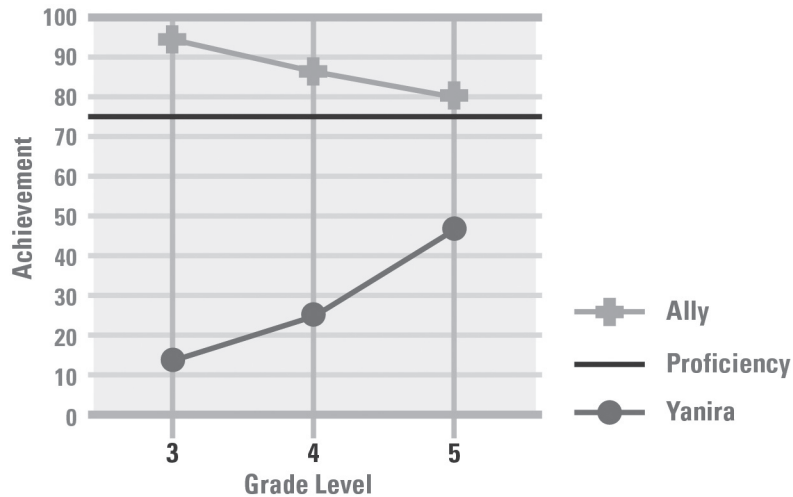
Each of these measures provides different and important information, but the combination of student achievement data and progress information is powerful. By measuring both and using other data sources, teachers, schools, and districts receive a more robust, comprehensive view of their impact on student learning.

Can value-added reports really tell us something that we can’t get from achievement scores? Look at another example comparing Ally and Yanira (Figure 1.5). Ally consistently scores above the grade-level proficiency standard. She scores at the 96th percentile in math in third grade, the 88th percentile in fourth grade, and the 80th percentile in fifth grade. Despite being above the proficiency bar, her performance is declining. Earlier, when we only looked at Ally’s performance in the fifth grade, she, her teacher, and her school appeared to be successful. How might they be perceived now? What intervention or enrichment strategies might Ally’s teacher undertake if she had access to Ally’s growth patterns over time?

Let’s turn back to Yanira, who scores at the 13th percentile in math in third grade, the 27th percentile in fourth grade, and the 49th percentile in fifth grade. Yanira is making significant progress; however, she is still below the expected standard for her grade level. Although

**Figure 1.4** The Power of Two



**Figure 1.5** Ally and Yanira: Growth Over Time

Source: © 2011, Battelle for Kids.

still below grade-level expectations, she is making gains. Before, Yanira seemed to be failing, but when we look at Yanira's growth pattern, we can see that she is actually growing at a fairly rapid rate. How might Yanira's teachers employ intervention and enrichment strategies if they had Yanira's growth information? How might the community perceive Yanira's school if they had access to more than just Yanira's and her peers' achievement information?

If we extrapolate Ally's and Yanira's achievement results to all the other students in their respective schools, our judgment might be that Ally, her teacher, and Bethany Elementary School should be rewarded. Conversely, Yanira, her teacher, and Alamos Elementary School should be labeled as failing and possibly sanctioned. However, when we consider progress, a different picture emerges. The success that Yanira's teachers and school have had in generating growth over time should be celebrated and shared, while interventions should be put in place to prevent Ally and students like her from continuing to make less-than-expected levels of progress.

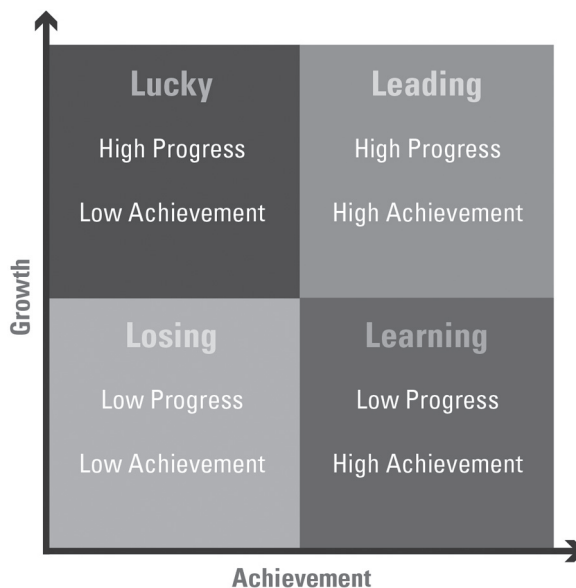
Figure 1.6 depicts a framework that has been adapted from Dr. Douglas Reeves's *Leadership for Learning Framework* (Reeves, 2006). It takes into account both progress and achievement when looking at district- and school-level results.

This simple matrix juxtaposes achievement and progress measures to provide a clear picture of how schools or programs are really doing. When analyzing value-added and achievement data simultaneously,

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**Figure 1.6** Progress and Achievement Framework
 

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Source: Adapted from Doug Reeves's *Leadership for Learning Framework*, Copyright 2006.

you can quickly determine which cell schools may fall into on this matrix. Each cell represents an entirely different school environment. Is your school leading, learning, lucky, or losing? Why? In subsequent chapters we will expound on the use of a similar matrix to help you more clearly determine your systems' and schools' strengths and challenges.

Although it is important and necessary to hold all students to meeting proficiency standards, it is equally important for educators to ensure that all students—low- and high-achieving alike—are growing academically each year and maximizing their potential for growth. After all, our moral imperative as educators is to give all students access to curriculum and instruction designed to maximize learning no matter from which point they start.

### **Concept 5: Value-Added Analysis Is Part of a Balanced Assessment System**

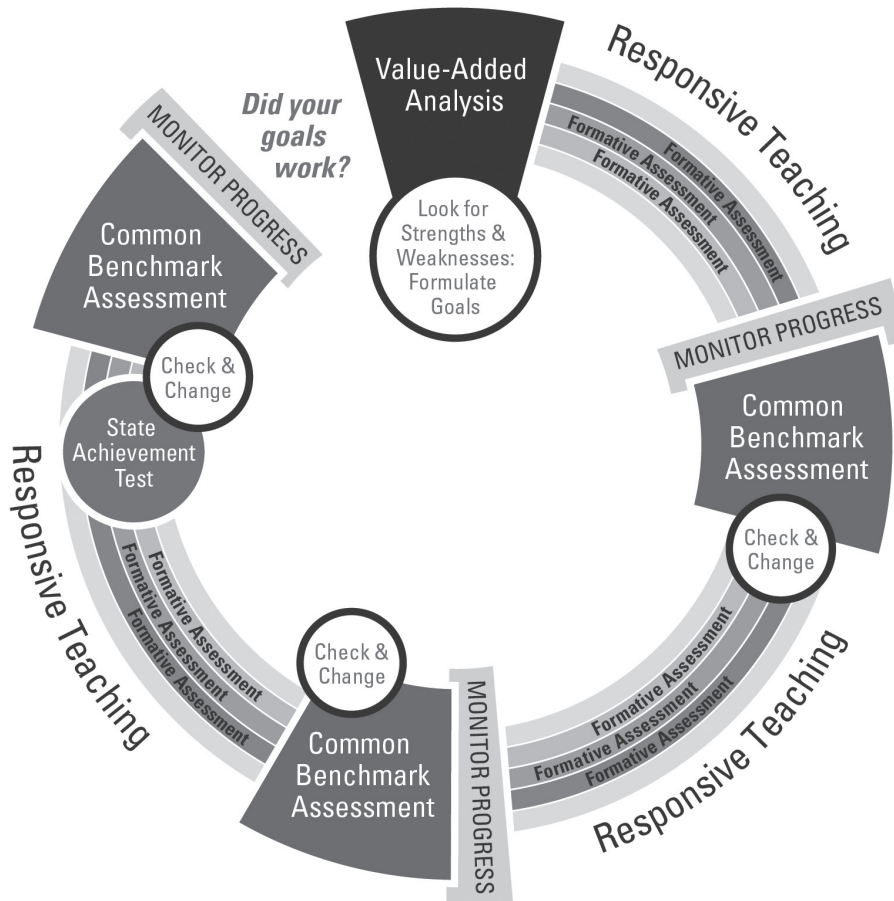
Value-added analysis plays a key role in a balanced assessment system in which both achievement *and* growth are measured and maximized.



In a typical school year, educators are provided access to some or all of the following pieces of information: state achievement test results, value-added information, common benchmark or quarterly assessment data, classroom summative assessment data, and classroom formative assessment information. Teachers and leaders are charged with the responsibility of sifting through and making sense of all of the available data to make reliable, actionable decisions to move students forward. Because it is a summative measure, value-added analysis is a useful tool to illuminate yearly strengths and areas of challenge.

Figure 1.7 depicts our schematic of a balanced assessment system. This shows a responsive teaching cycle where formative and summative measures are used over the school year to monitor student progress. The purpose of a balanced assessment system is to provide educators with the feedback they need in order to accelerate student

Figure 1.7 A Balanced Assessment Cycle



Source: © 2011, Battelle for Kids.



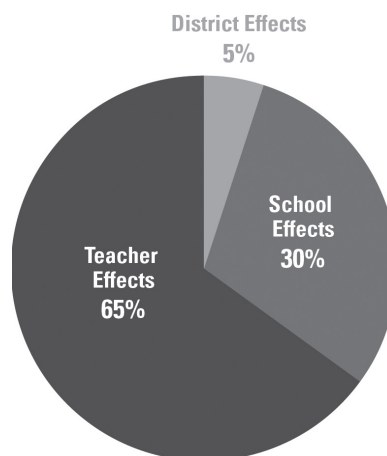
progress. In this model, educators are called upon to be responsive to the assessment information that they regularly collect to help them modify their instructional practices. In a balanced assessment system, formative and summative practices are necessary and complementary sources of information—to monitor progress in time and measure progress over time, respectively. We will further discuss this relationship in Chapter 8.

## Concept 6: Teachers Matter

In direct contrast to what Coleman found in 1966, over two decades' worth of newer research using value-added analysis concludes that teachers account for the most influential factor on a student's achievement. In fact, Figure 1.8 shows that 65% of the variance in student progress can be directly attributed to the teacher, 5% of the variance in progress can be traced to the district, and 30% of the variance in a child's academic progress goes back to the school (Sanders, 2004).

Researchers have been highly interested in the impact teachers have on students and to what extent teacher effects persist over time. The University of Tennessee Value-Added Research and Assessment Center's Technical Report (1997) found that more than 80 scaled score points separated the most effective teachers from the least effective. In 2000, June Rivers followed students grouped by their achievement level on their fourth-grade achievement test and tracked their probability of passing a high school exam based on the sequence of teacher quality they experienced in fifth through eighth grades. Only

**Figure 1.8** Teacher Effects Attributed to Student Learning



Source: Sanders, 2004.

the highest achieving students at the fourth-grade level were able to overcome poor teaching in the fifth through eighth grades and make high scores on the high school exam. Conversely, even the lowest achievers on the fourth-grade test were able to significantly raise their probability of passing the high school exam with a sequence of highly effective teachers, defined as those who facilitated greater than expected progress with students.

Dr. River's findings are consistent with those of Jordan, Mendro, and Weerasinghe (1997). In their study, children in a Dallas school assigned to three highly effective teachers in a row posted math achievement scores an average of 76 percentile points higher than their third-grade achievement scores, while those assigned to three less effective teachers in a row posted math achievement scores an average of 27 percentile points lower than their third-grade scores. In the research conducted in Boston Public Schools, students with the most effective math teachers demonstrated, on average, 14.6% annual gains in their math achievement scores while students experiencing the least effective teachers lost ground by 0.6%. In reading, students with the most effective teachers gained 5.6% in reading, while those with the least effective reading teachers made gains averaging only 0.3% (Boston Public Schools, 1998).

Writing about the impact of highly effective teachers, Marzano (2000) concluded that "exceptional performance on the part of teachers not only compensates for average performance at the school level, but even ineffective performance at the school level" (p. 81). And Rivkin, Hanushek, and Kain's (2001) findings suggest that having five years of good teachers in a row (one standard deviation above average, or at the 85th quality percentile) could overcome the average seventh-grade mathematics achievement gap between lower income kids (those eligible for free or reduced price lunch) and those from higher income families. Thus, high-quality teachers can make up for the typical deficits that we see in the preparation of kids from disadvantaged backgrounds.

When considering whether teachers have a lasting effect on students, Konstantopoulos (2007) found that teacher effects are cumulative and observed not only in the current or the following grade but that they endure up to three years in early elementary grades. Other studies have found, however, that the difference between being assigned an effective and ineffective teacher is largest in the short term (e.g., on end-of-year test scores) but tends to be more muted in the longer term (e.g., on test scores two years later; see, e.g., Jacob, Lefgren, & Sims, 2008; Kane & Staiger, 2008).

Clearly, the research base surrounding value-added analysis, particularly as it relates to teacher effects, has been growing. This is one of the reasons why educators, policymakers, researchers, and legislators are more focused on teacher quality. What is most significant is something you already know: Researchers have confirmed that what teachers do in the classroom with students *matters*.

In this chapter, we defined value-added analysis in depth and clarified the difference between achievement and progress information. Together, achievement and progress information provide a powerful picture of district, school, and classroom effectiveness. Value-added information is meaningful and actionable. In this era of accountability and data-based decision making, we are reminded that progress is a crucial measure. In the next chapter, we focus on the multiple uses of value-added information and examine the benefits of using value-added analysis for superintendents, principals, teachers, students, parents, community members, legislators, and policymakers.

In this era of accountability and data-based decision making, we are reminded that progress is a crucial measure.

### Summary

Value-added analysis is a progress metric that measures teachers', schools', and districts' impact on students' academic performances over time. Whereas there is a strong relationship between achievement and socioeconomic status, this is *not* true for value-added information. Achievement *and* growth should both be looked at to measure district, school, and classroom effectiveness. Research shows that what teachers do in the classroom accounts for the majority of variance relative to student growth.

### Action Steps and Discussion Questions

**Action Step:** Understand what value-added analysis is and how it differs from achievement information.

- In your own words, how would you define value-added analysis?
- How does value-added analysis differ from achievement or attainment information?
- Why is looking *only* at student achievement problematic?

**Action Step:** Discuss the Power of Two with staff.

- What do we know about socioeconomic status and how it correlates to measures of achievement and progress? Why is this significant to our mission as educators?
- What new perspective does value-added information give educators?
- How can looking at both achievement and progress measures help educators?

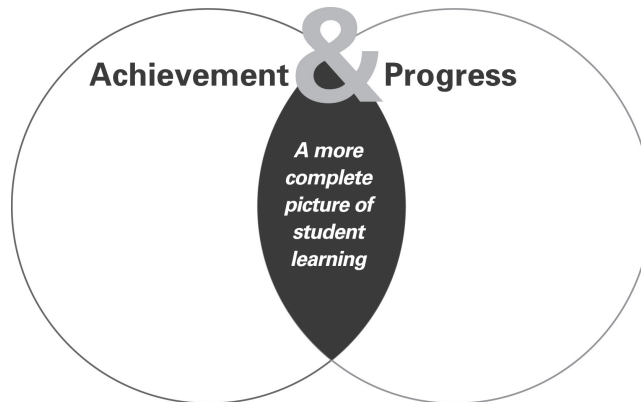
**Action Step:** Examine the powerful body of research surrounding value-added information.

- What research finding on teacher effectiveness was new to you?
- Did the research confirm your beliefs or surprise you?

### Hands-On Resource Guide for Teachers and Leaders

- The Power of Two blank graphic (Figure 1.9) for participants to fill in as they learn about value-added analysis

**Figure 1.9** The Power of Two: Template



Source: © 2011, Battelle for Kids.