success measured

FOUR
FOUNDATIONAL
ELEMENTS OF
STUDENT-LEVEL
GROWTH

Arizona
Charter Schools
Association

SUPPORT. ADVOCATE. LEAD.


“The best hope of a nation lies in the proper education of its youth.”
ERASMUS, A RENAISSANCE THINKER

any school can become a place where students succeed

All Arizona educators want their students to get a quality education. *Success Measured*, a study conducted by the Arizona Charter Schools Association, offers some valuable answers on how to achieve that goal. The rigorous research identified four foundational elements of student-level growth that schools – charter or district – must have to help students perform better academically. They include a leader with a purpose; teachers who take responsibility for the end result; a culture that promotes teamwork; and using data to solve problems.

The bulk of the data for this study came from AIMS (Arizona Instrument to Measure Standards) reading and math scores for more than 700,000 students in all public schools. A statistical analysis of the data and a four-step filtering process were then used to identify the very best charter schools in the state. This method is unique because it creates a way to identify charter schools where students are achieving high levels of individual growth. It also deepens the use of quantitative and qualitative data to uncover findings that are a starting point to guide schools to higher student performance.

Success Measured used four filters to identify the best charter schools in Arizona. Two methods focused on student growth and two focused on systematic high achievement and sustainability. To make it through the four filters, schools had to meet the four of the following criteria:

- High student-level growth percentile ranks, allowing us to answer the question, "Given a student's starting point, how much did they grow over the last year?"
- Higher than expected student-level growth, given student demographics
- High actual-minus-predicted scores
- Long-term evidence of school-level growth relative to the state mean

Once we identified the three best schools, we checked two additional items to ensure accuracy. First, we confirmed that the schools tested virtually all of their students and did not exclude groups of students who were expected to receive lower scores. Then, the schools' financial records were reviewed to make sure that success was occurring in a fiscally sound environment. We also matched them to other schools with similar demographic characteristics to see the differences between the three top schools and those that had less successful track records.

As soon as we were confident that the data we used identified schools that were succeeding beyond just having high test scores, we were ready to take a closer look at each one. Three charter schools met the *Success Measured* study's rigorous criteria in both reading and math: **BASIS Tucson, Mesa Arts Academy** and **Khalsa Montessori** in Phoenix. Interestingly, while the schools are all quite similar in their student results, they vary widely in their educational philosophies and daily routines.

"Each generation of Americans has outstripped its parents in education, in literacy, and in economic attainment. For the first time in the history of our country, the educational skills of one generation will not surpass, will not equal, will not even approach, those of their parents."

PAUL COPPERMAN, AUTHOR OF *THE LITERACY HOAX*

Basis Tucson — Tucson

Founded in 1997, the express purpose of BASIS Tucson has been to provide students with a world-class education based on an American curriculum with a European model of rigor that demands a high degree of student accountability. Students at this top school are taught to ask for help. When a student gets stuck, he or she is expected to come to school an hour early to work with the teacher. Teachers have morning office hours to address any student questions, as well as afternoon office hours once a week.

The reason for this extra work is that all students at BASIS take Advanced Placement exams. While most high schools only offer these tests to their "best and brightest" students, the core of the BASIS philosophy is that all students can pass rigorous exams, if the teachers and students are willing to work towards that goal.

TABLE 1: BASIS TUCSON AND COMPARISON SCHOOLS

Measure	BASIS Tucson	Comparison School 1	Comparison School 2	State Average
% White	61	83	86	54[a]
% Hispanic	21	11	12	37[a]
% FRPL	N/A	N/A	N/A	59[b]
% ELL	3	0	0	9[c]
Number of Students	136	181	243	485[a]
Grades Served	6 to 12	K-12	4 to 12	N/A
Math HLM	10.2	-1.46	0.27	0
Math Median Growth Percentile	68	44.5	46.5	49
Math Quadrant	A	D	D	A[d]
Reading HLM	4.2	-2.6	-3	0
Reading Median Growth Percentile	61	40.5	38.5	49
Reading Quadrant	A	D	D	A[d]

a Median from October enrollment, 2007-08.

b Schools that report Free and Reduced Price Lunch.

c Median of schools % ELL, AIMS data 2007.

d 37% of schools are in quadrant A for math, 38% for reading; 15% in quadrant B for math, 12% for reading, 16% in quadrant C for math and reading; 31% in quadrant D for math, 35% for reading.

Mesa Arts Academy — Mesa

Mesa Arts Academy began as a partnership between Mesa Public Schools and the Boys and Girls Club of Mesa. The charter school is purposely located in a predominately low-income, Latino neighborhood where police shut down a methamphetamine lab when the school first opened in 1995. More than 80 percent of the school's students are part of the Free and Reduced Price Lunch program – an indicator of poverty and traditionally thought of as a barrier to learning.

Understanding data has been a core component of Mesa Arts Academy's success. In 2001, the principal and a few teachers began a three-year Professional Development Leadership Academy, where they learned how to gather data, interpret it and make student-level instructional decisions based on their findings.

TABLE 2: MESA ARTS ACADEMY AND COMPARISON SCHOOL

Measure	Mesa Arts Academy	Comparison School	State Average
% White	32	59	54[a]
% Hispanic	63	36	37[a]
% FRPL	81	65	59[b]
% ELL	6	8	9[c]
Number of Students	216	355	485[a]
Grades Served	K-8	K-8	N/A
Math HLM	11.6	-5.5	0
Math Median Growth Percentile	56	35	49
Math Quadrant	A	D	A[d]
Reading HLM	9.9	-2.8	0
Reading Median Growth Percentile	64	42.5	49
Reading Quadrant	A	D	A[d]

a Median from October enrollment, 2007-08.

b Schools that report Free and Reduced Price Lunch.

c Median of schools % ELL, AIMS data 2007.

d 37% of schools are in quadrant A for math, 38% for reading; 15% in quadrant B for math, 12% for reading, 16% in quadrant C for math and reading; 31% in quadrant D for math, 35% for reading.

Khalsa Montessori School — Phoenix

Initially a private school, Khalsa Montessori became a charter school in 1996. The Montessori teaching method emphasizes a multi-sensory learning environment. Students' intellectual, physical, and psychological abilities are nurtured through extensive use of hands-on activities, a non-traditional classroom environment and multi-age grouping.

At Khalsa, a culture of comfort and respect is fostered in an atmosphere where students and teachers remove their shoes, sit on floor cushions, as well as traditional desks and speak in quiet voices. Hands-on learning activities include using beads or puzzle-like grids to calculate math problems and working in the vegetable garden. Three "lower elementary" classrooms house six-to-nine-year-olds, while nine-to-twelve-year-old students are taught in two "upper elementary" classrooms. Though they are separated, both age groups follow a similar daily routine.

TABLE 3: KHALSA MONTESSORI SCHOOL – PHOENIX AND COMPARISON SCHOOLS

Measure	Khalsa Montessori	Comparison School 1	Comparison School 2	State Average
% White	63	78	92	54[a]
% Hispanic	10	10	0	37[a]
% FRPL	N/A	N/A	N/A	59[b]
% ELL	0	0	0	9[c]
Number of Students	163	138	115	485[a]
Grades Served	K-6	K-8	K-8	N/A
Math HLM	11.8	0.89	-4.36	0
Math Median Growth Percentile	72	40.5	30.5	49
Math Quadrant	A	D	D	A[d]
Reading HLM	4.4	-1.49	0.14	0
Reading Median Growth Percentile	65.5	44	54	49
Reading Quadrant	A	C	A	A[d]

a Median from October enrollment, 2007-08.

b Schools that report Free and Reduced Price Lunch.

c Median of schools % ELL, AIMS data 2007.

d 37% of schools are in quadrant A for math, 38% for reading; 15% in quadrant B for math, 12% for reading, 16% in quadrant C for math and reading; 31% in quadrant D for math, 35% for reading.

Fostering Growth: What Every School Needs to Know

Despite their differences in philosophy and specific approaches to addressing student needs, all three of the top schools practice four foundational elements that we believe are necessary for students to grow academically.

A LEADER WITH A PURPOSE

In our top schools, leadership, vision and mission are very powerful words that drive every single decision. The school leaders set the tone, modeling the attitude and behavior they want to see from every person – teachers, staff members, students and parents – in the school.

TEACHERS WHO TAKE RESPONSIBILITY FOR THE END RESULT

One of the most important jobs of a school leader is to hire the right teachers. While all three leaders value subject-matter expertise, it was a teacher's character that was most often the deciding factor for them. These teachers have an ability to demand more from their students and themselves, exhibit a love of learning and a willingness to be assessed.

A CULTURE THAT PROMOTES TEAMWORK

The leaders and teachers at these top schools get their strength to foster growth from being part of a bigger team. The teachers would not be as successful if they remained in their classrooms all day, isolated from their peers. Rather, they have defined processes to gather in a climate that promotes "getting the job done together."

A PROCESS FOR SOLVING PROBLEMS

Data is imperative for addressing student needs and finding solutions, and top schools solve their school and student-level problems using a systematic, data-driven method.

WHAT WE DIDN'T LEARN

There is a lot of discussion in the education literature about parent involvement, state spending and class size. We examined those issues to see what we could learn from the best charter schools and came up with some interesting results. We did not find that parent involvement, state spending and class size made a significant difference in these top charter schools. At all three of the schools we studied in detail, we probed the question of parent involvement and got the same answer: Parents have to buy into the rigor of the school. We also didn't find that any of the top schools had any financial advantage over the comparison schools. Improving achievement seems to be a matter of resource allocation: Increased funding could be used wisely in top schools to achieve greater results, but increased spending itself doesn't guarantee success. Finally, class size did not seem to contribute significantly to student achievement.

NEXT STEPS

For many schools, the type of cultural shift required to implement the four foundational elements of student-level growth may seem unattainable. School administrators and teachers need help seeing themselves as advocates for each child, especially those who have no other adult who understands their educational needs. *Success Measured* shows that it can be done in any type of school. It just starts with one person believing in students, observing areas for improvement and making changes. At the Association, we are using the results of *Success Measured* to implement a variety of hands-on technical assistance options and provide struggling schools with specific strategies to achieve success. By doing this, we hope to fulfill our mission of high student achievement through quality charter schools one student at a time.

To find out more, please visit www.azcharters.org or call the Arizona Charter Schools Association at 602.944.0644. The full report is available at www.azcharters.org/docs/successmeasured.pdf.

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success measured

FOUR FOUNDATIONAL ELEMENTS OF STUDENT-LEVEL GROWTH

BY REBECCA GAU
AND MARCELLA GEMELLI

Arizona Charter Schools Association
SUPPORT. ADVOCATE. LEAD.

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looking for growth: data that goes beyond test scores

There's been a great deal of debate over how well public schools are serving our children, but there's actually been very little quantifiable research done about how public schools can improve the academic performance of individual students in the system.

Part of this is because, until now, good data has been largely unavailable. Test scores have always been important, but have really only been able to tell us about grade-level performance, not student-level growth.

We're lucky here in Arizona because each public school student is assigned a unique tracking number. This number stays with a student from grade to grade and school to school. In the past few years, this unique student identifier system has become more reliable, and statistical techniques for measuring student growth have been developed. Data models have improved to allow a true measure of the "value added" a particular school is giving to each individual student over time.

Charter school data is another key component of this report. Charter schools began in Arizona in 1995, and reliable data is now readily available. Other studies have been unable to include charter school data because of the time periods researched, but since all the data obtained for *Success Measured* was generated after the year 2000, we were able to analyze charter schools for the first time in a meaningful way.

HOW WE MEASURED SUCCESS

The inspiration for *Success Measured* comes from two sources — a previous Arizona report on district schools with high Latino populations and a motivational business book.

In 2006, The Center for the Future of Arizona came out with a groundbreaking study — *Beat the Odds: Why Some Schools with Latino Children Beat the Odds and Other's Don't*. The researchers wanted to see if schools could perform better on standardized tests than demographic make-up predicted. The study showed not only that it was possible, but also that schools with traditionally harder to educate students could score significantly higher than the odds predicted. The report then identified six common themes among the schools that were "beating the odds."

apples to apples: students with similar backgrounds and starting test scores were compared to each other, to see how well schools with similar student demographics are educating their students.

With advice from Jim Collins, *Beat the Odds* replicated the methodology Collins used in his book called *Good to Great: Why Some Companies Make the Leap…and Others Don't*, which used data filters to identify successful businesses, and then matched those businesses with less successful ones to determine what caused some companies to be great companies.

Beat the Odds applied this methodology to schools, and *Success Measured* has used it to determine the factors that contribute to student-level growth. We analyzed AIMS scores and filtered them through a four-step process to find Arizona's top schools. The exercise revealed 29 institutions where students are growing at a high rate in both math and reading (see Table 1), and three schools with long-term evidence of growth much higher than the state mean. (See Figure 1.)

We conducted interviews with the leadership teams from each of the three top charter schools, then we matched each of the three top charter schools with at least one comparison charter school with similar student demographics, size, location and (where possible) philosophy. This type of comparison, directly examining similar schools with different test results over time, allowed us to account only for the practices that are used in the top schools and remove the

TABLE 1: 29 OUT OF 259 CHARTERS WITH SUFFICIENT DATA* HAD HIGH STUDENT-LEVEL GROWTH AND PASSED THROUGH THE FIRST TWO MEASURES OF SUCCESS — BOLDED SCHOOLS PASSED THROUGH ALL FOUR MEASURES

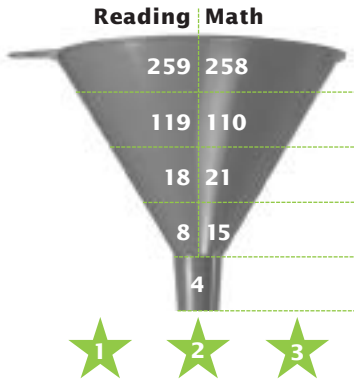
Charter School	Math High Growth	Reading High Growth
Academy of Math and Science H	✔	
Arizona School for the Arts E		✔
Ascending Roots Scholastic & Athletic Premise P		✔
BASIS Scottsdale E	✔	
BASIS Tucson E	✔	✔
Bright Beginnings School #1 E	✔	
Carden Traditional School of Glendale P+	✔	✔
Center for Educational Excellence E		✔
Edu-Prize E	✔	✔
Foothills Academy E		✔
Freedom Academy E	✔	
Happy Valley School E	✔	
Harvest Preparatory Academy P	✔	✔
Hermosa Montessori Charter E		✔
James Madison Preparatory School E		✔
Khalsa Montessori Elementary School – Phoenix E	✔	✔
Masada Charter School E	✔	✔
Mesa Arts Academy H	✔	✔
Mission Montessori Academy E	✔	
Mohave Accelerated Elementary School P+	✔	✔
NFL YET College Prep Academy P+	✔	✔
Nosotros Academy P		✔
Paulo Freire Freedom School E	✔	
Pine Forest School P+		✔
Sedona Charter School E	✔	
Self Development Charter School E	✔	
Veritas Preparatory Academy E	✔	
Villa Montessori – Phoenix Campus E	✔	✔
Youngtown Public Charter School P	✔	

AZ Learns Label E = Excelling P+ = Performing Plus H = Highly Performing P = Performing

* AIMS scores can be compared over time for grades 3-8, so many charter high schools or K-3 schools could not be included in this research

For detailed information and the rankings of each of these schools, please see Appendix A.

FIGURE 1: THE FILTERING PROCESS REVEALED THREE SCHOOLS



Number of Charters with Data

Measure 1: High Growth Percentiles (See Figure 3)

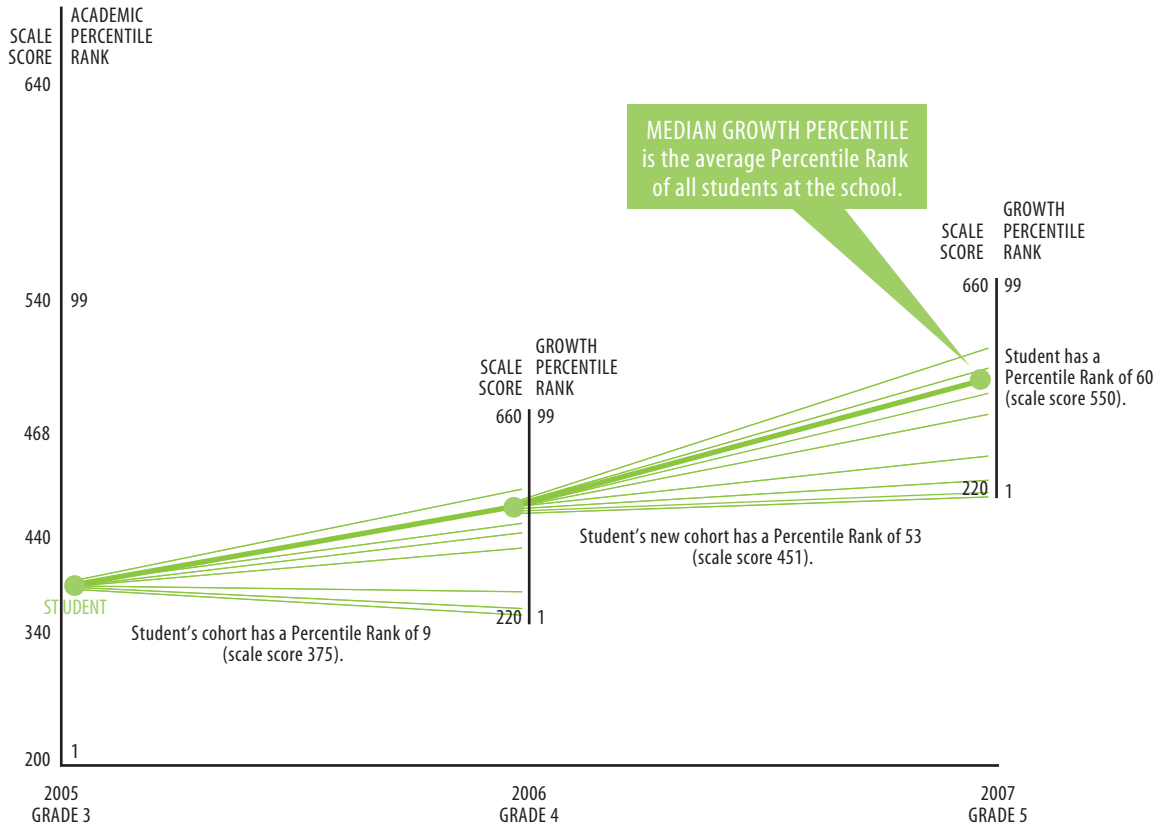
Measure 2: Top 10% for Heirarchical Linear Modeling (See Table 1)

Measure 3: Actual Score Above Predicted

Combined Reading and Math: 4 Schools Had High Growth in Both

Measure 4: Outperformed State Mean from 2000-2007: Khalsa Montessori School – Phoenix, Mesa Arts Academy, BASIS Tucson

FIGURE 2: A NEW WAY TO MEASURE STUDENT-LEVEL GROWTH TRACKS PROGRESS COMPARED TO OTHER STUDENTS STARTING AT THE SAME LEVEL



practices that were being used in less effective schools. Comparing the practices of similar schools allowed us to determine a set of factors that are really contributing to student-level growth.

Interview questions for the most successful schools closely followed selected questions from *Good to Great* and can be found in the appendix of that book. We asked school leaders and teachers at the top schools to identify the top five factors that led to their improvement. We asked the leaders of the comparison schools the top five school improvement strategies they had employed. We processed the interview responses through a qualitative analysis tool, NVivo, which allowed us to note differences in text given by the top schools and the comparison schools. We found that the top schools consistently used the same language and key terms to describe their practices, which the comparison schools did not. The consistency and the reiteration of certain key words by the top schools and lack of these in the comparison schools led us to develop a set of factors that contributed to student-level growth. (See Appendix C.)

DATA IN DETAIL: FOUR CRITERIA FOR SUCCESS

Success Measured used four filters to identify the best charter schools in Arizona. Two methods focused on student growth and two focused on systemic high achievement and sustainability. To make it through all the filters, schools had to meet all four of the following criteria:

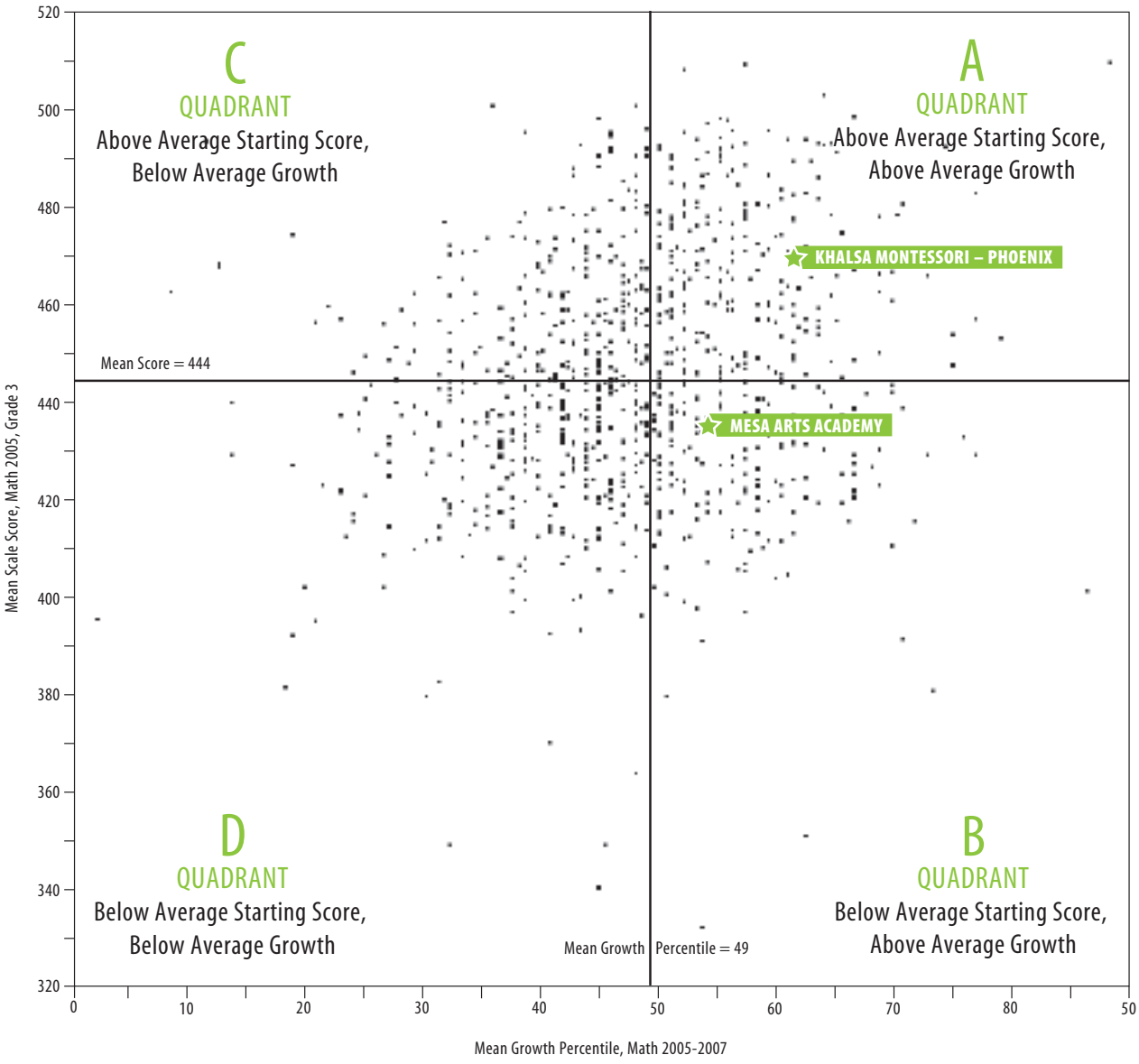
1. High student-level growth percentile ranks
2. Higher than expected student-level growth, given student demographics
3. High actual-minus-predicted scores
4. Long-term evidence of school-level growth relative to the state mean

1. GROWTH PERCENTILES

Developed by Damian Betebenner, a psychometrician at the Center for Assessment in Dover, New Hampshire,[1] growth

1 Betebenner, D.W. (2008). *Toward a normative understanding of student growth.* In L.A. Shepard & K.E. Ryan (Eds.), *Festschrift* in honor of the life and work of Robert L. Linn. New York: Routledge.

FIGURE 3: SCHOOLS AVERAGE STARTING TEST SCORE IN 2005 IS COMPARED TO THEIR AVERAGE STUDENT GROWTH: SCHOOLS IN QUADRANTS A AND B ARE GROWING STUDENTS THE FASTEST FROM GRADES 3 TO 5



Note: BASIS Tucson is not represented on this chart since it is a 6-12th grade school.

percentiles is an innovative model of student-level growth. (See Appendix B.)

To determine growth percentiles, *Success Measured* analyzed student-level reading and math score data for grades three through eight from 2005 to 2007 by using unique student identification numbers. The analysis does not use demographic variables (information related to student characteristics such as income or ethnicity), but rather calculates a starting cohort for each student based on the same 2005 AIMS scores.

From there, a student's test scores were plotted relative to his or her cohort on a 100-point scale from 2005 to 2006, and then again from 2006 to 2007. The final output was a percentile rank that compared each student to other students in his or her cohort (see Figure 2), that properly attributes growth in the current year to the current school.

We calculated the median growth percentile rank of all students in grades three through eight in a public school, which created a growth percentile score. The median growth percentile score for a school was plotted against test scores, to determine what category of student-level growth the school fell into (see Figure 3). The categories are:

- **A** Above average starting score, above average growth
- **B** Below average starting score, above average growth
- **C** Above average starting score, below average growth
- **D** Below average starting score, below average growth

Schools had to show above average growth to pass through this filter.

2. HIERARCHICAL LINEAR MODELING

The second data filter, Hierarchical Linear Modeling (HLM), is related to "value added" models and has been used by the National Center for Education and Harvard University Researchers.[2,3] Like growth percentiles, HLM uses unique student identification numbers to measure how much test score growth an individual student achieves over time, and can attribute growth in the current year to the current school. Using HLM, we can adjust for student- and school-level factors that may be associated with student achievement, as students are matched to their schools.

Using reading and math scores from grades three through eight from 2005 to 2007 again, this statistical analysis allowed for patterns to emerge showing the rate at which different types of students were growing. Our analysis included over 992,000 observations of 364,000 students in 1,354 schools.

The results of this analysis show the rate at which different types of schools were growing their students' scores. By making adjustments for student-and school-level characteristics, the model creates an expected average test score gain for each school. The expected gain was sometimes different than the measured gain of students in the school. If the school's measured growth was significantly higher than the prediction, then strong evidence existed of a positive school effect based on policy decisions or a concerted effort at the school, as opposed to random differences between groups of students.

A charter school had to be in the top 10% of all schools in the state for the size of the difference between their measured growth and their predicted growth to pass through this filter (see Appendix B.)

3. ACTUAL-MINUS-PREDICTED SCORES

While growth percentiles and HLM focused on individual student growth, we also needed evidence of systemic high achievement and sustainability at each school. We also needed to view what was happening in a school before 2005, to ensure stable growth and not short-term factors.

This third data filter helped provide this evidence using grade-level reading and math scores for grades three, eight, and ten from 2000 to 2007, combined with demographic information about each student in a school. We crunched the numbers to calculate the average test scores one would predict at each school, given its student demographics.

A school passed through this filter if its actual scores were above predicted scores in every subject and grade, and if its actual scores were at least one standard deviation above predicted scores in at least one grade or subject.

4. PERFORMANCE ABOVE STATE MEAN

The last filter also took grade-level reading and math scores from 2000 through 2007 and compared them to the state mean in grades three, eight, and ten.

To pass through this filter, a school's average test scores had to be higher than the state average, and trending upward (See Figures 4-13 in Chapter 2).

A FINAL CHECK

Once we identified the fastest growing schools, we checked two additional items to ensure accuracy. First, we confirmed that the schools tested virtually all their students, and did not exclude groups of students who were expected to receive lower scores. Then, the schools' financial records were reviewed to make sure that success was occurring in a fiscally sound environment.

Once we were confident that the data we used identified schools that were succeeding beyond just having high test scores, we were ready to take a closer look at each one — Khalsa Montessori in Phoenix, Mesa Arts Academy, and BASIS Tucson — to determine why they were getting such great results.

2 Braun, H., Jenkins, F., & Grigg, W. (2006). *A closer look at charter schools using hierarchical linear modeling* (NCES 2006-460). U.S. Department of Education, National Center for Education Statistics, Institute of Education Sciences, Washington, D.C.: U.S. Government Printing Office.

3 Willms, J.D. & Raudenbush, S.W. (1989). A longitudinal hierarchical linear model for estimating school effects and their stability. *Journal of Educational Measurement 26* (3), 209-232.

"I believe that the teachers have a deep down yearning for the children to succeed. They keep the stakes high and are so creative in getting the kids on task."

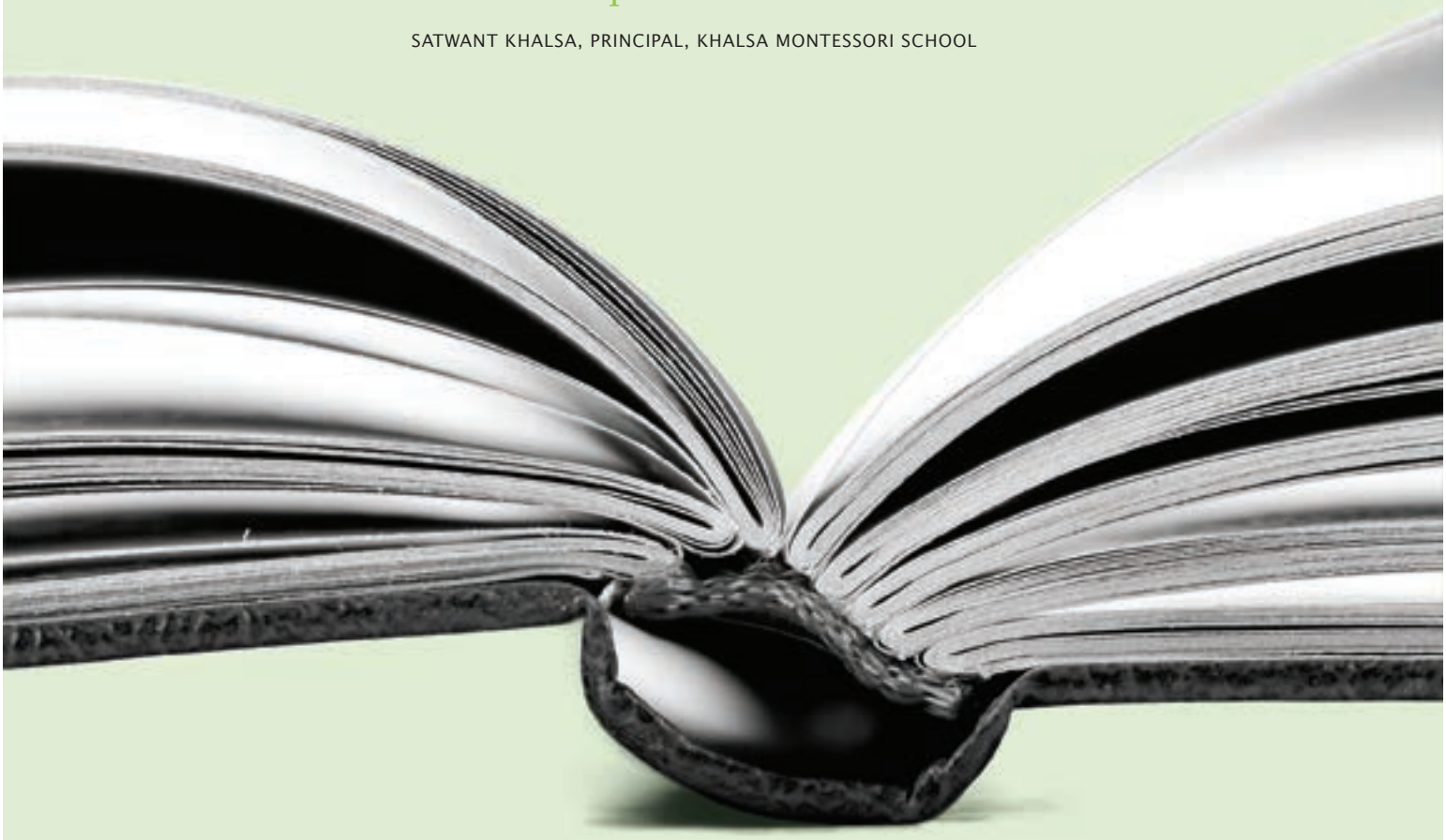
CAROLYN MCGARVEY, PRINCIPAL, BASIS TUCSON

"You have to believe that every child can achieve success, they have to see it in your eyes. You are the mirror and if you have high expectations, they will."

SUSAN DOUGLAS, PRINCIPAL, MESA ARTS ACADEMY

"We have the greatest respect for the child. We are the protectors of the child's environment."

SATWANT KHALSA, PRINCIPAL, KHALSA MONTESSORI SCHOOL



finding growth: schools where students keep getting better

Three charter schools met the *Success Measured* study's rigorous criteria in both reading and math: **Khalsa Montessori School – Phoenix**, **Mesa Arts Academy**, and **BASIS Tucson**. Interestingly, while the schools are all quite similar in their student results, they vary widely in their educational philosophies and daily routines. Here, we provide a brief description of each school to illustrate their success compared to other schools.

Khalsa Montessori School – Phoenix

Initially a private school, Khalsa Montessori became a charter school in 1996. Satwant Khalsa, a graduate of Stanford University with a background in child development and history, taught at the school for several years before becoming its principal in 1980.

The Montessori teaching method emphasizes a multi-sensory learning environment. Students' intellectual, physical, and psychological abilities are nurtured through extensive use of hands-on activities, a non-traditional classroom environment, and multi-age grouping.

At Khalsa Montessori, a culture of comfort and respect is fostered in an atmosphere where students and teachers remove their shoes, sit on floor cushions, and speak in quiet voices. Hands-on learning activities include using beads or puzzle-like grids to calculate math problems and working in the vegetable garden. This type of learning is facilitated by the classroom configuration: Desks and chairs, small stations with low tables, rugs, and cushions are scattered throughout the classroom so students may sit and work at their own pace. Three "lower elementary" classrooms house six-to-nine-year-olds, while nine-to-twelve-year-old students are taught in two "upper elementary" classrooms.

Both age groups follow a similar daily routine. In the morning, the students use their daily or weekly work plan, by which they choose work in the carefully prepared Montessori environment. The students move through their work, receiving lessons from the teacher or guidance from a well-trained classroom assistant. Students are allowed to

TABLE 2: KHALSA MONTESSORI SCHOOL – PHOENIX AND COMPARISON SCHOOLS

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% ELL	0	0	0	9[c]
Number of Students	163	138	115	485[a]
Grades Served	K-6	K-8	K-8	N/A
Math HLM	11.8	0.89	-4.36	0
Math Median Growth Percentile	72	40.5	30.5	49
Math Quadrant	A	D	D	A[d]
Reading HLM	4.4	-1.49	0.14	0
Reading Median Growth Percentile	65.5	44	54	49
Reading Quadrant	A	C	A	A[d]

a Median from October enrollment, 2007-08.

b Schools that report Free and Reduced Price Lunch.

c Median of schools % ELL, AIMS data 2007.

d 37% of schools are in quadrant A for math, 38% for reading; 15% in quadrant B for math, 12% for reading, 16% in quadrant C for math and reading; 31% in quadrant D for math, 35% for reading.

work together which encourages peer learning. Afternoons are for group work, discussions and class projects. Homework forms a bridge between hands-on Montessori materials and more traditional formats, preparing students for life beyond Montessori. Class work is monitored daily, to address a student's difficulties immediately.

This learning culture has worked well for Khalsa Montessori, whose students place near the top of the state in both reading and math. HLM data show that Khalsa Montessori students' growth in math is far above what's predicted by the school's demographics — higher than 95% of all other schools in the state (see Table 2). And the school's growth percentiles show that the average student learns faster than 72% of his or her peers. Figures 4 and 5 demonstrate that, since 2004, Khalsa Montessori's test scores have consistently ranked above the state average.

The comparison schools have slightly higher proportions of white students and lower student-to-teacher ratios (measured in 2005), but these "advantages" didn't translate into better results for these schools (see Appendix C). Table 3 shows that Comparison 2's growth is about even with what would be expected in reading, and is quite a bit lower than what would be expected in math.

FIGURE 4: KHALSA MONTESSORI AND COMPARISONS' 3RD GRADE READING SCALE SCORE*

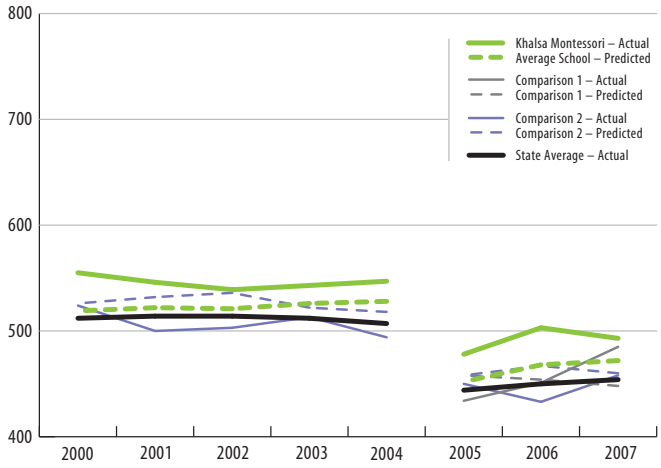
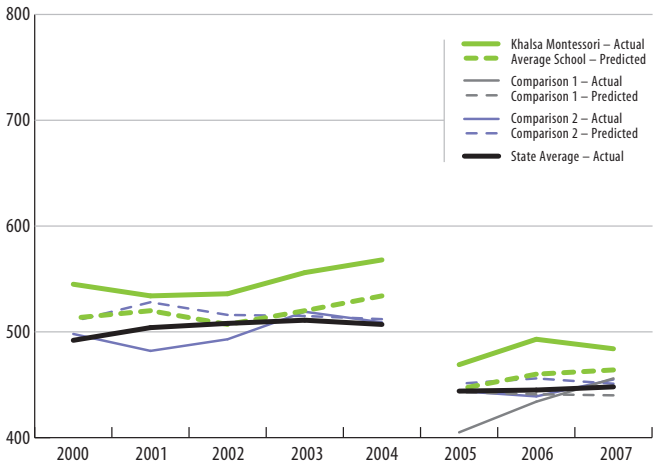


FIGURE 5: KHALSA MONTESSORI AND COMPARISONS' 3RD GRADE MATH SCALE SCORE*



* Average test scores changed between 2004 and 2005 because of changes in the state test. AIMS tests added nationally normed Terra Nova questions, which meant that the content of the 2005 test was altered from previous years making comparisons difficult. Also, the scale that calculates a students relative score based on the raw test score was adjusted, adding to the difficulty in comparing average change before 2005 to after 2005.

The predicted average score computes the test scores that the students in the school are likely to earn, given their background or demographic make-up. This is different from the actual average score that the school's students earn.

Mesa Arts Academy

About twenty miles away from Khalsa Montessori is Mesa Arts Academy, purposely located in a predominately low-income, Latino neighborhood, where police shut down a methamphetamine lab when the school first opened in 1995. As shown in Table 4, more than 80% of the school's students are part of the Free and Reduced Price Lunch program — an indicator of poverty and traditionally thought of as a barrier to learning.

The charter school began as a partnership between Mesa Public Schools and the Boys and Girls Clubs of the East Valley. The district handled daily operations with the goal to gradually become less involved, and during the first charter year Principal Susan Douglas was hired. By 2000, the school only rented busses and some curriculum from the district. Now in her 12th year as school leader, the relationship remains positive.

Understanding data has been a core component of Mesa Arts Academy's success. In 2001, Douglas and a few teachers began a three-year Professional Development Leadership Academy, where they learned how to gather data, interpret it, and make student-level instructional decisions based on their findings.

Action research and the creation of curriculum maps (detailed alignment of the school's curriculum with state standards) were instituted. Dialogue was begun with the other teachers on the information learned. At first, the teachers were uncomfortable. But their desire to help the kids propelled change and forced them out of their comfort zones. Over time, the teachers learned that data-driven decision-making was critical in diagnosing student needs, and that collaborative teams were effective at finding solutions to meet those needs.

The Leadership Academy also made Mesa Arts Academy educators realize that they needed to spend more time helping students. They agreed to extend their work day, and created schedules that allowed for six hours a week — during school hours — to plan, collaborate with each other, and help individual students.

A few years ago, one of the teachers came across a set of core values called REACH (Respect, Enthusiasm, Achievement, Citizenship, and Hard Work). The school embraced these positive reinforcement strategies, designed to reward students for good behavior and teach respect for each other. Daily pep rallies were instituted, at which students chanted enthusiastically about their college-bound futures. Those rallies have been reduced to once a week, but the teachers at Mesa Arts Academy attribute much of their success to the atmosphere instilled by the REACH values. The teachers suggest that any program could work, as long as it offers a common language of positive attributes to rally around.

Mesa Arts Academy is at the very top of the state for growth in reading and math, relative to the scores predicted by its demographics. The school is growing students faster than 64% of its peers (see Table 3). Figures 6 and 7 tell the inspiring story of how the school overcame challenges in reading. Despite having a higher proportion of high-poverty Latino students who enter in Kindergarten with limited English skills, by third grade these students are on par with the state average as shown in Figure 6. By the time they get to eighth grade, these students are well above the state average (Figure 7). In addition, the reverse achievement gap (the phenomenon whereby traditionally low-achieving groups of students outperform their middle-class peers) has widened in eighth grade in almost every year since 2001, which was the year the eighth grade teachers began participating in the Professional Develop-

TABLE 3: MESA ARTS ACADEMY AND COMPARISON SCHOOL

Measure	Mesa Arts Academy	Comparison School	State Average
% White	32	59	54[a]
% Hispanic	63	36	37[a]
% FRPL	81	65	59[b]
% ELL	6	8	9[c]
Number of Students	216	355	485[a]
Grades Served	K-8	K-8	N/A
Math HLM	11.6	-5.5	0
Math Median Growth Percentile	56	35	49
Math Quadrant	A	D	A[d]
Reading HLM	9.9	-2.8	0
Reading Median Growth Percentile	64	42.5	49
Reading Quadrant	A	D	A[d]

a Median from October enrollment, 2007-08.

b Schools that report Free and Reduced Price Lunch.

c Median of schools % ELL, AIMS data 2007.

d 37% of schools are in quadrant A for math, 38% for reading; 15% in quadrant B for math, 12% for reading, 16% in quadrant C for math and reading; 31% in quadrant D for math, 35% for reading.

ment Leadership Academy. The same pattern is shown in Figures 8 and 9 for math, with stunning eighth-grade AIMS scores over the last three years.

By contrast, the comparison school was unable to translate expected "advantages" — such as almost twice the number of white students, 15% fewer students at the poverty level, and a lower student-to-teacher ratio — into impressive academic performance. While students at this school grow at about the expected rate in reading, growth in math is quite a bit slower (see Table 4).

FIGURE 6: MESA ARTS ACADEMY AND COMPARISONS' 3RD GRADE READING SCALE SCORE*

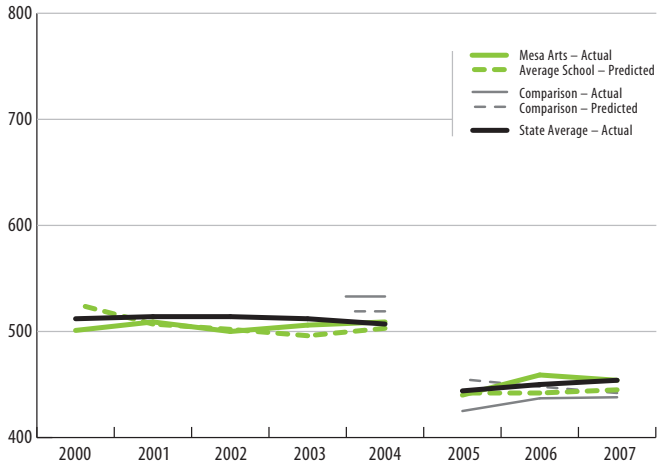


FIGURE 7: MESA ARTS ACADEMY AND COMPARISONS' 8TH GRADE READING SCALE SCORE*

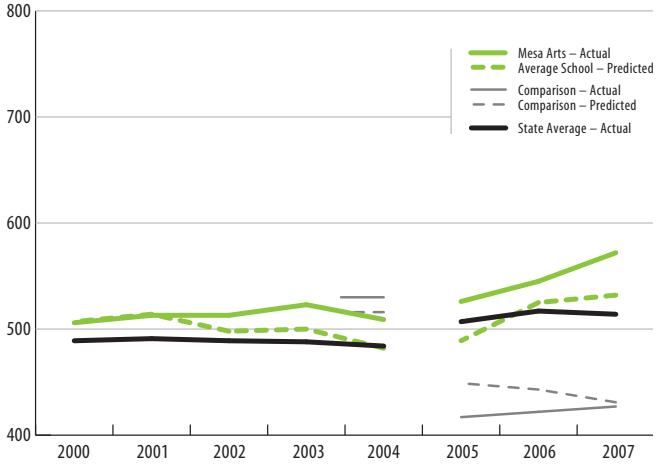


FIGURE 8: MESA ARTS ACADEMY AND COMPARISONS' 3RD GRADE MATH SCALE SCORE*

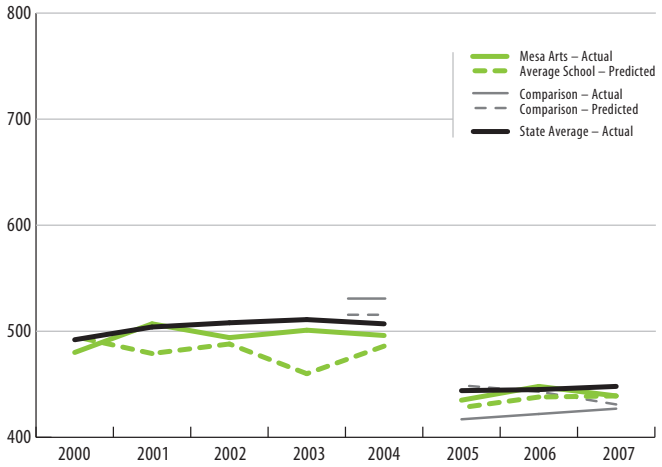
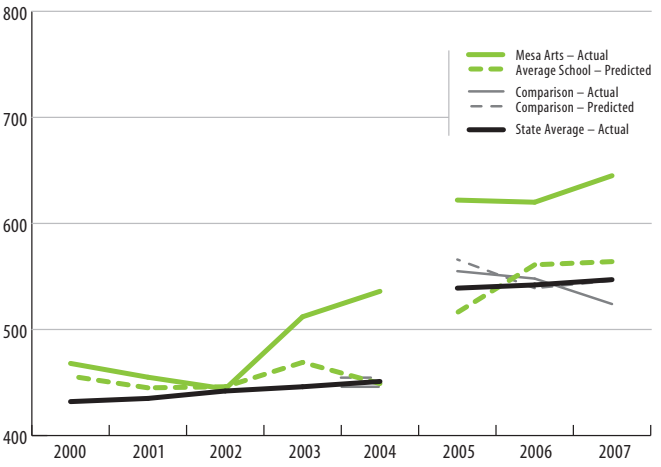


FIGURE 9: MESA ARTS ACADEMY AND COMPARISONS' 8TH GRADE MATH SCALE SCORE*



* Average test scores changed between 2004 and 2005 because of changes in the state test. AIMS tests added nationally normed Terra Nova questions, which meant that the content of the 2005 test was altered from previous years making comparisons difficult. Also, the scale that calculates a students relative score based on the raw test score was adjusted, adding to the difficulty in comparing average change before 2005 to after 2005.

The predicted average score computes the test scores that the students in the school are likely to earn, given their background or demographic make-up. This is different from the actual average score that the school's students earn.

BASIS Tucson

Founded in 1997 by Dr. Michael Block and his wife, Olga, the express purpose of BASIS has been to provide students with a world-class education based on an American curriculum with a European model of rigor that demands a high degree of student accountability. Olga Block was the Principal until 2003-04, at which time she passed the baton to McGarvey, a former nurse and BASIS parent.

This exceptional charter school is often accused of "creaming" students, or only accepting the best of the best. Some educators claim that BASIS Tucson cannot be duplicated because it has students who are "easier to teach." Although the school doesn't participate in the Free and Reduced Price Lunch program or track the income of its parents, the teachers and administrators know which students come from poverty — and even which ones are homeless.

One "emancipated" boy with no parents came to school each day from the Youth On Their Own shelter. After being on time every day for years, one day he was an hour late. The Principal, Carolyn McGarvey, called the shelter and was told that they wouldn't investigate until more time had passed. McGarvey insisted that they check on him. They found the boy in his bunk with a 105-degree fever and took him to the hospital. He was soon back in school, participating in the same high-rigor, high-stakes, AP-tested curriculum as his peers.

Students at this top school are taught to ask for help. When a student gets stuck, he or she is expected to come to school an hour early to work with the teacher. Teachers have morning office hours to address any student questions, as well as afternoon office hours once a week. Teachers have BASIS business cards with basic contact information for the school, and then a large blank space for each teacher to write their own telephone number. The teachers can gauge from the work, and tests taken every two weeks, what areas may require additional peer tutoring sessions or additional work with staff.

The reason for this extra work is that all students take Advanced Placement (AP) exams. In most high schools, only the "best and brightest" take these tests. At the core of the BASIS philosophy is that all students can pass rigorous exams like the APs — "not just the gifted students" — if teachers and students are willing to work for it.

Even with all of the exceptional work and high standards, BASIS doesn't consider itself perfect. In 2005, the English department redesigned its curriculum (see Figures 10 through 13). In that year, eighth and tenth grade reading scores made dramatic gains compared to the state average. By 2006, the tenth grade math scores were near perfect.

This leads to one of the more interesting aspects of these measures of growth — the "ceiling effect." Once students are scoring near perfect, missing one difficult question can change the direction of "growth." For example, if a student gets 74 out of 83 math questions correct, this corresponds to a scale score of 750 and an "Exceeds" rating in AIMS. In the next year, if this student misses just one question more, perhaps on a sophisticated math concept like quadratic equations, then they appear to have fallen into a lower category.

This "ceiling effect" does not seem to interfere with the test scores. BASIS students are growing faster than 68% of their peers, on average. They are in the top 10% of the state in terms of growing faster than their demographics would predict, and the school is growing faster than schools with "better" demographics (see Table 4). This means that BASIS Tucson doesn't get good students, it grows them.

TABLE 4: BASIS TUCSON AND COMPARISON SCHOOLS

Measure	BASIS Tucson	Comparison School 1	Comparison School 2	State Average
% White	61	83	86	54[a]
% Hispanic	21	11	12	37[a]
% FRPL	N/A	N/A	N/A	59[b]
% ELL	3	0	0	9[c]
Number of Students	136	181	243	485[a]
Grades Served	6 to 12	K-12	4 to 12	N/A
Math HLM	10.2	-1.46	0.27	0
Math Median Growth Percentile	68	44.5	46.5	49
Math Quadrant	A	D	D	A[d]
Reading HLM	4.2	-2.6	-3	0
Reading Median Growth Percentile	61	40.5	38.5	49
Reading Quadrant	A	D	D	A[d]

a Median from October enrollment, 2007-08.

b Schools that report Free and Reduced Price Lunch.

c Median of school % ELL, AIMS data 2007.

d 37% of schools are in quadrant A for math, 38% for reading; 15% in quadrant B for math, 12% for reading, 16% in quadrant C for math and reading; 31% in quadrant D for math, 35% for reading.

FIGURE 10: BASIS TUCSON AND COMPARISONS' 8TH GRADE READING SCALE SCORE*

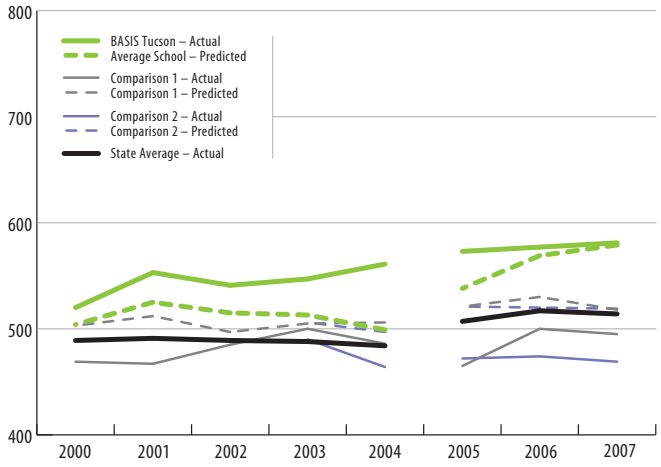


FIGURE 11: BASIS TUCSON AND COMPARISONS' 10TH GRADE READING SCALE SCORE*

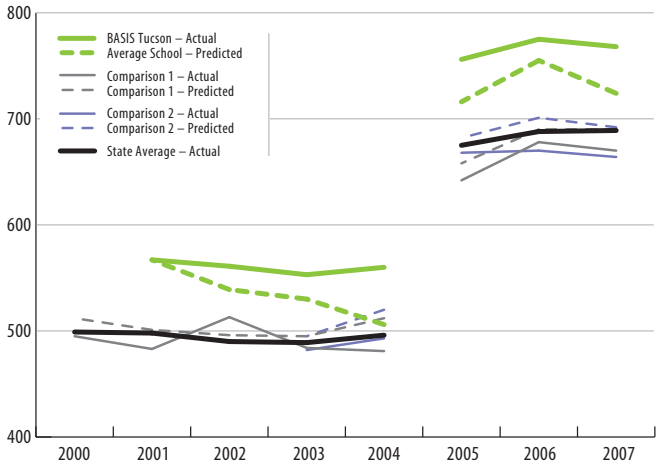


FIGURE 12: BASIS TUCSON AND COMPARISONS' 8TH GRADE MATH SCALE SCORE*

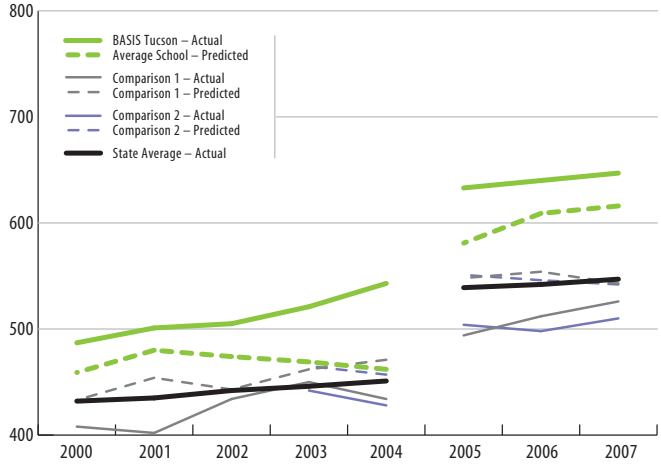
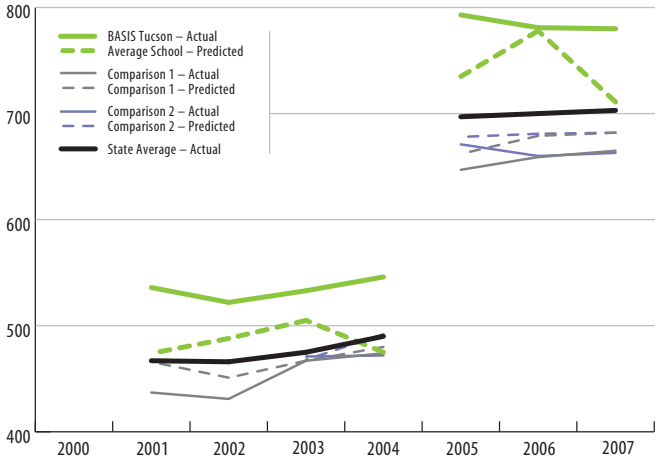


FIGURE 13: BASIS TUCSON AND COMPARISONS' 10TH GRADE MATH SCALE SCORE*



* Average test scores changed between 2004 and 2005 because of changes in the state test. AIMS tests added nationally normed Terra Nova questions, which meant that the content of the 2005 test was altered from previous years making comparisons difficult. Also, the scale that calculates a students relative score based on the raw test score was adjusted, adding to the difficulty in comparing average change before 2005 to after 2005.

The predicted average score computes the test scores that the students in the school are likely to earn, given their background or demographic make-up. This is different from the actual average score that the school's students earn.

fostering growth: what every school needs for students to grow

Despite their differences in philosophy and specific approaches to addressing student needs, all three of the top schools — Khalsa Montessori, Mesa Arts Academy, and BASIS Tucson — practice four foundational elements that we believe are necessary for students to grow academically. These four elements were not well established in the comparison schools, which suggests that they're absolutely critical for a school's success.

ELEMENT ONE: A LEADER WITH A PURPOSE

"Leadership," "vision," and "mission" aren't new words inside schools. But their meaning is often lost in day-to-day activities that overwhelm administrators and teachers.

In our top schools, leadership, vision, and mission are very powerful words that drive every single decision. The school leaders set the tone, modeling the attitude and behavior they want to see from every person — teachers, staff members, students, and parents — in the school.

We all know that strong leaders are necessary to the health of good businesses and effective schools, and here we define the key characteristics of such leaders. The traits aren't always innate and can certainly be learned.

For a charter school leader to be effective, he or she must employ the following four strategies:

1. Begin with the End in Mind

Each of the leaders at the top three schools are able to clearly articulate and comfortably discuss their ultimate goal or purpose, whether it be having 100% of students passing AIMS, preparing their students for college, or educating the "whole child." Each leader was absolutely committed to pursuing the school's particular overarching goal, which, in all three cases, was specifically related to providing a high quality educational experience and preparing students for the future.

With a definable end in mind, a leader can set clear objectives for teachers and get them to buy into achieving the goal, too. Because of each leader's commitment and guidance, the teachers at all three schools feel a sense of direction, purpose, and accomplishment, and gain confidence that they're providing the absolute best educational experience for their students.

2. Communicate Effectively

By word and by deed, leaders are constantly communicating in order to keep their staffs cohesive and inspire teachers to maintain a can-do attitude. Expectations are communicated as clear, concise, and comprehensible directives, with clearly defined methods for achieving them.

"When designing policies and procedures, walking the line between maintaining the integrity of our educational philosophy and complying with federal and state requirements can be a challenge. I consider it my job to free the teachers for genuine education by avoiding unnecessary distractions."

SATWANT KHALSA, KHALSA MONTESSORI SCHOOL

Another key step in the communication cycle is ongoing assessments set up by the school leaders, designed to guide teachers along their way. All three schools provide ongoing performance evaluations, as well as traditional classroom observations. The leaders use the information from these assessments to privately talk to teachers about effective practices, or as a broader team-building tool to share successes and develop plans for areas that need improvement.

3. Be Hands-On — and Hands-Off

Top leaders are "hands-on" in establishing specific forums, like faculty retreats and strategic staff meetings, to help teachers examine problems and uncover solutions. Once these forums have been established, however, the leaders become "hands-off" and allow teachers to implement solutions and grow and learn on their own. The leaders provide strategic professional development, and expect that teachers will share their knowledge with the rest of the staff.

"If you let the teachers do the research and have them discuss the research with the other teachers, you have to let them decide," says Principal Susan Douglas at Mesa Arts Academy. She adds that it may feel strange for an administrator to relinquish some power in this area, but not to admit that teachers have valid opinions "is wrong."

In all three schools, when teachers develop a solution, the school leaders roll up their sleeves to make it happen. For example, teachers at Khalsa Montessori decided they needed extra preparation time before the school year began. Satwant Khalsa arranged for them to have an extra paid week for reading new student files, meeting with teachers' assistants, and other class preparation.

4. Build Long-Term Relationships

The leaders at the three top schools have all had time to establish themselves and build the relationships of trust and respect required to focus so intently on student achievement. Two leaders have been at their schools for more than 12 years. Though the third had only been at her school for five years, she still has close ties to the former principal, who is also the school's founder.

It takes time for a leader to set a tone of confidence in such a way that teachers see that it's real and not a fad. It takes time to design and implement measurable definitions of success. It takes time to consistently communicate feedback to teachers through several types of assessment. It takes time to provide opportunities for teachers to find their own solutions to problems. And it takes time to provide the resources to implement those solutions.

A BREAKDOWN IN LEADERSHIP AT THE COMPARISON SCHOOLS

The comparison schools we studied have passionate school leaders; however, clear differences were apparent regarding the four tactics explained above. First, comparison school leaders were more focused on specific aspects of school improvement, instead of an overarching goal of overall student achievement. Second, the comparison schools were not yet working cohesively in one direction. Their leaders were relatively new and that could be one factor in the differences in performance. Although several had been thinking about leadership issues for a couple of years, they hadn't communicated their thoughts to instill confidence in their teachers. Third, decisions were not collaborative at the comparison schools. The leaders were a lot more hands-on, and took it upon themselves to make the "big" decisions.

ELEMENT TWO: TEACHERS WHO TAKE RESPONSIBILITY FOR THE END RESULT

One of the most important jobs of a school leader is to hire the right teachers. While all three leaders value subject-matter expertise, it was a teacher's character that was most often the deciding factor for them. A teacher had to be a good

"Teachers work hard with individual students one afternoon per week and are available at least 30 minutes before school starts with an open door policy. Students are encouraged to come before school to get extra help and come with questions. Students know that it's commonplace and part of the culture of the school."

CAROLYN MCGARVEY, BASIS TUCSON

"fit" for each school's mission in order to be welcomed as part of the team. The leaders at the top schools all looked for teachers who exhibit the following four traits:

1. A Love of Learning Equal to a Love of Teaching

Teachers at the top schools view themselves as people who are learning about their students, their profession and themselves on an ongoing basis. They want to continuously improve themselves to better meet the needs of their students. Sometimes that means not being embarrassed to ask questions or work with other teachers. Other times, it means questioning teaching strategies and seeing what they can do differently instead of looking at the students and asking what's wrong with them. A love of learning opens teachers up to creative and innovative ideas for reaching students.

One key skill that teachers had to learn was how to assess the skill level of each student. All three schools had some form of professional development that focused on showing teachers the data from their students and teaching them what to do with it – either through Professional Development Leadership Academy training, mentor activities, or strategic collaboration.

2. A Belief that There's No Substitute for Hard Work

Teachers have to be willing to take the extra step with students, which can mean longer hours or unorthodox schedules. The teachers at the top schools never "dumb down" the curriculum. Instead, they analyze what isn't working and keep applying new tactics. By taking ownership of every student's progress, they're willing to do whatever it takes to bring every student to mastery.

Part of this hard work includes a willingness to be scrutinized, assessed, and held accountable. For example, BASIS Tucson teachers are on one-year contracts, which aren't renewed unless the teachers perform. At Mesa Arts Academy, teachers are accountable for professional development throughout the year, not just for student performance on AIMS. And Khalsa Montessori uses classroom observations and an Education Director who acts as a support for all teachers and as a mentor for new teachers.

3. An Ability to Demand More

Our interviews with teachers revealed that they see themselves as models for the children: If the teacher is confident, the student will be confident, and if the teacher works hard, the student will work hard. If the teacher demands more of themselves and of the students — more concentration, more reflection, more time researching an issue — then the teacher and students will all live up to those demands.

Getting students to mastery is a responsibility that the teachers at these top schools take extremely seriously. And to get there, the teachers demand that their students:

- Focus on their own achievement and commit to perform at a higher level
- Take ownership of and understand their assessments
- Express a high level of commitment to their futures.

4. A Commitment to Never Give Up on a Single Student

Through regular observation and assessment, teachers at the top schools have an underlying commitment to see each student succeed. These teachers assess each student's homework, class work, and diagnostic tests regularly. They often employ unconventional groupings (an eighth grader in a fifth grade math class, for example) or new ways of scheduling (six hours of planning and development time away from students each week or daily work plans for each student). And if that doesn't do the trick, they find something else that will. They have the capacity to learn and apply new pedagogical tools.

A WEAKER COMMITMENT AT THE COMPARISON SCHOOLS

It was more difficult to gauge the level of commitment of the teachers at the comparison schools. Some of the leaders

at these schools were in the middle of trying to figure out how to develop the best staff, or had only recently completed deep staff changes. School leaders expressed frustration at teachers who weren't willing to make the commitment it would take to create effective changes. It wasn't clear that any strong expectations had been placed on anyone in the past, though several leaders had recently started moving toward making their schools more "academic" and were looking forward to building stronger teams.

EFFECTIVE HIRING AND RETENTION

How does a leader find and develop teachers who possess the necessary traits? By hiring carefully and providing professional development that inspires teachers and gives them the practical skills to push themselves and their students to the next level.

The top schools we studied hired teachers who clearly understood the schools' unique overall purpose. This can be accomplished by involving the whole staff in the hiring process, training new teachers extensively, and, later, showing teachers their data. As teachers work through the data on their students, the leader can model the level of commitment they want from them to get each student to succeed.

ELEMENT THREE: A CULTURE THAT PROMOTES TEAMWORK

While the leaders and teachers at these top schools may seem like "superheroes," they get the strength to foster growth from being part of a bigger team. Those confident, life-long-learning teachers would not be as successful if they remained in their classrooms all day, isolated from their peers. Rather, they've defined processes and forums to gather in a climate that promotes "getting the job done together." These include:

1. Making Sure Everyone Is on the Same Page

Teachers at the top schools unite around their common goals, and take ownership of every child's education. And each student understands that they must do well on AIMS and prepare for life after school. This messaging is constantly reinforced by the staff and the students.

Very often, the common goals or sense of direction comes from a curriculum mapping exercise, where the teachers track each lesson plan to not just the state standards – but down to the actual performance objectives.

2. Spending Time Together

In many situations, people dread going to "yet another meeting." However, at Arizona's best schools, the teachers thrive during strategic sessions spent together. There are regular staff meetings, grade-level meetings, and between-grade meetings. There are data meetings, action research meetings (learning from each other as specialists in subject areas they're examining), subject team meetings (e.g., all math teachers), and brainstorming meetings about how to solve a problem with a particular child at a certain point in time. Student peer interaction is also part of this equation: Students are encouraged to be mentors and helpers to each other.

3. Building the Bonds of Trust

At the top schools, administrators don't micromanage. They trust the teachers to make good decisions and ask for help when needed. Teachers trust that the school leader won't make a decision without their input. This collaborative approach provides the impetus for teachers to stay at their schools for a long time.

Students and parents know that the teachers are being held accountable, too, so they can trust that any gaps in their education will be filled before it's too late. Students are not at the mercy of an independent classroom teacher, they're part of a community of teachers that has their best interests at heart. This, in turn, allows students to own their own progress, behavior, and attendance.

"There are no closed doors here. There is open communication with teachers, parents and students. Teachers go to each other's class rooms to observe and learn. The students see that the teachers are united. We are a community."

SUSAN DOUGLAS, MESA ARTS ACADEMY

A LACK OF COHESIVENESS AT THE COMPARISON SCHOOLS

The comparison schools lacked, or are just establishing, cultures based on collaboration and teamwork. Until very recently, the stakeholders in these schools — the students, teachers, and the leader — acted more as independent entities rather than as a supportive network. Some of the leaders did mention profes-

sional development and peer tutoring, so these ideas can't be considered foundational elements. However, peer mentoring was not as strategically defined in comparison schools as it was in the top three schools, which may indicate an element for further exploration.

ELEMENT FOUR: USING DATA TO SOLVE PROBLEMS

Data is imperative for addressing student needs and finding solutions, and the top schools solve their problems in a systematic, data-driven way that includes the following six components:

1. Know Your Data

A teacher has to know where the gaps are in a student's learning. This requires some sort of assessment and data collection. Diagnostic tests, benchmark exams, formative assessments, and homework review are all methods employed by the top schools to measure how well the students know the specific performance measures from the Arizona standards.

2. Use Your Data

Student assessments drive interventions and pacing in the classroom at the top schools. This may involve adjusting groups, providing tutoring time, and new work assignments.

3. Focus on Mastery

The top schools assess for mastery frequently, making sure that each child fully understands the material before she or he moves on to the next level. This is done by periodically re-incorporating concepts taught earlier in the year back into the current lessons (called "spiraling").

Strategically assigned homework is another method for assessing mastery. At Khalsa Montessori, homework is used to help build alignment with state standards, because the Montessori curriculum they follow in class is based more on experience than on the memorization of test items. At BASIS Tucson, if a student is unable to finish his or her homework because he or she doesn't understand the material, he or she is expected to visit his teacher in the morning for help.

"If a child is not doing well, the question isn't 'What are you doing wrong as a teacher', it's 'What do you need to do differently in your classroom to meet that child's individual identified needs?'"

SUSAN DOUGLAS, MESA ARTS ACADEMY

At all three schools, evidence exists that students do not move on to the next grade if they haven't mastered their current grade. At Mesa Arts Academy, for example, if a new fifth grade student is reading on a third grade level, she or he will be placed in the third grade during reading time. At BASIS Tucson, students won't advance if they haven't mastered their current grade. New students who may not be on the level for their grade have opportunities to go to summer school and get extra help from teachers and peers.

Jaswant Khalsa, the Education Director at Khalsa Montessori, notes that when you expect a student to master the material before moving on to the next school level, this erases gaps in understanding concepts as students move from teacher to teacher. This supports the teachers, because the next teacher doesn't have to waste time identifying and filling in knowledge gaps for a few students when others are ready to move on. The educational process becomes more efficient.

4. Intervene Early

The top schools believe that it's necessary and prudent to deal with issues and problems as they occur. For example, teachers at Khalsa Montessori wanted a better system to assess their students. They didn't wait for someone else to take responsibility, they set to work immediately to come up with a new system.

Intervention also happens immediately at the student level, whether through frequent office hours, assigned tutoring, seeking out new teaching strategies, or adjusted daily work plans. Each school highlights and provides the resources necessary for quick student-level interventions, so problems with individual students can be addressed before the rest of the class moves too far ahead.

5. Do Whatever it Takes

Teachers at all the top schools are encouraged to be creative and innovative in meeting each student's needs. They're not bound to use only the core curriculum, so they get ideas from a variety of places including peers, educational publishers, online resources, best practice research, and even trial and error. They find ways

"When we hire teachers, we think about whether or not they'll stay as long-term members of the community. The teachers start as assistants, doing classroom training before they become a teacher. In order to keep good people in the school, we offer them support and treat them well. When a teacher becomes a lead teacher we are constantly saying, 'What do you need? How can we help?'"

JASWANT KHALSA, KHALSA MONTESSORI SCHOOL

to work one-on-one with students, or may form and reform peer groups, sometimes putting students together at different levels, depending on what would best improve deficient skills.

At the same time, school leaders are open to change and staff suggestions. Rescheduling classes and recesses and extending the school day were tactics used by these schools, often suggested by the teachers.

6. Rely on Your Team

A teacher has to accept that she or he doesn't have all the answers. Rather, many solutions come from the expertise of other teachers, or by digging into "action research." For example, the entire staff may identify a problem and spend a strategic meeting or two working together to share knowledge and brainstorm solutions.

MORE PROBLEMS THAN SOLUTIONS AT THE COMPARISON SCHOOLS

The comparison schools lacked a well-defined process of problem solving. Some schools were starting to get to know their data, a crucial first step, but were not at the level of interpreting and using data as the top schools are. There was inconsistent focus on mastery or on immediate intervention, and the focus on student academic achievement was either rather new or clouded by other issues that seemed to take precedence.

YOU CAN ALWAYS DO MORE

For the leaders and teachers at BASIS Tucson, Mesa Arts Academy, and Khalsa Montessori School, work is never done. Dr. Michael Block, founder of BASIS Tucson, still considers what they do a work-in-progress. The teachers and leaders at these schools constantly ask themselves, "What can we do better?" "How can we continue to improve each year?"

These top schools consider themselves to be fluid and dynamic, with the freedom to adapt quickly to any situation that might keep them from reaching their goals. Core values, vision and mission remain amid many changes: Populations of students enter and leave; state and federal standards vary; etc. These schools know that they cannot always rely on what worked well in the past to address new challenges. Mistakes may be made along the way, but this is part of the learning process. For a top school, the learning never ceases.

implementing growth: what you can do to make success possible

The four foundational elements of student-level growth described in *Success Measured* can be embraced and learned by every school leader and teacher. School principals can become leaders with a purpose. Teachers can learn how to accept accountability and use various tools to assess the progress of their students. School teams can develop their own collaborative culture and process for problem solving.

After reviewing the transcripts of interviews with both the top schools and their comparisons, a checklist of 20 specific steps was developed. The checklist is organized around the lifecycle of a school, comprised of three phases. Phase One is the beginning, either the start-up period for a new school, or the restart period for a school that wants to boost its quality. Phase Two focuses on student involvement in the education process and Phase Three brings in the necessary cycle of continuous improvement.

PHASE ONE: START-UP/RESTART

- ❑ Create a governing board centered on providing resources and forums for vetting ideas
- ❑ Find a leader willing to work hard and share some responsibility for decision-making with teachers
- ❑ Carefully hire teachers who fit the school's mission and culture
- ❑ Create a team-based atmosphere
- ❑ Align lesson plans to specific performance objectives in the state standards

PHASE TWO: STUDENT INVOLVEMENT

- ❑ Demand high achievement from all students
- ❑ Make sure students know they're capable of mastery
- ❑ Frequently communicate your mission to parents and guardians
- ❑ Reach students where they are, not where they should be based on age
- ❑ Review past skills periodically (e.g. spiraling to incorporate past skills in a current assignment or activities) to keep them fresh all year
- ❑ Make homework strategic, not busy work

PHASE THREE: CONTINUOUS IMPROVEMENT

- ❑ Frequently assess students for mastery
- ❑ Share student data with teachers
- ❑ Address problems when they occur
- ❑ Do whatever it takes to get each student to succeed
- ❑ Incorporate flexible grouping and scheduling to address individual student needs
- ❑ Extend days for intervention and remediation
- ❑ Make sure teachers have adequate time without a class for peer collaboration or to work with individual students
- ❑ Hold frequent meetings that are strategic and purposeful
- ❑ Keep students in the same school over time — effects are cumulative

SO, WHAT'S THE DIFFERENCE?

The research we conducted on quality charter schools was compared with the findings of *Beat the Odds*, the report on Latino students in district schools that inspired our research, and other national studies.

The four foundational elements of success identified in *Success Measured* are similar to findings from these reports, but there are key differences that reveal advantages charter schools may have when it comes to making decisions that impact leadership, hiring, and creating a culture of collaboration.

Many studies of schools, for example, discuss the benefits of strong leadership. *Success Measured* takes it farther, with strong evidence about the importance of stable

leaders who have a clear vision and the authority to quickly implement staff-initiated decisions.

The idea of teachers who take responsibility also gets much deserved attention in the education literature. Research shows that three years with an effective teacher can close the achievement gap, while three years with an ineffective teacher can doom children to failure. But what really makes a good teacher? Our findings point to life-long learners who are subject matter experts, willing to have their data measured, expose their weaknesses, and seek out new ways of reaching "problem" students better. Here again, the flexibility of charter schools allows for leaders to focus more on the personal fit of a teacher for his or her particular school, and less on the certification of a given candidate.

Teachers at the schools examined in *Success Measured* also have a slightly more intense and long-term view, the importance of which hasn't shown up in the other research. Teachers at all three top charter schools emphasize mastery over proficiency when it comes to student performance. They felt that covering AIMS tests wasn't enough, and that students need to have deeper skills to succeed in the "real world" beyond the school's walls. This desire seems to be part of the drive that motivates teachers at successful schools to work harder and be more innovative in their problem-solving.

With respect to organizational structure, there are many names for team-based approaches — professional learning communities, collaborative decision-making, etc. The three charter schools we examined show that there are many ways such a culture can play out, thanks in large part to the unique ability of charters to lengthen school days, change bell schedules, and find other innovative ways to get things done together.

Such a focus on innovation is also clear when it comes to these charter schools' problem solving. Data-driven decision-making, ongoing assessments, and individualized instruction are just a few examples of the dramatic solutions charter schools can implement to ensure mastery, which have also been identified as key factors in district schools; however, these may be more easily accomplished in a charter school.

WHAT WE DIDN'T LEARN

There's much discussion in the education literature about parent involvement, spending and class size. We examined those issues to see what we could learn from these top charter schools, and came up with some interesting results — some similar to the "Dogs that Didn't Bark" section of *Beat the Odds*.

One of the reasons district schools may find it harder to foster student-level growth involves the level of buy-in from parents. At all three of the schools we studied in detail, we probed the question of parent involvement and got the same answer: Parents have to understand and accept the rigor of the school. We didn't hear that other types of parent involvement were necessary.

We also didn't find that any of the top schools had any financial advantage over the comparison schools. Improving achievement seems to be a matter of resource allocation: Increased funding could be used wisely in top schools to achieve greater results, but increased spending itself doesn't guarantee success.

The schools themselves also mentioned their small size as a great benefit to their ability to address each student's needs. At the same time, the comparison schools had even lower teacher-to-pupil ratios, indicating that size does not create individual student growth. In addition, several of the 29 schools that showed high student-level growth were larger schools with larger staff-to-pupil ratios. Though inconclusive, that suggests that it's possible to grow individual student achievement at larger schools.

NEXT STEPS

For many schools, the type of cultural shift required to implement the four foundational elements of student-level growth might seem impossible. School administrators and teachers need help seeing themselves as advocates for each child, especially those who have no other adult who understands their educational needs.

Success Measured shows that it can be done in any type of school. It just starts with one person believing in students, observing areas for improvement, and making changes.

Based on this research, the Arizona Charter Schools Association is continuing to develop measures of student growth and school quality. We are adding new years of data, refining the models and identifying more schools over time that meet these criteria. We hope to learn from them as well, and build upon our understanding of best practices for student growth.

We are also using the results of *Success Measured* to implement a variety of hands-on technical assistance options and provide struggling schools with specific strategies to achieve success. By doing this, we hope to fulfill our mission of high student achievement through quality charter schools one student at a time.

To find out more about how to make your school a place where students succeed, please visit www.azcharters.org or call 602-944-0644. The report is available at www.azcharters.org/docs/successmeasured.pdf.

4 Jordan, H.R., Mendro, R., & Weerasinghe, D. (1997). Teacher effects on longitudinal student achievement: A preliminary report on research on teacher effectiveness. Paper presented at the National Evaluation Institute, Indianapolis, IN.

rankings of the top 29 charter schools

TABLE A1: CHARTER SCHOOLS WITH HIGH LEVELS OF INDIVIDUAL STUDENT GROWTH IN MATH

Charter School	Math School Quadrant	Math HLM Results	Math Median Growth Percentile	% FRPL	% ELL	% Hispanic	% White	Total Students	County
Academy of Math and Science H	A	13.7	72.0	N/A	11%	31%	57%	273	Pima
Sedona Charter School E	A	12.4	67.0	N/A	5%	7%	85%	165	Yavapai
Youngtown Public Charter School P	B	12.3	63.0	82%	24%	77%	17%	198	Maricopa
Khalsa Montessori Elementary School – Phoenix E	**A**	**11.8**	**63.0**	**N/A**	**0%**	**10%**	**63%**	**163**	**Maricopa**
Mesa Arts Academy H	**A**	**11.6**	**56.0**	**81%**	**6%**	**63%**	**20%**	**216**	**Maricopa**
NFL YET College Prep Academy E	B	11.5	66.0	73%	39%	92%	5%	302	Maricopa
Bright Beginnings School #1 E	A	11.3	63.0	N/A	0%	9%	73%	435	Maricopa
Masada Charter School E	A	11.3	69.0	N/A	0%	0%	100%	402	Mohave
Paulo Freire Freedom School E	A	11.2	73.0	N/A	7%	21%	61%	66	Pima
Harvest Preparatory Academy P	B	10.7	60.0	82%	43%	85%	10%	756	Yuma
BASIS Tucson E	**A**	**10.2**	**68.0**	**N/A**	**0%**	**19%**	**61%**	**527**	**Pima**
Happy Valley School E	A	10.0	66.5	11%	1%	8%	80%	660	Maricopa
Mohave Accelerated Elementary School P+	B	10.0	66.5	N/A	7%	40%	58%	151	Mohave
Mission Montessori Academy E	A	10.0	71.5	N/A	2%	7%	79%	152	Maricopa
BASIS Scottsdale E	A	9.5	66.0	N/A	0%	2%	76%	487	Maricopa
Villa Montessori – Phoenix Campus E	A	9.3	64.0	N/A	0%	7%	83%	485	Maricopa
Edu-Prize E	A	9.1	60.0	N/A	0%	10%	82%	1160	Maricopa
Freedom Academy E	A	8.5	62.0	N/A	0%	9%	83%	228	Maricopa
Veritas Preparatory Academy E	A	8.2	68.0	N/A	0%	5%	91%	295	Maricopa
Carden Traditional School of Glendale P+	A	8.0	67.0	20%	0%	12%	66%	131	Maricopa
Self Development Charter School E	A	7.9	65.0	N/A	0%	16%	71%	278	Maricopa

AZ Learns Label E = Excelling P+ = Performing Plus H = Highly Performing P = Performing

TABLE A2: CHARTER SCHOOLS WITH HIGH LEVELS OF INDIVIDUAL STUDENT GROWTH IN READING

Charter School	Reading School Quadrant	Reading HLM Results	Reading Median Growth Percentile	% FRPL	% ELL	% Hispanic	% White	Total Students	County
Harvest Preparatory Academy P	B	10.7	63	82%	43%	85%	10%	756	Yuma
Mesa Arts Academy H	**A**	**9.9**	**64**	**81%**	**6%**	**63%**	**20%**	**216**	**Maricopa**
Arizona School For The Arts E	A	7.8	63.5	N/A	0%	12%	76%	372	Maricopa
Hermosa Montessori Charter E	A	6.7	69.5	N/A	0%	14%	75%	239	Pima
Pine Forest School P+	A	6.3	58	N/A	0%	6%	82%	216	Coconino
Masada Charter School E	A	6.2	70	N/A	0%	0%	100%	402	Mohave
NFL YET College Prep Academy P+	B	6.2	58.5	73%	39%	92%	5%	302	Maricopa
Nosotros Academy P	B	5.6	74.5	N/A	48%	90%	0%	184	Pima
Center for Educational Excellence E	A	4.9	63	N/A	0%	12%	69%	331	Maricopa
Carden Traditional School of Glendale P+	A	4.8	62	20%	0%	12%	66%	131	Maricopa
James Madison Preparatory School E	A	4.8	63.5	N/A	0%	11%	80%	169	Maricopa
Villa Montessori – Phoenix Campus E	A	4.8	60.5	N/A	0%	7%	83%	485	Maricopa
Foothills Academy E	A	4.7	57	N/A	0%	0%	97%	253	Maricopa
Ascending Roots Scholastic & Athletic Premise P	B	4.6	68	100%	0%	17%	0%	72	Maricopa
Mohave Accelerated Elementary School P+	A	4.5	52	N/A	7%	40%	58%	151	Mohave
Khalsa Montessori Elementary School – Phoenix E	**A**	**4.4**	**65.5**	**N/A**	**0%**	**10%**	**63%**	**163**	**Maricopa**
Edu-Prize E	A	4.2	60	N/A	0%	10%	82%	1160	Maricopa
BASIS Tucson E	**A**	**4.2**	**61**	**N/A**	**0%**	**19%**	**61%**	**527**	**Pima**

AZ Learns Label E = Excelling P+ = Performing Plus H = Highly Performing P = Performing

quantitative analysis: growth modeling

Two very different models of student-level growth were used in this analysis. The first, called growth percentiles, was developed by psychometrician Dr. Damian Betebenner. This methodology uses student-level test score data joined over time, along with the student's grade in school, plotted into percentile ranks in a statistical software language called "R." The use of growth percentiles allowed us to ask the question, "Given a student's starting point, how much did they grow over the last year?" Dr. Betebenner trained and assisted the authors in carrying out the data analysis for this research project. Dr. Betebenner has been developing the model as a part the Federally funded Building Charter School Quality Grant run by the Colorado League of Charter Schools (www.bcsq.org). The model has been vetted and adopted in Colorado as the official measure of academic progress. For more information, please see the Colorado Department of Education's Unit of Research and Evaluation at http://www.cde.state.co.us/cdeassess/index_res_eval.html as well as Dr. Betebenner's article, "Toward a Normative Understanding of Student Growth" in the book, *Festschrift* in honor of the life and work of Robert L. Linn, 2008.

Hierarchical Linear Modeling (HLM) was developed by Stephen W. Raudenbush and Anthony S. Bryk in the 1980s. It involves nested statistical analysis where the effects of student- and school-level characteristics are calculated simultaneously. We were answering the question, "How well did the school perform relative to schools with similar student characteristics?" This analysis also requires student-level data joined over time, using a different software package, HLM6.

Three data files were created: one with student-level data that changes over time (e.g. test scores), one with student-level data that stay the same over time (e.g. race), and one with school-level demographic data. The authors prepared those data files, which were analyzed by Dr. Stephen Ponisciak, Associate Researcher, Wisconsin Center for Education Research, University of Wisconsin. After several combinations of demographic variables were tried, the final model included school-level categorical variables for the percentage of Asian students, percentage of white students, percentage of students whose first language was not English, Spanish or Navajo, and percentage of students taking a modified test. (See Tables B1 and B2 for the HLM model output.) We also included adjustments for a student's grade, race/ethnicity, language spoken at home, whether the student was present for the full academic year, and what kind of test modifications the student received. This process allowed us to use only the factors that Arizona's historical data specified as contributing to growth, rather than include theoretical factors from the literature that may not apply to Arizona students and were not based on Arizona data.

Within HLM6, an expected average scale score was calculated for each school, based on its demographic characteristics. The program then compared that expected score to the actual score, and calculated the difference. If the actual score was the same as the expected score, the residual value (sometimes called the "school effect") would be 0. The standard deviation of the differences for all schools was 3.34 scale score points for reading and 5.86 for math. That is, if a school's average reading score was more than 3.34 points above its expected score, it was doing better than about 84% of the schools in the state. *The filter for Success Measured required that a schools' difference be better than 90% of the schools in the state, which is equivalent to 4.2 points for reading and 7.9 points for math.*

TABLE B1: READING TEST SCORE EQUATION FROM MULTI-STAGE REGRESSION ANALYSIS*

(HIERARCHICAL LINEAR MODELING USING HLM6)

Final estimation of fixed effects (with robust standard errors):

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
INTERCEPT 1 RV07 slope					
INTERCEPT 2	515.714086	0.428929	1202.329	364067	0.000
1-5% ASIAN	2.643008	0.984506	2.685	364067	0.008
6-9% ASIAN	11.116445	1.647157	6.749	364067	0.000
10-13% ASIAN	14.657475	2.649373	5.532	364067	0.000
14-100% ASIAN	24.379018	5.488979	4.441	364067	0.000
0-9% WHITE	1.108873	1.996476	0.555	364067	0.578
10-39% WHITE	2.400668	2.043910	1.175	364067	0.241
40-59% WHITE	6.110973	2.090850	2.923	364067	0.004
60-89% WHITE	15.424424	2.064175	7.472	364067	0.000
90-100% WHITE	20.313829	2.854540	7.116	364067	0.000
0-39% FULL ACADEMIC YEAR	-21.768040	3.227469	-6.745	364067	0.000
40-79% FULL ACADEMIC YEAR	-10.704497	0.973700	-10.994	364067	0.000
99-100% FULL ACADEMIC YEAR	15.381767	3.557593	4.324	364067	0.000
0-5% OTHER LANGUAGE	3.647748	0.856961	4.257	364067	0.000
5-15% OTHER LANGUAGE	2.577178	1.383990	1.862	364067	0.062
15-29% OTHER LANGUAGE	-0.707238	7.179369	-0.099	364067	0.922
30-100% OTHER LANGUAGE	2.694837	4.793461	0.562	364067	0.574
0-9% MODIFIED TEST	2.010145	0.703389	2.858	364067	0.005
10-29% MODIFIED TEST	-6.223884	2.168929	-2.870	364067	0.005
30-49% MODIFIED TEST	-30.761615	9.352459	-3.289	364067	0.001
50-100% MODIFIED TEST	-12.775215	4.492682	-2.844	364067	0.005

Final estimation of level-1 and level-2 variance components:

Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
INTRCPT1, R0	37.23905	1386.74685	363048	1638066.95994	0.000
TMINUSLI slope, R0	6.48425	42.04555	363058	422816.30853	0.000
level-1, E	21.14985	447.31595			

Note: The chi-square statistics reported above are based on only 363058 of 364077 units that had sufficient data for computation. Fixed effects and variance components are based on all the data.

Final estimation of level-3 variance components:

Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
RV07/INTRCPT2, U250	3.95182	15.61687	1302	6454.80467	0.000

Note: The chi-square statistics reported above are based on only 1302 of 1354 units that had sufficient data for computation. Fixed effects and variance components are based on all the data.

Statistics for current covariance components model:

Deviance = 9749361.999473
Number of estimated parameters = 64

* Category boundaries were determined by natural breaks in the distribution of each variable.

TABLE B2: MATH TEST SCORE EQUATION FROM MULTI-STAGE REGRESSION ANALYSIS*

(HIERARCHICAL LINEAR MODELING USING HLM6)

Final estimation of fixed effects (with robust standard errors):

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
INTERCEPT 1 RV07 slope					
INTERCEPT 2	543.384396	0.642790	845.353	363897	0.000
1-5% ASIAN	2.527767	1.229678	2.056	363897	0.040
6-9% ASIAN	12.973932	2.262751	5.734	363897	0.000
10-13% ASIAN	19.467211	3.186156	6.110	363897	0.000
14-100% ASIAN	30.785158	9.048292	3.402	363897	0.001
0-9% WHITE	1.298024	2.524607	0.514	363897	0.607
10-39% WHITE	2.026498	2.590645	0.782	363897	0.434
40-59% WHITE	4.674071	2.643226	1.768	363897	0.077
60-89% WHITE	14.971609	2.589897	5.781	363897	0.000
90-100% WHITE	17.476307	3.533317	4.946	363897	0.000
0-39% FULL ACADEMIC YEAR	-16.056938	2.990519	-5.369	363897	0.000
40-79% FULL ACADEMIC YEAR	-12.327038	1.093726	-11.271	363897	0.000
99-100% FULL ACADEMIC YEAR	11.227756	4.664985	2.407	363897	0.016
0-5% OTHER LANGUAGE	5.459593	1.051011	5.195	363897	0.000
5-15% OTHER LANGUAGE	5.766794	1.844411	3.127	363897	0.002
15-29% OTHER LANGUAGE	-3.696955	7.789431	-0.475	363897	0.635
30-100% OTHER LANGUAGE	5.768666	8.726793	0.661	363897	0.508
0-9% MODIFIED TEST	1.846492	0.893781	2.066	363897	0.039
10-29% MODIFIED TEST	-7.114001	2.317061	-3.070	363897	0.003
30-49% MODIFIED TEST	-37.102787	9.525733	-3.895	363897	0.000
50-100% MODIFIED TEST	-17.283759	3.001632	-5.758	363897	0.000

Final estimation of level-1 and level-2 variance components:

Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
INTRCPT1, R0	40.12220	1609.79093	362910	1674779.24826	0.000
TMINUSLI slope, R0	6.86473	47.12452	362920	417007.01518	0.000
level-1, E	22.43855	503.48834			

Note: The chi-square statistics reported above are based on only 362920 of 363907 units that had sufficient data for computation. Fixed effects and variance components are based on all the data.

Final estimation of level-3 variance components:

Random Effect	Standard Deviation	Variance Component	df	Chi-square	P-value
RV07/INTRCPT2, U250	6.45895	41.71808	1305 1	1901.52246	0.000

Note: The chi-square statistics reported above are based on only 1305 of 1354 units that had sufficient data for computation. Fixed effects and variance components are based on all the data.

Statistics for current covariance components model:

Deviance = 9895131.099790
Number of estimated parameters = 64

* Category boundaries were determined by natural breaks in the distribution of each variable.

qualitative analysis: school culture

After the highest performing schools were identified, researchers conducted surveys and interviews with the school leaders and teachers. The survey questions were designed to capture the most relevant information in the shortest amount of time, in case longer interviews were not possible with one of the schools. The e-mail survey asked for the top five priorities at the school, in addition to questions about challenges and charter school factors. The results from these surveys are displayed in Table C1. The interview questions were modeled after those by Jim Collins in his book *Good to Great: Why Some Companies Make the Leap…and Others Don't*. Table C2 shows the responses to the initial set of interview questions, "What are the top five factors that led to your success?" Additional questions in that section asked leaders and teachers to elaborate on their strategies and processes to develop those factors. The results from comparison schools are also shown in Table C2.

The interviews with school leaders and teachers were recorded and transcribed into Microsoft Word documents. These transcripts were then imported into NVivo, a computer software program designed to manage qualitative data. Through the reading of the transcripts of the three top schools, major themes started to emerge. These major themes, as well as examples of themes taken directly from the data, were identified as "tree nodes" in NVivo. Organizing the data according to these tree nodes allowed us to code the content of the data into the examples of the main themes. (See Table C3.) Such coding revealed the four foundational elements of student-level growth. The interview data of the comparison schools was matched against the tree nodes of the top schools.

TABLE C1: TOP FIVE PRIORITIES FOR SUCCESSFUL SCHOOL LEADERS

	Khalsa Montessori School – Phoenix	Mesa Arts Academy	BASIS Tucson
1	Close collaboration with teachers	Have to believe that every child can achieve success	Provide rigorous academic program
2	Teacher support and mentoring	High expectations	Develop all students to full extent of their ability
3	Careful financial management	Systems in place to determine needs	Foster respect in the BASIS community between and among faculty and students
4	Quality education/small size	Do whatever it takes to meet student needs	Ensure that 100% of students gain admission to one of their top 5 college choices and enroll
5	Healthy community for the whole child	Win hearts through respect and model what you preach	Provide extra-curricular opportunities for students which complement the BASIS academic program

TABLE C2: TOP FIVE FACTORS ATTRIBUTED TO SCHOOL SUCCESS

	Khalsa Montessori School – Phoenix	Mesa Arts Academy	BASIS Tucson	Comparison 1 (changes started 2002-03)	Comparison 2 (changes started 2005-06)	Comparison 3 (changes started 2005-06)	Comparison 4 (changes started 2005-06)
1	Clear, stable identity	Raised the bar to goal of 100% passing AIMS	Very rigorous curriculum	Kindergarten uses combination curriculum with phonemic awareness	Made mission public to parents, students and teachers in 2005-06	Has made it an academic school through Reading First & progress monitoring	Hired Security Officer; added non-violent curriculum courses
2	Collaboration	Consensus, reflection, thoughtfulness	Work hard - passionate; assessments come from teachers	In 2006 two teachers attended reading professional development for individualized instruction and remediation	Aligned lesson plans to state standards	Became a Title 1 school to pay for paraprofessionals and interventionist	State Tutoring Program
3	Teacher commitment/ longevity	Increased amount of time teachers plan or intervene away from students	High levels of accountability for students and teachers	Daily plugging away	Staff development is a team effort	Professional development around use of DIBELS data and progress monitoring	Having an understanding ear; safe and comfortable
4	Mastery before moving on	Data analysis	Rigorous testing	Thematic teaching, enriches and relatable; correlates to state standards	Added traditional structure to latter grades including standard report card, uses looser terms for mastery in lower grades	After school intensive intervention	
5	Montessori philosophy - positive environment, respect for the child, three-year cycle, cumulative process	REACH Values - positive environment	More sensitive to pedagogical skills in addition to subject matter expertise for teachers	Loving atmosphere; happy teachers mean happy students; respect the fact that teachers have a life; Pep rallies to support attendance	Everything is for the kids	Bussing helps bring in kids	

TABLE C3: ANALYSIS OF KEY INTERVIEW THEMES (NVIVO QUALITATIVE SOFTWARE CODING ANALYSIS)

* Indicates that all three schools conducted one or more of the subsets of the coding category.
+ Indicates that the school is in early stages of implementation

Coding Category	No. of Globally Competitive Schools	Element Match Leaders	Element Match Teachers	Element Match Culture	Element Match Process	No. of Comparison Schools
I. Assessments – Students	**3***					**1+**
Flexible student grouping	2	X	X		X	
Homework	2				X	1+
Individualized work plans	2	X	X		X	
Mastery before moving on	3		X		X	
Passing AP type practice exams	1		X		X	
Intense preparation for AIMS	2		X		X	
Progress reports	2		X		X	1+
II. Assessments – Teachers	**3***					**2+**
Evaluation by observation	2	X	X			
Involvement in professional development/expectation of sharing results with others	3	X	X	X	X	2+
Ongoing evaluation of performance in relation to test scores	2	X	X			
III. Focus	**3***					**2+**
Administration and teachers have clear goals	3	X	X	X		1+
Not losing sight of underlying mission, vision of the school	3	X	X	X		1+
Providing the best absolute educational experience for their students	3	X	X	X		1+
IV. Responsibility and Accountability – Administration	**3***					**0**
Cohesion among staff	3	X		X		
Effective communication	3	X			X	
V. Responsibility and Accountability – Students	**3***					**0**
Achieving to the best of their abilities	3	X	X			
High level of commitment	3	X	X			
Make up work	1	X	X			
Ownership/understanding performance data	2	X	X		X	
Performing at a high level	2	X	X			
Taking education seriously	3	X	X			
VI. Responsibility and Accountability – Teachers	**3***					**0**
Grow and learn as person and teacher	2	X	X		X	
High level of commitment	3	X	X		X	
Ownership	3	X	X		X	
Performance regarding test scores	3	X	X		X	
Prepare students for future (high school, college)	3	X	X		X	
Responsibility for actions/ do not give up on students	3	X	X		X	
Taking teaching seriously/work hard	3	X	X		X	
VII. School Culture and Climate	**3***					**4**
Ample preparation time for teachers	3	X	X		X	
Thinking about and planning for next school year	2		X		X	1
Data driven decision making	2	X	X		X	2+
Extension of the school day	3		X		X	1+
Faculty retreats, strategic and regular staff and teacher meetings	3	X	X	X	X	
Flexibility to change	2	X				
Fostering creativity and innovative ways of teaching	2	X	X	X		
Fostering student and teacher growth and empowerment	3	X	X	X		
Physically and emotionally safe	2			X		1
Providing a customized learning experience	2	X	X			1+
Providing effective leadership	3	X		X		
School feels like a family/community	2	X		X		1
Setting the bar at the highest level/high expectations	2	X	X			
Creating an environment of trust and respect	3	X	X	X		1+
Welcoming of new ideas	3	X		X	X	
VIII. Teamwork and Collaboration	**3***					**1+**
Administration, teachers, and staff work together to communicate effectively	3	X	X	X	X	1+
Involvement in changes in policies, procedures, and/or curriculum adjustments	2	X	X	X	X	
Sharing of pedagogical knowledge	3	X	X	X	X	
Staff works together to problem solve needs for students	3	X	X	X	X	

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For more information about the Arizona Charter Schools Association, visit us at www.azcharters.org or call 602.944.0644.

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