How to Use Student Growth Data for Improving Instruction

Introduction

The Florida Value-Added Model (VAM) is a growth model that was developed for teacher and school evaluation. VAM data for evaluation purposes will be available to schools and teachers in October of 2013. However, data from the Florida VAM model can help teachers and schools further understand and adjust instruction.

The use of growth data

Data on student growth can provide a valuable tool to assist schools and teachers in understanding their instructional programs. The data in the VAM model is based on the growth that students make on the FCAT/EOC tests from one year to the next. Data on student growth should be combined with proficiency and other status data (how high or low a group of students score) to provide a more complete picture of student achievement.

Data from the Florida VAM model

The Florida VAM model calculates a *predicted* score each year for each student, based on each student's previous year's score and selected additional variables.[1]

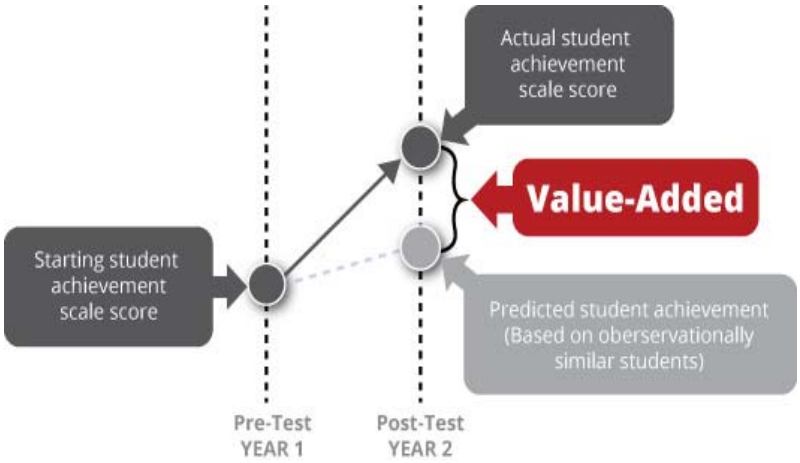


Figure 1: Value-Added Model (http://varc.wceruw.org)

This *predicted* score is also called an ***expected score***. These ***expected scores*** are generated in a way so approximately half of all students across the State, on average, achieve their expected score. In other words, approximately half of the students in the State exceed their ***expected score***, and approximately half score below their ***expected score***. The ***expected score*** represents one year's growth in one year's time for a group of students.

A student who exceeds their ***expected score*** will have achieved more than one year's growth in a year of instruction. Similarly, a student who scores below their ***expected score*** is said to have made less than one year's growth in a year of instruction.

[1] These additional variables include the characteristics of the students themselves (such as English language learner status, age, attendance, mobility, and disability/gifted status), classroom characteristics (such as class size and homogeneity of students' previous test scores), and the number of teachers or courses instructing the students in that subject area.

Included in the set of materials that each school has received are two types of documents:

1. Rosters – these show the data for the students used in the VAM calculation; and
2. Scatterplots – these visually display this same information.

Rosters and scatterplots are available both for the entire school (by grade level), and for each teacher (by grade level). Only students having the same teacher for both Surveys 2 and 3 are included in the rosters and scatterplots.

Rosters:

List of Students Having FY2013 VAM Data

School Type: EL School Name: Sample School
Teacher: Sample Teacher

Subject	Grade	Student ID	Last Name	First Name	FY2012 Scale Score	FY2013 Scale Score	Expected FY2013 Scale Score	Difference	Met Expectation	SAR Gain
READ	5	99999999	LAST	FIRST	243	257	246.78	10.22	Yes	1
		99999999	LAST	FIRST	232	256	237.54	18.46	Yes	1.2
		99999999	LAST	FIRST	269	253	265.66	-12.66	No	1
		99999999	LAST	FIRST	236	257	244.28	12.72	Yes	1.2
		99999999	LAST	FIRST	258	260	258.75	1.25	Yes	1
		99999999	LAST	FIRST	214	242	220.64	21.36	Yes	1.1

For each student, the roster gives the FCAT reading or mathematics scale score for the previous year (FY2012) and the current year (FY2013). The roster also shows the expected (FY2013) scaled score, based on each student's previous scale score and other characteristics.

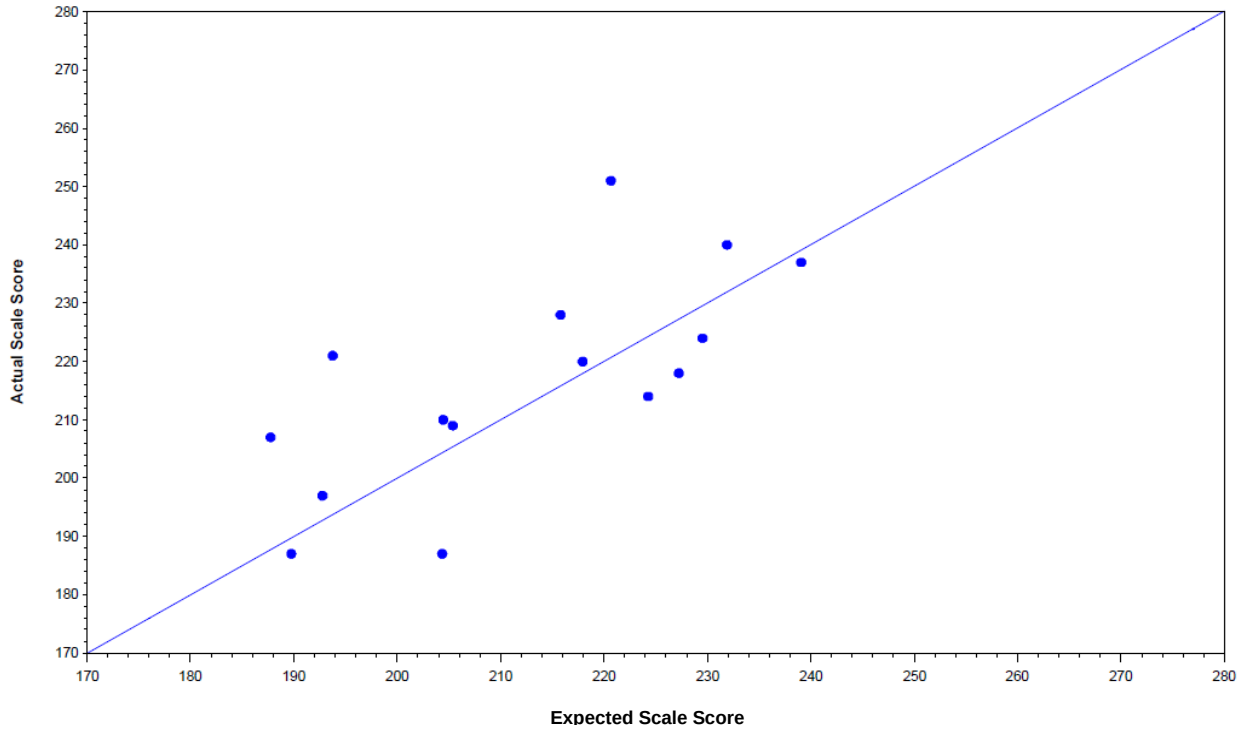
The "***Difference***" column shows the difference between the actual score and the expected score (actual minus expected). The difference is positive when the student score is higher than the expected score (indicating more than one year's growth in the VAM model). Similarly, the difference is negative when the student score is lower than the expected score (indicating less than one year's growth in the VAM model).[2]

The "***Met Expectation***" column is "Yes" if a student's actual score is equal to or exceeds the expected score, or "No" if the student's actual score is less than the expected score.

The "***SAR Gain***" shows whether that student counted for a reading or mathematics gain for school grading purposes.

[2] It should be noted that test scores might vary if a similar test were given on a different day. Therefore, in order to understand a student's performance, all other available data for that student should be considered.

Scatterplots



The school and teacher scatterplots provide a graph of the data found in the roster report. There are separate scatterplots for reading and mathematics at every applicable grade level. The dots on this report correspond to each student on the roster.

- The horizontal axis (x-axis) is the State's **expected scale score** for each student.
- The vertical axis (y-axis) is the students' **actual scale score.**
- The diagonal line represents **one year's growth**. A dot for a student would be on the diagonal line if their actual score was equal to their expected score.

Dots above the line represent students who exceeded their expected score. This corresponds to a positive difference on the roster report. Any student above the line would have a "Yes" in the "Met Expectation" column on the roster.[3]

Dots below the line represent students whose actual score was less than their expected score. This corresponds to a negative difference on the roster report, and a "No" in the "Met Expectation" column.

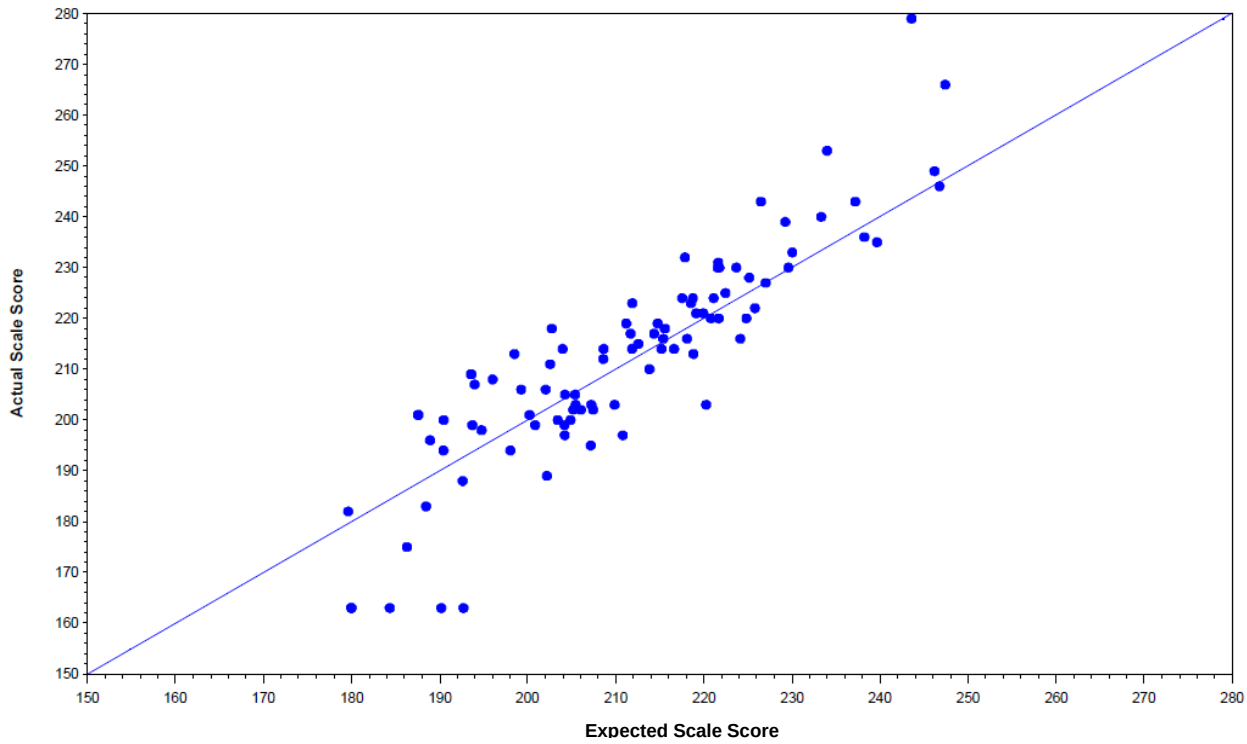
[3] Any student falling exactly on the line would also have a "Yes" in the "Met Expectation" column.

Using these reports

Teachers and school-level staff can examine their scatterplots to better understand the growth of their students. Scatterplots tend to fall into one of three general patterns.

1. Sometimes, there are many more dots *above* the diagonal line than *below* the diagonal line. In this case, the majority of students experienced more than one year's growth, as measured by the Florida VAM model.
2. Sometimes, there are many more dots *below* the diagonal line than *above* the diagonal line. In this case, the majority of students experienced less than one year's growth, as measured by the Florida VAM model.
3. Sometimes, there are about the same number of dots above and below the diagonal line. In this case, the average growth for this group was about one year, as measured by the Florida VAM model.

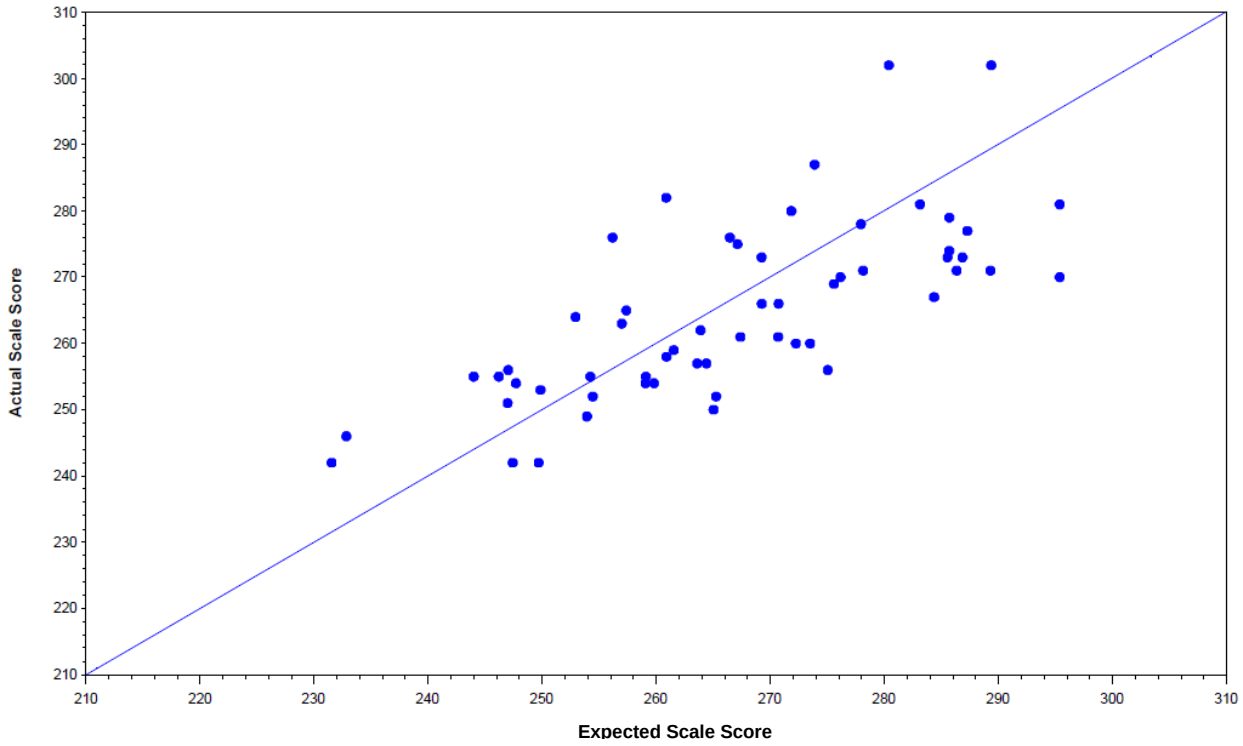
Occasionally, the pattern in the scatterplot may show a difference between the performance of low-scoring students and that of high-scoring students. Consider the scatterplot below.



In this plot the low scoring students (leftmost portion of the plot) were generally below the diagonal line. However, the high scoring students (rightmost portion of the plot) were generally above the diagonal line.

In the cases where low-scoring and high-scoring students show different patterns, the results should be analyzed to determine if instruction focused on the needs of one group (e.g, the higher scoring students), and not on the needs of the other group (e.g., the lower scoring students).

Similarly, the opposite pattern may exist (see below).



Here the lower scoring students seem to have made more growth than the higher scoring students. The teachers teaching this group of students should investigate whether instruction was focused on the lower performing students.

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