

# Value Added Model

VAM

# Presentation

- Introduction
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- Part 3 – School and Teacher Value Added
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# Transition

Pointillism

Pointillism is a technique of painting in which small, distinct dots of pure color are applied in patterns to form an image.



Sunday Afternoon on the Island of La Grande Jatte, Georges Seurat

# Introduction

# F.S. 1012.34(3)(a)1

- Performance of students.—At least 50 percent of a performance evaluation must be based upon data and indicators of student learning growth assessed annually by statewide assessments or, for subjects and grade levels not measured by statewide assessments, by school district assessments as provided in s. 1008.22(8). Each school district must use the formula adopted pursuant to paragraph (7)(a) for measuring student learning growth in all courses associated with statewide assessments and must select an equally appropriate formula for measuring student learning growth for all other grades and subjects, except as otherwise provided in subsection (7).
- Section 1012.34(3)(a)1., Florida Statutes



# F.S. 1012.34(7)(a)

- By June 1, 2011, the Commissioner of Education shall approve a formula to measure individual student learning growth on the Florida Comprehensive Assessment Test (FCAT) administered under s. 1008.22(3)(c)1. The formula must take into consideration each student's prior academic performance. The formula must not set different expectations for student learning growth based upon a student's gender, race, ethnicity, or socioeconomic status. In the development of the formula, the commissioner shall consider other factors such as a student's attendance record, disability status, or status as an English language learner. The commissioner shall select additional formulas as appropriate for the remainder of the statewide assessments included under s. 1008.22 and continue to select formulas as new assessments are implemented in the state system. After the commissioner approves the formula to measure individual student learning growth on the FCAT and as additional formulas are selected by the commissioner for new assessments implemented in the state system, the State Board of Education shall adopt these formulas by rule.
- Section 1012.34(7)(a), Florida Statutes

# Basically the statutes say:

- All school districts are required to base 50% of the teacher's annual evaluation on student test scores
- The VAM was adopted by administrative rule to fulfill the statutory requirement
- The same rule applies to everyone – there is no district discretion



# Committee to Recommend a Model

- School Board Members 1
- District Administrators 6
- School-based Administrators 2
- Teachers 10
- Consortium Representatives 1
- Postsecondary Representatives 3
- Union Representative 1
- State PTA Representative 1
- Parent 1
- Business Representative 1

# Technical Expertise

- American Institutes for Research (AIR) ([www.air.org](http://www.air.org))
  - Collected requests and requirements from the committee
  - Ran over 120 different VAMs and returned data
- The committee chose the model that best met the guidelines they set down and the requirements of the statutes
- The model was recommended to the Commissioner

# Summary of Introduction

- A student performance component is mandated in state law
- A model chosen was selected with educator input based on options presented by technical experts
- The value added model was accepted by the Commissioner and approved by State Board of Education
- It will be applied equally to all educators state-wide

# Part 1 - Value Added Model Explained

# Methods for Measuring Student Performance

- Status Method
- Simple Growth Model
- Value Added Growth Model

# Status Methods

- Simply compute averages or percent proficient using a single year of test score data
- Sometimes makes comparisons from year to year, but they generally are based on different groups of students
- Examples
  - 20% of the class had a level three
  - This year's third graders averaged 3 scale score points more than last year's
- This method is used extensively in high performing parts of school grades and AYP



# Simple Growth Models

- Measure changes in an individual student's performance from one test to another
- Examples
  - His DSS score went up to 1,610 from 1,595
  - Her achievement level in reading was 3 for both years
- This is used extensively in the gains sections of school grades

# Value Added Models (VAM)

- A value-added model is a statistical model that uses student-level growth scores to differentiate teacher performance in the area of student learning growth.

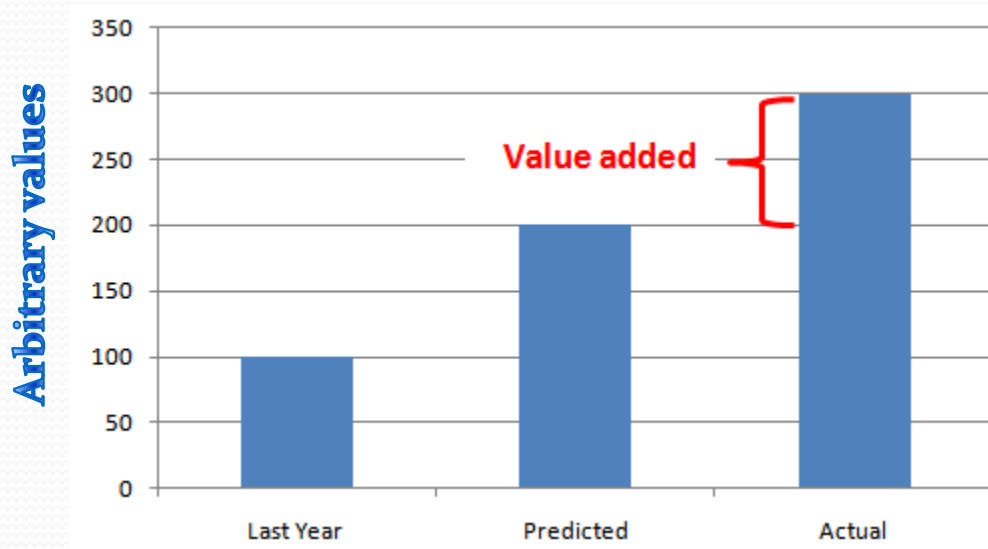
# VAM Simplified

- Step 1: Determine where the student is starting
- Step 2: Predict where he will probably be at the end of this year – based on how similar students usually perform
- Step 3: Measure the student at the end of the year
- Step 4: Compare predicted value to measured value

# What the VAM is used for

- If the student's FCAT score at the end of the year is greater than the predicted score, then the teacher **ADDED VALUE** to student performance.
- If the two scores are the same, then the teacher facilitated expected growth.
- If the predicted value is higher than the measured value, then the teacher did not add value and did not facilitate expected growth.

# Graphically



# The Bottom Line on VAM

- In order to be considered highly effective on student performance, the teacher must **add value**
- Achieving expected (predicted) growth is an effective teacher, not a highly effective one
- Not reaching the predicted value indicates improvement is needed



# Part 2 - Student Predictions

# The Big Question Then...

- If everything is based on the student meeting the predicted score, then

**How is the predicted value calculated?**

- Covariate adjustment model
  - Similar to what is used in Los Angeles Unified School District, New York City and Washington, D.C.
  - It uses prior test scores and other variables to adjust the predicted values

# What is used to calculate the predicted score?

- Biggest variable – prior year score
- Second biggest – the year before that
- Those two things account for most of the variation
- Here's an example
  - If Johnny had an AL 3 last year, he'll probably have a 3 this year.
  - If he had a 3 last year and a 3 the year before, he'll really probably get a 3 this year

# Other things that are used to calculate a predicted score...

- More time in instruction (+)
- Difference from modal age (retention) (-)
- Attendance (+)
- Number of students in class (-)
- Similarity of student scores in class (+)
- Language impaired (-)
- SLD intervention/support (+)
- ELL intervention/support (+)
- Mobility (-)
- Intellectual disability (-)

# Notably Missing...

- Race
- Gender
- Ethnicity
- Socioeconomic status
  
- These categories are specifically prohibited by law

# Elementary Data Example

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ssid	Spr10ReadDSS	_1011_ TestedGrade	_1011_ Predicted_Score	PredictedChange	Spr11ReadDSS	Actual Change	Value Added?
8	1595	5	1545.966	-49	1554	-41	Y
14	1595	5	1549.663	-45	1515	-80	N
10	1595	5	1552.511	-42	1588	-7	Y
9	1595	5	1572.041	-23	1744	149	Y
6	1595	5	1576.015	-19	1285	-310	N
1	1595	5	1621.158	26	1610	15	N
3	1595	5	1623.507	29	1705	110	Y
4	1595	5	1627.923	33	1627	32	N
12	1595	5	1629.178	34	1453	-142	N
5	1595	5	1639.562	45	1252	-343	N
11	1595	5	1641.181	46	1862	267	Y
2	1595	5	1658.776	64	1509	-86	N
13	1595	5	1682.636	88	2058	463	Y
7	1595	5	1683.597	89	1661	66	N



# Middle School Example

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ssid	Spr10ReadDSS	_1011_TestGrade	_1011_Predicted_Score	PredictedChange	Spr11ReadDSS	Actual Change	Value Added?
13	1765	7	1727.455	-38	1829	64	Y
14	1765	7	1825.778	61	1991	226	Y
10	1765	7	1835.906	71	1913	148	Y
1	1765	7	1853.622	89	1834	69	N
5	1765	7	1856.983	92	1897	132	Y
6	1765	7	1859.956	95	2039	274	Y
3	1765	7	1874.577	110	1729	-36	N
2	1765	7	1879.914	115	1399	-366	N
12	1765	7	1882.513	118	1923	158	Y
11	1765	7	1886.797	122	1777	12	N
4	1765	7	1895.17	130	1908	143	Y
8	1765	7	1900.554	136	2002	237	Y
7	1765	7	1905.541	141	1850	85	N
9	1765	7	1909.009	144	2018	253	Y

# High School Example

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ssid	Spr10ReadDSS	_1011_ TestedGrade	_1011_ Predicted_ Score	PredictedChange	Spr11ReadDSS	Actual Change	Value Added?
5	1895	9	1823.912	-71	1939	44	Y
12	1895	9	1860.242	-35	1890	-5	Y
3	1895	9	1869.852	-25	1678	-217	N
7	1895	9	1895.698	1	1440	-455	N
2	1895	9	1897.837	3	1814	-81	N
14	1895	9	1900.764	6	1928	33	Y
13	1895	9	1901.725	7	1999	104	Y
6	1895	9	1909.062	14	1798	-97	N
4	1895	9	1911.726	17	1999	104	Y
1	1895	9	1938.656	44	1847	-48	N
10	1895	9	1938.656	44	1852	-43	N
9	1895	9	1951.368	56	1977	82	Y
11	1895	9	1991.127	96	1912	17	N
8	1895	9	2041.681	147	2015	120	N

# What's All This Mean?

- Expectations of student growth is individualized
- Meeting the predicted score is the mark of an effective teacher
- A highly effective teacher will exceed the predicted score, i.e., add value

# Part 3 - School and Teacher Values

# Aggregation

- Aggregation means putting things together in groups.
- There are logical groups in K12 education
  - Statewide
  - By district
  - By school
  - By teacher
  - By grade
  - By benchmark

# Example for a Framework

- On Track
  - Aggregated by grade, by subject
  - Then by benchmark
    - District aggregate average
    - School aggregate average
    - Class aggregate average



# VAM Statewide Aggregate

- Similar to On Track, the statewide FCAT data are used as the “ruler”
- The statewide aggregate data are used to establish the factors that are used to predict student scores.
- It also calculates, on average, what portion of the students at any grade level and subject are meeting their predicted scores.

# School Component

- The school component asks the question – are the students in the school meeting their predicted values?
- Component is centered on O
- The difference may be caused by
  - Population of the school
  - School culture
  - Leadership
  - Teachers

# Teacher Effect

- The teacher component aggregates data at the classroom level.
- The effect is centered on 0
- It's all about the students in the teacher's class meeting or exceeding their predicted scores.

# Calculating Teacher Value Added

Teacher Effect  
Plus  
50% of the School Component  
Equals  
Teacher Value Added Score

# Key Points on Determining Teacher Value Added

- Student predicted scores are the fundamental part of the model.
- The school component is based on the aggregate performance of students in the school compared to the predicted performance of students
- The teacher effect is based on the aggregate performance of students in the teacher's class compared to the predicted performance of students
- The overall teacher added value includes the teacher effect and 50% of the school component.

# Part 4 - Classifying Teachers

# Classifying Teachers

- Current classifications
  - Highly Effective
  - Effective
  - Needs Improvement/Developing
  - Unsatisfactory

# Your Final Evaluation – Classroom Teachers at FCAT Tested Grade Levels

- If you teach at a grade level where the FCAT is administered, your final evaluation will be calculated as follows:
  - 40% based on student performance (teacher value added score as calculated by the state) for the students you teach
  - 40% based on Principal Evaluation
  - 20% Lesson Study Results



# Your Final Evaluation – Classroom Teachers at non- FCAT Tested Grade Levels

- If you do not teach at an FCAT tested grade level your final evaluation will be calculated as follows:
  - 40% based on school component for reading
  - 40% based on Principal Evaluation
  - 20% Lesson Study Results

# Your Final Evaluation – Non-classroom Based Teachers

- If you do not have direct classroom instruction responsibilities (ex: deans, BRTs, TSAs, reading coaches, etc.) your final evaluation will be calculated as follows:
  - 40% based on school component
  - 40% based on Supervisor Evaluation
  - 20% Lesson Study Results

# Teacher classification

- Teacher classification as highly effective, effective, needs improvement/developing, unsatisfactory is based on **all three**.
  - Value added to students
  - Principal evaluation
  - Lesson study

# Summarizing the Whole VAM Thing

- Individual student scores are predicted based on past scores and individual student characteristics
- Value is added where the predicted score is exceeded by the actual score
- Value added by a teacher is a combination of the value added to all students in the teacher's class and a portion of the school component
- The teacher value added points + the principal appraisal points + lesson study points = **teacher classification.**

# Resources

- This presentation and additional more detailed information on the application of the value added model can be found on the website listed below.
- As additional information is made available it will be posted here
- <http://www.sbac.edu/~research/vam.html>